

**INTEGRATED CIRCUIT**

**DATABOOK**

## Integrated circuit audio power amplifiers



- 7100 integrated circuit- power audio amplifiers
- Connection diagram
- Short description
- Electrical characteristics
- Case drawings
- Direct replacement suggestion
- Manufacturer guide

**2016 EDITION**



ELECTRONICS

COMPONENTS

# **Integrated circuit audio power amplifiers**

## **Databook**

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## INTRODUCTION

The basic components of any sound-reproducing system, without dependence from its class is the power amplifier of audio frequencies called also the power audio amplifier.

With reference to consumer and professional electronics equipments, the greatest popularity are the integrated circuits- power audio amplifiers, due to their advantages - schematic simplicity, small dimensions, large range of output powers, functionality.

For correct usage of integrated circuits of the power audio amplifiers, irrespective of a field of application, it is necessary to know following:

- Function of integrated circuit;
- The main electrical characteristics;
- Schematic of connection and (or) internal structure;
- Package type;
- Equivalents (replacements).

In the literature, the great many of the characteristics which one describe the electrical and operational parameters of power audio amplifiers depending on evaluation yardsticks and can give completely different estimations to quality of operation of a amplifiers. Main of parameters used for the description of power audio amplifiers is following: a **gain**; a **bandwidth**; a **dynamic** (phase, phase-frequency, **peak** (amplitude)) **characteristic**; **linear** and **nonlinear distortions**; **efficiency**; **input characteristics** (impedance, current, voltage and power, impedance of a source of an input sound signal); **output characteristics** (impedance, current, voltage, output power); a **dynamic range**; **signal-to-noise ratio** and maximum ratings of electrical parameters.

The **gain  $G_v$**  (on a current, a voltage or power, depending on purpose of the amplifier) represents the logarithm of the ratio of signal output from an amplifier to signal input to the amplifier. The gain  **$G_v$**  can be expressed as a direct ratio ( $V/mV$  or  $V/\mu V$ ), and in the logarithmic relation (in decibels -dB). The gain depends on value of external components, from resistance of loading  $R_l$ , input resistance  $R_{in}$ , a supply voltage  $V_{cc}$ , frequency and temperature.

The **frequency bandwidth  $B_w$**  - area of frequencies (a bandwidth from bottom limit frequency  $F_L$  up to top frequency  $F_H$ ) within the gain changes no more than on  $\pm 3$  dB, concerning gain measured on frequency 1 KHz. In the certain cases when the manufacturer wants to emphasize the expanded range of working frequencies of the amplifier at the improved non-uniformity frequency characteristics, the size of non-uniformity (1 dB, 0,5 dB etc.) is indicated also.

Instead of a frequency bandwidth, sometimes defined a frequency bandwidth at gain equal to unit or a power frequency bandwidth. The frequency bandwidth at gain equal to unit is an interval of frequencies on which borders the gain values equal to unit. The power frequency bandwidth is an interval of frequencies within the limits of which at the certain factor of distortions  $k$ , output power changes no more, than on  $\pm 3$  dB in relation to output power on frequency in 1 KHz.

The **dynamic range** determines a ratio between maximum output and input tension of the amplifier. The ratio usually expresses in decibels and represents (in a theoretical case) a linear function.

The **frequency characteristics** determine relation of a gain of amplifier to frequency; **phase characteristics** - the phase shift of an output signal on relation to input signal (in frequency function of an input signal).

The **frequency - phase characteristic** summarizes frequency and phase characteristics of the amplifier in the field of a range of reproduced frequencies.

All amplifiers alter input signals, generally in two ways: they make them stronger (amplify) them, and they add characteristics which did not exist in the original signal. These undesirable characteristics are lumped together and called distortion. Noise can be considered a type of distortion.

One common type of distortion is **harmonic distortion**. Harmonics of a signal are signals which are related to the original (or fundamental) by an integer (non decimal) number. A pure tone (sine wave) signal has no harmonics; it consists of only one single frequency. If pure tone signal was applied to the input of an amplifier, we would (upon measurement with special test equipment) find that the output signal of the amplifier was no longer pure. Careful measurements would likely show that several "new" frequencies have appeared. These new frequencies are almost certainly to be integer multiples of the original tone; they are the harmonics of the original signal. In a good amplifier, the harmonics will be much weaker than the original tone. By much weaker, we mean on the order of a thousand times for decent amplifiers.

**Intermodulation distortion** is the second "major" type of distortion that is often specified for amplifiers. Intermodulation distortion is much more objectionable to the human ear, because it generates non-harmonically related "extra" signals which were not present in the original. Basically, two pure tones are simultaneously applied to the input of the amplifier. If the amplifier were perfect, the two tones (and only the two tones) would be present at the amplifier output. In the real world, the amplifier would have some harmonic distortion (as described above), but careful observation of the output signal (using laboratory equipment) would reveal that there are a number of new tones present which cannot be accounted for as a result of harmonic distortion. These "new" tones are called "beat products" or "sum and difference" frequencies, and are a result of the interaction of the two pure tones within the amplifier. No amplifier is perfect, all have some non linear characteristics. Whenever two signals are applied to a nonlinear system, new signals (in addition to the original two) are generated. For a good amplifier, the new signals are very small in relation to the two original tones.

All amplifiers are generally rated for **Total Harmonic Distortion** (or THD), usually at full power output over a given frequency band with a particular load. Good values are anything less than 0.5 %THD. When an amplifier is measured for THD, a pure tone is applied to the input and the output is measured with special test equipment. The energy of the pure tone is measured, and the energy of the harmonics is measured. Those two values are compared, and a THD rating is calculated. A THD rating of 1% means that the total energy of all the harmonics combined is one one-hundredth of the energy in the fundamental. Harmonic distortion (although certainly undesirable) is one of the more tolerable types of distortion as long as it is kept reasonably low. Distortion levels of 10% may be very tolerable.

At increase of input signal  $U_{in}$  the output voltage, a current and power are increased, but also the factor of nonlinear distortions simultaneously grows. Therefore, for reduction of nonlinear distortions target capacity of the amplifier are artificial limit in comparison with the greatest possible output power.

As **sensitivity** of the amplifier understand value of the sine wave input voltage, necessary for obtain of the maximal output power. Frequently, some manufacturers indicate value of a nominal input voltage. A nominal input voltage is a sine wave voltage applied to an input of the amplifier for obtain of nominal output power. It is meant, that the volume regulator of the amplifier should be exposed on the maximal value.

Besides linear and nonlinear distortions, any real amplifier generates the additional signals. Because of it, on an output of the amplifier there is a signal distinct from zero, even in absence of an entrance signal. This signal called as output noise and can be considered as the sum of infinite number of sine wave voltage (not only harmonious) including in a sound range of frequencies. Sources of internal noise of the amplifier are thermal noise of resistors, and also shot, flickering and thermal noise of active components (transistors and diodes). Quantitatively a value of noise on an output describe through effective value of noise  $U_{no}$ . As the voltage of noise grows simultaneously with a range of reproduced frequencies, it is necessary to specify frequencies within the limits of which measurements of noise on an output of the amplifier were made. If the range of frequencies is not underlined, own noise are measured within the limits of a working range of frequencies of the amplifier.

The range of change of an output voltage is determined by a difference between the maximal and minimal instant value of a voltage on an output of the amplifier. This parameter called sometimes a **peak output voltage** and designates  $U_{p-p}$  (peak-to-peak).

There are many terms used to describe the **amplifier power ratings**- the maximal sinusoidal power, maximal continuous power, RMS power, music power (IHFM), peak power, instantaneous power. Depending on indicated term for output power, the same amplifier can have value which one differ in some times. Not resorting to the theories we shall mark that:

**Maximal sinusoidal power**- is the power delivered on optimal load (for the given amplifier), at a sine-wave input signal, when THD of the output signal reaches value of 10%.

**Maximal continuous power**- this same as maximal sinusoidal power and occurs under such name in the datasheets of USA and Japan manufacturers.

**RMS power**- (Root Mean Square power). In the simplified form is described as the power, giving on optimal load (for the given amplifier), at a sine-wave input signal, when output signal completely limits by an output stage of the amplifier and gains the square shape.

**Musical power**- IHFM (Institute of High Fidelity Manufactures) is the power delivered on optimal load (for the given amplifier), at a complex (musical) input signal, when THD of the output signal reaches value of 10%.

The peak power and instantaneous power describe extreme (critical) operation conditions of the amplifier and are specified basically in the advertising purposes.

The **impedance of load  $R_L$**  has optimal value for each amplifier and determines an maximum output current (power) giving by the amplifier. If the impedance of load is less than a optimal value, an output current (accordingly output power) of the amplifier can exceed maximum rating and he can be shattered. If the impedance of load is more than optimal value, the output current (accordingly output power) of the amplifier will be less (under identical conditions of operation) than is specified for the given amplifier.

On a connection type of load it is possible to distinguish single ended (**SE**) and Bridged-Tied Loads (**BTL**) amplifiers. On a single ended amplifiers the load are connected between an amplifier output and ground (**GND**). Bridged amplifiers work basically as follows: a single input signal is applied to the amplifier. Internal to the amp, the input signal is split into two signals. One is identical to the original, and the second is inverted (sometimes called phase-flipped). The original signal is sent to one channel of the amp, and the inverted signal is applied to the second channel. Amplification of these two signals occurs just like for any other signal. The output results in two channels which are identical except one channel is the inverse of the other. The load is connected between the two amplifier output terminals. In words, one channel "pulls" one way while the second channel "pulls" in the opposite direction. This allows to deliver (at same load and at same power supply) in 3 times lot of power than at single ended amplifiers.

Due to improvements in the speed and efficiency of modern semiconductor devices, the **class-D** amplifiers recently have received broad applying. Class-D amplifiers use a technique called pulse width modulation (sometimes combined with pulse frequency modulation). The input signal is converted to a sequence of pulses whose width at any time is proportional to the amplitude of the signal at that time. The frequency of the pulses is typically thirty or more times the highest frequency of interest in the input signal. The main advantages of class-D amplifiers are efficiency and simplicity. Efficiencies are in the 80% to 90% range. Because the output pulses have fixed amplitude, the switching elements (usually MOSFETs) are switched either on or off, rather than operated in linear mode. This means that very little power is dissipated by the transistors except during the very short interval between the on and off states. The wasted power is low because the instantaneous power dissipated in the transistor is the product of voltage and current, and one or the other is almost always close to zero.

**2016 edition** databook proposes the short but full presentation of the **7100** integrated circuits - power audio amplifiers that exist on the market; presentation consisting with schematic diagrams (schematic of connections and (or) internal structure), short specification and basically electrical characteristics.

The schematic diagrams of pin-to-pin compatible integrated circuits are arranged in the same place. They are not specifically equivalent (replacements) with each other (can have different electrical characteristics and (or) type of case); for detection of equivalent it is necessary to consult an electrical characteristics.

Full technical aspect about power audio amplifiers- integrated circuits presented in the book is incomplete, therefore for in-depth familiarity with the characteristics of integrated circuits you can download datasheets of ICs from:

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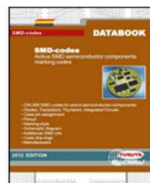
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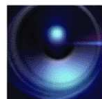
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APA2603J	104	AV2822D	37	BA511A	122	BH3547F	6
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APA2822J	37	AW8010CS	13	BA515	123	BH7821BFP-Y	138
APA2822K	37	AW8110CS	13	BA5152F	133	BH7823AFVM	144
APA3002QB	107	AW8145CS	25	BA516	123	BH7824FVM	17
APA3002QCA	107	AW8730TQ	116	BA518	123	BH7826FVM	145
APA3010KA	105	AW8731TQ	116	BA5204	134	BH7881EFV	146
APA3010XA	105	AW8732TQ	116	BA5204F	134	BH7884EFV	147
APA3011KA	17	AW8733TQ	116	BA5206BF	135	BL34119D	144
APA3011XA	17	AX2012Q	27	BA5208AF	135	BL34119DTB	144
APA3012KA	105	AX2012S	116	BA521	122	BL34119P	144
APA3012XA	105	AX2012SW	116	BA5210FS	136	BL34120D	144
APA3541J	6	AX2012T	116	BA521A	122	BL34120M	144
APA3541K	6	AX2012W	117	BA521S	122	BL4863MTE	30
APA3544J	6	AX3005A	118	BA524	124	BL6100DS	151
APA3544K	6	AX3005H	119	BA526	123	BL6100SQ	150
APA4800J	103	AX4853	117	BA527	123	BL6105LQ	12
APA4800K	103	AX4894IBP	118	BA5302A	135	BL6105MM	11
APA4801J	6	AX4894LD	108	BA5304	135	BL6110TLX	13
APA4801K	6	AX4894MM	108	BA532	122	BL6112LQ	27
APA4835R	34	AX8302LD	12	BA534	124	BL6112TLX	117
APA4838R	34	AX8302M	11	BA535	124	BL6203GITL	152
APA4863K	21	AX8302MM	11	BA536	124	BL6203ITL	152
APA4863O	30	AX8303LD	119	BA5386	136	BL6211MM	20
APA4863R	30	AX8303M	119	BA5402	124	BL6211TLX	152
APA4880J	106	AX8303MM	119	BA54021	124	BL6212MM	17



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BL6289MM	17	CA2002	174	CE0032ALD	183	CS8121S	11
BL6290M	17	CA2002M	174	CE0032ALS	183	CS8203S	40
BL6290MM	17	CA2004	174	CE0032ALSM	183	CS8205D	190
BL6299MM	17	CA2004M	174	CE4890S	17	CS8205S	191
BL6299TLX	15	CA3020	173	CE4890SD	178	CS8212F	27
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BU7150NUV	155	CCT6802M	11	CKE8002	17	CSC8403D	40
BU7839GVW	153	CCT6802S	11	CKE8102M	40	CSC8403S	40
BU7858KN	153	CCT6803S	120	CKE8102N	40	CTC810	8
BU7861KN	155	CCT6803S	47	CKE9002	17	CV203CZ	174
BU7893GU	156	CCT6804	119	CM8608IP	103	CX20089A	29
C0AAAA000035	154	CCT6805	119	CM8608IS	103	CX20172	192
C0AAAA000036	154	CCT6806S	120	CM8662IP	178	CXA1005P	7
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C1AA00000561	157	CD1013CS	176	CM8685EP	184	CXA1262N	192
C1AA00000562	158	CD1013S	176	CM8685ES	184	CXA1289M	193
C1AA00000645	158	CD1517CP	24	CO4808	103	CXA1347N	193
C1AA00000660	159	CD1622CB	176	CO8301	29	CXA1522N	176
C1AA00000744	159	CD17821CS	5	CP2203GITL	152	CXA1522P	176
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C1AB00002568	163	CD2611GS	176	CP2215LQ	33	CXA1635S	194
C1AB00002730	162	CD2614CS	179	CP2216CS	13	CXA8008P	128
C1AB00002875	162	CD2822A	37	CP2216DN	12	CXD9646Z	194
C1AB00002916	141	CD2822CP	37	CP2261LQ	184	CXD9774M	194
C1AB00002941	164	CD4160CP	177	CP2290GITL	15	CXD9775M	194
C1AB00003012	162	CD4225CZ	179	CP2290GMM	17	CXD9845M	195
C1AB00003069	165	CD4275CS	180	CP2293ITL	152	CXD9883M	196
C1AB00003105	141	CD4285CS	180	CP2293LD	20	CXD9897TN	196
C1AB00003230	173	CD4287CS	180	CP2293MM	20	CXD9936TN	197
C1AB00003457	174	CD5265CS	58	CP2295ITLX	13	CXD9981TN	197
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C1BA00000218	165	CD7265CZ	159	CP2297LD	20	D4800S	103
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C1BA00000278	166	CD7313GS	66	CP2297SP	20	D6283	31
C1BA00000309	168	CD7331CS	178	CP4811	184	D7000	29
C1BA00000311	167	CD7496CZ	181	CS3511-CNZ	185	DBL1032-D	9
C1BA00000314	168	CD7497CZ	181	CS35L00-CNZ	185	DBL1034A	182
C1BA00000324	167	CD7522CS	5	CS35L01-CWZ	185	DDX-1050	198
C1BA00000326	169	CD7523CS	80	CS35L03-CWZ	185	DDX-1060	198
C1BA00000332	167	CD8200CZ	157	CS3792EO	186	DDX-1080	198
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C1BA00000344	170	CD8213CS	181	CS3793EO	186	DDX-2052	199
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C1EA00000029	169	CE0030AD	182	CS6219F	190	DG4102	200
C1EA00000036	160	CE0030AS	182	CS8001	17	DG4110	200
C1EA00000041	160	CE0030ASM	182	CS8002	17	DG4112	200
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DM98	9	ECG1113	213	ECG1332	605	ECG1472	200
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DM98B	9	ECG1115	8	ECG1334	603	ECG1477	228
DT6002FG	119	ECG1115A	8	ECG1335	603	ECG1481	228
DT6002IG	13	ECG1116	214	ECG1336	607	ECG1516	207
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EA33X8351	604	ECG1126	215	ECG1339	611	ECG1602	229
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ECG1081A	211	ECG1321	602	ECG1407	227	ECG7114	237
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ECG1093	211	ECG1323	604	ECG1424	205	ECG7119	23
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ECG1097	212	ECG1325	606	ECG1450	56	ECG740A	238
ECG1098	212	ECG1326	608	ECG1452	58	ECG741	239
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ECG1107	208	ECG1328	608	ECG1465	66	ECG769	239
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ECG1111	213	ECG1330	640	ECG1468	227	ECG772A	240

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ECG784	173	EUA2011AH	13	ft2811QA	257	GML024	259
ECG796	240	EUA2011AJ	12	ft4266	257	GML025	259
ECG804	240	EUA2011H	13	ft4288	248	GML026	259
ECG810	241	EUA2011J	12	ft4888	248	GML040	259
ECG812	241	EUA2012H	117	ft6203D	20	GS18010AQ	12
ECG814A	242	EUA2012J	27	ft6203M	20	GS18010AW	13
ECG823	121	EUA2012Q	191	ft6203W	152	GS18011BQ	260
ECG825	242	EUA2014J	249	ft690AYX	15	GS18011BT	260
ECG828	242	EUA2100T	151	ft690M	188	GS18890AW	261
ECG862	238	EUA2101AT	151	ft690N	17	HA1102	11
ECG990	240	EUA2101J	151	ft690V	188	HA12013	66
ECM-300H	242	EUA2105Q	249	ft690W	15	HA12052CMS	264
ECM-600H	242	EUA2107Q	250	G1442F11U	105	HA12052GFP	264
EMA100150MA08G	17	EUA2123Q	26	G1442P11U	105	HA1209	118
EMA100150SA08G	17	EUA2510J	250	G1442P81U	105	HA13001	265
EMA1001IBL	243	EUA4890AH	15	G1442RD1D	188	HA13008	70
EMA1001IBP	15	EUA4890H	15	G1442RD1U	188	HA1302	173
EMA1001IBPX	15	EUA4890J	188	G1445B31U	258	HA1306W	208
EMA1002-50MA08G	97	EUA4890M	17	G1445F51U	105	HA1308	209
EMA1003-50BG10G	108	EUA4990H	15	G1445RD1D	188	HA1309	209
EMA1003-50MA10G	108	EUA4992AJ	248	G1453LR41U	258	HA1310	201
EMA1003-50ME10G	108	EUA4992J	248	G1453R41U	258	HA13102	70
EMA1201-50EB16G	243	EUA4995J	20	G1454LR41U	258	HA13104	265
EMA1901-50WL09G	15	EUA4996J	250	G1454R41U	258	HA13108	70
EMA1903-50WL09G	118	EUA5132Q	102	GEIC-138	203	HA1311	201
EMA2001-50BA08G	188	EUA5202Q	97	GEIC-139	203	HA13115	265
EMA2001-50FF08N	188	EUA5212Q	35	GEIC-162	208	HA13116	265
EMA2001-50MA08G	105	EUA5312Q	35	GEIC-163	209	HA13117	265
EMA2004-50FF08N	20	EUA5544D	251	GEIC-164	201	HA13118	265
EMA2004-50MA08G	20	EUA6011AQ	22	GEIC-165	209	HA13119	266
EMA2011-50FF08N	12	EUA6019Q	22	GEIC-166	201	HA1312	209
EMA2011-50MA08G	243	EUA6020J	98	GEIC-167	201	HA13122	266
EMA2011-50WL09G	13	EUA6021AI	251	GEIC-168	201	HA13127	267
EMA2016-50SA16NRR	244	EUA6021I	251	GEIC-169	210	HA13128	267
EMA2202-50QE28G	34	EUA6027AQ	33	GEIC-170	209	HA1313	201
EMA2203-50QE20G	244	EUA6027Q	33	GEIC-179	200	HA13130	267
EMA2204-50HC20N	244	EUA6029I	251	GEIC-182	201	HA13135	267
EMA2204-50QE20G	244	EUA6201J	20	GEIC-196	216	HA1314	201
EMA2217-50QE16G	33	EUA6201M	20	GEIC-197	216	HA13150	266
EMA2308-50DA08GRT	103	EUA6204AD	20	GEIC-201	211	HA13150A	266
EMA2308-50QA08GRT	103	EUA6204J	20	GEIC-209	238	HA13151	266
EMA2308-50SA08GRR	103	EUA6204M	20	GEIC-216	239	HA13151A	266
EMA2901-50WL09GR	15	EUA6205J	20	GEIC-241	241	HA13152	266
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EMT7026	13	EUA6210M	252	GEIC-27	240	HA13153A	266
EMT7026S	13	EUA6214AJ	20	GEIC-272	208	HA13154A	266
EMT7028	245	EUA6214AM	20	GEIC-273	201	HA13155	266
EMT8026	27	EUA6412AQ	35	GEIC-274	208	HA13156	267
EMT9010BP	15	EUA6412Q	35	GEIC-276	208	HA13157	266
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EMT9012	245	FAB2200UCX	252	GEIC-279	214	HA13158	266
EMT9023	246	FAB2210UCX	253	GEIC-280	214	HA13158A	266
ESM1231C	247	FAB3103UCX	253	GEIC-286	216	HA13159	266
ESM1432C	246	FAN3800MLP24X	254	GEIC-287	204	HA1316	201
ESM1532C	246	FAN7000D	29	GEIC-296	57	HA1317V	261
ESM1632C	246	FAN7000DTF	29	GEIC-31	238	HA1318P	208
ESM1732C	246	FAN7005M	106	GEIC-311	212	HA1319	210
ESM231N	246	FAN7005MU	254	GEIC-313	215	HA1322	209
ESM432C	246	FAN7021M	17	GEIC-315	122	HA1324	261
ESM432N	247	FAN7023M	17	GEIC-316	122	HA1325	218
ESM532C	246	FAN7023MU	17	GEIC-330	629	HA1329	261
ESM532N	247	FAN7023MX	17	GEIC-331	629	HA1338	262
ESM632C	246	FAN7024MPX	243	GEIC-334	174	HA1339A	216
ESM632N	247	FAN7024MU	17	GEIC-37	202	HA1339R	216
ESM732C	246	FAN7031MTF	255	GEIC-49	56	HA1342A	216
ESM732N	247	FAN7033MP	255	GEIC-62	57	HA1342R	216
ET2155	191	FAN7040M	255	GEIC-77	202	HA1345V	262
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ETK4874	17	ft2010V	12	GL1010	9	HA1366W	219
ETK4888	248	ft2010W	13	GL386	121	HA1366WR	219
ETK4902	17	ft2012Q	27	GMA7496LD20	256	HA1367	262
EUA2005J	12	ft2012W	117	GMA7496LS20	256	HA1368	219
EUA2008Q	139	ft2145W	25	GML005	258	HA1368R	219
EUA2010BJ	12	ft2146M	256	GML006	259	HA1370	231
EUA2010H	13	ft2146W	25	GML007	259	HA1371	263

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HA1374	226	HWD2190M	17	IRS20955S	278	KA2201	205
HA1374A	226	HWD2190MM	17	IRS20957S	278	KA2201B	205
HA1377	70	HWD2198MM	108	IS31AP2005-DLS2	12	KA2201N	205
HA1377A	70	HWD2305LD	12	IS31AP2005-SLS2	11	KA2202	293
HA1384	227	HWD2310IBL	13	IS31AP2010B-UTLS2	13	KA2203	214
HA1388	227	HWD2312IBL	117	IS31AP2010F-UTLS2	13	KA2204	293
HA1389	226	HWD2312IVG	27	IS31AP2031-QFLS2	280	KA2205	294
HA1389R	226	HWD2320IBL	13	IS31AP2036-XXLS2	281	KA2206	182
HA1392	206	HWD3008IVG	41	IS31AP2110-ZLS2	43	KA22061	182
HA1393	229	HWD4863IUP	30	IS31AP2117-ZLS2	281	KA22062	295
HA1394	263	HXJ2009	17	IS31AP2118-ZLS2	281	KA22065	295
HA1395	263	HXJ2035	21	IS31AP2145A-UTLS2	25	KA22066	295
HA1396	264	HXJ2036	21	IS31AP2145-CLS2	25	KA22067	295
HA1397	234	HXJ2038	21	IS31AP2145E-UTLS2	25	KA22069BN	294
HA1398	70	HXJ4863D	21	IS31AP4066D-QFLS2	257	KA2206B	182
HA2214	264	HXJ4863M	21	IS31AP4088A-QFLS2	282	KA2206BN	294
HIP4080AIB	268	HXJ4863MDE	21	IS31AP4088D-QFLS2	248	KA2207	293
HIP4080AIP	268	HXJ4863MNH	30	IS31AP4832-QFLS2	282	KA2209	37
HLX1402R	604	HXJ4863N	21	IS31AP4833-QFLS2	283	KA2209B	37
HLX1403R	268	HXJ4871	17	IS31AP4833-TQLS2	283	KA2210	230
HT2144MT	268	HXJ8002	105	IS31AP4912-UTLS2	284	KA22101	296
HT2144SQ	29	HXJ8003	17	IS31AP4913-QFLS2	284	KA22103	234
HT2145MT	20	HXJ8302D	11	IS31AP4915A-QFLS2	285	KA2210G	230
HT4817SQ	269	HXJ8302F	12	IS31AP4915-QFLS2	285	KA2211	231
HT4818SQ	269	HXJ8403	40	IS31AP4990D-UTLS2	15	KA2212	66
HT4836MT	269	HXJ8603MDE	120	IS31AP4991A-GRLS2	17	KA2213	294
HT4863M	21	HXJ8603MNH	47	IS31AP4991A-SLS2	17	KA22130	296
HT4863MT	30	HXJ9001	105	IS31AP4991-GRLS2	285	KA22131D	125
HT4863MTE	30	HXJ9002	17	IS31AP4991-SLS2	17	KA22132	7
HT4863N	21	HXJ9004	21	ISD8101P	285	KA22134	297
HT4871ME	17	HXJ9005	273	ISD8101R	285	KA22135	297
HT4888SQ	248	HXJ9006	273	ISD8101S	285	KA22136	177
HT6808MTE	270	HXJ9007D	274	ISD8102R	285	KA22136D	177
HT6809MTE	270	HXJ9007S	274	ISD8102S	285	KA2214	198
HT6818M	271	HXJ9008	42	ISD8104R	20	KA386	121
HT6818MTE	270	HXJ9013	42	ISD8104S	20	KA386D	121
HT6819MTE	270	HXJ9110	119	ISL54000IR	278	KA386S	293
HT6845CR	25	HXJ9310	118	ISL54001IR	286	KA-40W	238
HT6871CR	25	HXJ9403	274	ISL54002IR	286	KA4185	207
HT6871MR	20	HXJ9603MDE	120	ISL54003IR	286	KA4505-AM	230
HT6873MR	256	HXJ9603MNH	47	ISL54004IR	287	KA7000	29
HT82V732D	271	HXT2603	104	ISL54005IR	287	KA8602D	152
HT82V733N	271	HXT4863LQ	272	ISL54006IR	288	KA8602N	152
HT82V735	106	HXT4863M	21	ISL99201IIAZ	288	KB4433	297
HT82V736	6	HXT4863MT	30	ISL99201IIBZ	288	KB4863LQ	272
HT82V739D	271	HXT8403	40	ISL99201IICZ	288	KB4863M	21
HT82V739N	271	HZ4890IBP	15	ISL99201IIDZ	288	KB4863MT	30
HWD2108LD	272	HZ4890MM	17	ISL99201IRTAZ	288	KB4863MTE	30
HWD2108M	103	IL277	240	ISL99201IRTBZ	288	KB4863N	21
HWD2108MM	103	IL34119D	144	ISL99201IRTCZ	288	KB8891V	17
HWD2109M	96	IL34119N	144	ISL99201IRTDZ	288	KBA2338B-MSOP	11
HWD2109MM	96	IL386D	121	ISL99202IIAZ	289	KBA2338-DFN	12
HWD2111LD	184	IL386N	121	ISL99202IIBZ	289	KBA2338-WCSP	13
HWD2111MM	184	IL5009D	274	ISL99202IRTAZ	289	KD-28	298
HWD2119LD	272	IL5009N	274	ISL99202IRTBZ	289	KGE46259	200
HWD2119M	105	ILA1519B	23	ISL99203IIZ	290	KIA6200K	177
HWD2119MM	105	ILA1519B1	23	IT2010B	13	KIA6205AH	234
HWD2138	34	ILA1519B1Q	23	IT2010D	12	KIA6206F	298
HWD2161M	105	ILA2003	174	IT2012B	117	KIA6208K	228
HWD2163IAE	21	ILA2616	275	IT2012D	27	KIA6210AH	234
HWD2163JIE	21	ILA7050	61	IT4990	15	KIA6213S	66
HWD2163IUP	30	ILA7050N	61	IT4992	248	KIA6216H	234
HWD2163IVG	272	ILA7052	235	IX-0040TA	174	KIA6217K	200
HWD2164LD	243	ILA7052N	235	IX-0054CE	203	KIA6220H	298
HWD2164M	17	ILA7053N	275	IX-0225CE	223	KIA6221AH	234
HWD2164MM	17	ILA7056B	275	IX-0250CE	289	KIA6227	226
HWD2164N	178	ILA7056SH	235	IX-0365CE	290	KIA6240K	299
HWD2171LD	188	IR2112	276	IX-0934CE	229	KIA6248K	299
HWD2171M	17	IR2112S	276	IX-1020	8	KIA6269P	37
HWD2171MM	17	IR3R22	277	IX1112	656	KIA6278F	300
HWD2171N	178	IRS2011	277	IX-1112	656	KIA6278P	300
HWD2180M	106	IRS2011S	277	IX-1135CE	229	KIA6278S	299
HWD2180N	106	IRS20124S	278	JCV8007	628	KIA6280H	233
HWD2182M	273	IRS2052MP	280	JCV8008	630	KIA6281H	233
HWD2182MM	273	IRS2092PB	277	JRC2073D	37	KIA6282K	177
HWD2188IVG	248	IRS2092SPB	277	JRC2073M	37	KIA6283K	31
HWD2190IBL	15	IRS2093M	279	JRC386D	121	KIA6299H	231
HWD2190ITL	15	IRS20954S	278	JZ4863	305	KIA6416F	144

KIA6416P	144	L4863L-S18	305	LA4267	310	LA4571MB	318
KIA6419F	144	L4863-N20	30	LA4268	310	LA4575	319
KIA6419P	144	L4863-S16	21	LA4270	229	LA4575M	319
KIA7203PC	204	L4863-S18	305	LA4275	180	LA4580M	319
KIA7205CP	200	LA4030P	202	LA4276	310	LA4581MB	319
KIA7207AP	228	LA4031P	202	LA4277	310	LA4582CM	320
KIA7208AP	228	LA4032P	202	LA4278	310	LA4582M	320
KIA7217AP	200	LA4050P	216	LA4280	311	LA4582NM	320
KIA7222AP	219	LA4051P	216	LA4282	167	LA4583M	321
KIA7227P	226	LA4100	200	LA4285	180	LA4585M	320
KIA7230P	207	LA4101	200	LA4287	180	LA4587M	321
KIA7270P	231	LA4102	200	LA4288	311	LA4589W	322
KIA7271P	231	LA4108	305	LA4289	311	LA4590W	322
KIA7280P	233	LA4110	200	LA4289N	311	LA4592W	323
KIA7281P	233	LA4112	200	LA4302T	313	LA4597	320
KIA7299P	231	LA4120	224	LA4400	202	LA4598	323
KIA7313AP	66	LA4125	224	LA4410	309	LA4600	310
KIA8145FN	300	LA4125T	224	LA4420	202	LA4601	310
KIA8157AFN	300	LA4126	224	LA4422	225	LA4601N	310
KIA8159FN	300	LA4126T	224	LA4425A	179	LA4603	323
KIA8200AH	157	LA4127	306	LA4425AN	179	LA4611	310
KIA8207K	177	LA4135	306	LA4425PV	312	LA4613	323
KIA8216H	157	LA4137	306	LA4430	202	LA4620	324
KIA8225H	301	LA4138	306	LA4440	223	LA4625	324
KIA8231L	301	LA4140	66	LA44403	169	LA4627	154
KIA8246H	157	LA4142	66	LA4445	230	LA4627N	154
KIA8251AH	166	LA4145	306	LA4446	311	LA4628	324
KIA8252H	164	LA4146	306	LA4450	312	LA4629	169
KIA8256H	165	LA4147	306	LA4451	312	LA4630	325
KIA8259H	164	LA4160	177	LA4460	225	LA4630N	325
KIA8260AH	302	LA4162	306	LA4460N	225	LA4631	324
KIA8262H	164	LA4165M	307	LA4461	225	LA4631VC	324
KK2822MD	37	LA4166M	307	LA4461N	225	LA4632	156
KK2822MN	37	LA4167M	308	LA4465	312	LA4635A	324
KK34119D	144	LA4168M	308	LA4466	312	LA4635B	324
KK34119N	144	LA4170	228	LA4467	312	LA4636	156
KK386D	121	LA4175	228	LA4468	312	LA4645	325
KK386N	121	LA4177	228	LA4470	313	LA4645MS	325
KK5009D	274	LA4178	228	LA4471	313	LA4645N	325
KK5009N	274	LA4180	182	LA4475	313	LA4663	170
KKA1519B	23	LA4182	182	LA4476	313	LA4663N	170
KKA1519B1	23	LA4183	182	LA4480	313	LA4670VC	156
KKA1519B1Q	23	LA4185	207	LA4485	314	LA4700	326
KKA2003	174	LA4185T	207	LA4490	314	LA4700N	326
KKA2616	275	LA4190	182	LA4491	314	LA4705	326
KKA7050	61	LA4190L	182	LA4491N	314	LA4705N	326
KKA7052	235	LA4192	182	LA4495	314	LA4705NA	326
KKA7053N	275	LA4195	309	LA4496	314	LA4705NF	326
KKA7056B	275	LA4195T	309	LA4497	314	LA4708	326
KKA7056SH	235	LA4200	203	LA4498	314	LA4708F	326
KKA7496L	256	LA4201	203	LA4500	230	LA4708N	326
KKZ09	160	LA42031	332	LA4505	230	LA4708NF	326
KKZ12	302	LA42032	156	LA4507	314	LA47101	169
KL2822MD	37	LA42051	332	LA4508	315	LA47102	169
KL2822MN	37	LA42052	324	LA4508J	315	LA47202P	334
KL7496LN	256	LA42072	156	LA4509	315	LA4725	324
KTA6419F	144	LA4210	309	LA4510	315	LA4728	324
KTA6419P	144	LA42101	332	LA4520	315	LA4735	172
KTA7217	200	LA42102	156	LA4524	316	LA4741	326
KP1075YL2	126	LA42105	332	LA4525	316	LA4741N	326
L133T	301	LA42152	156	LA4530M	316	LA4742	169
L142	174	LA4220	224	LA4530S	316	LA4743	172
L149	303	LA42201	333	LA4533M	29	LA4743A	172
L165	10	LA42205	333	LA4534M	29	LA4743B	172
L1651	10	LA42207	333	LA4535M	29	LA47501	327
L272	303	LA42210	333	LA4535MC	29	LA47503	327
L2720	303	LA4224	309	LA4536M	29	LA47505	327
L2722	37	LA4225	179	LA4537M	29	LA47510	171
L2724	303	LA4227	309	LA4537MC	29	LA47511	327
L2726	304	LA4230	224	LA4538M	317	LA47512	327
L272D	303	LA42351	333	LA4540	317	LA47515	327
L272M	37	LA42352	333	LA4550	182	LA47516	327
L2750	304	LA4250	224	LA4555	182	LA47532	334
L3305-P14	304	LA4260	229	LA4557	317	LA47534	171
L3305-S14	304	LA4261	229	LA4557MB	317	LA47536	171
L4863-D16	21	LA4262	310	LA4558	317	LA4763	327
L4863L-D16	21	LA4263	310	LA4558MB	317	LA4800V	327
L4863L-N20	30	LA4265	310	LA4560M	318	LA4801V	328
L4863L-S16	21	LA4266	310	LA4570M	318	LA4802T	328

LA4805V	329	LM380N-8	339	LM48100QMH	382	LM4862N	178
LA4809M	328	LM383AT	174	LM4810LD	352	LM4863LQ	272
LA4810M	329	LM383T	174	LM4810MA	106	LM4863M	21
LA4814JA	330	LM384N	238	LM4810MM	106	LM4863MT	30
LA4814V	330	LM386M	121	LM4811LD	184	LM4863MTE	30
LA4815M	330	LM386M-1	121	LM4811MM	184	LM4863N	21
LA4815VH	330	LM386MM-1	121	LM4811YD	184	LM4864LD	243
LA4820M	331	LM386N	121	LM4817MH	353	LM4864M	17
LA4901	166	LM386N-1	121	LM4818M	144	LM4864MM	17
LA4902	168	LM386N-3	121	LM4819LD	272	LM4864N	178
LA4905	331	LM386N-4	121	LM4819M	105	LM4865IBP	364
LA4906	331	LM3875T	343	LM4819MM	105	LM4865M	364
LA4915	170	LM3875TF	343	LM4820IBP-6	15	LM4865MM	364
LA4917H	331	LM3876T	342	LM4820M-6	353	LM4866LQ	365
LA4919	170	LM3876TF	342	LM4820MM-6	353	LM4866MT	365
LA4919N	170	LM3886T	344	LM4830M	353	LM4866MTE	365
LA6805M	332	LM3886TF	344	LM4830N	353	LM4867LQ	365
LAG637D	297	LM388N	242	LM48310SD	383	LM4867MT	366
LAG665D	335	LM388N-1	242	LM48311ITL	383	LM4867MTE	366
LAG665F	177	LM389N	339	LM48312TLE	383	LM4868LQ	365
LAG668	177	LM390N	242	LM4832M	354	LM4868MT	366
LAG668D	335	LM391N	340	LM4832N	354	LM4868MTE	366
LAG668F	177	LM391N-100	340	LM4834MS	354	LM4869MH	33
LAG673D	335	LM4651N	343	LM4835LQ	355	LM4870M	364
LAG673F	177	LM4652TA	343	LM4835MT	34	LM4871LD	272
LAM504	335	LM4652TF	343	LM4835MTE	34	LM4871M	105
LAM505	335	LM4663MT	345	LM4836MT	269	LM4871MM	105
LAM507	336	LM4664ITL	344	LM4836MTE	269	LM4871N	105
LAM508	336	LM4665ITL	344	LM4838ITL	355	LM4872IBP	15
LC549	336	LM4665LD	345	LM4838LQ	355	LM4873MT	366
LC550	337	LM4665MM	345	LM4838MT	34	LM4873MTE	366
LC552	337	LM4666SDA	345	LM4838MTE	34	LM4873MTE-1	367
LC7458A	235	LM4667ITL	344	LM4839LQ	356	LM4874MH	33
LD549	336	LM4668LD	346	LM4839MT	269	LM4875M	364
LGMM2104M	337	LM4668MH	346	LM4839MTE	269	LM4875MM	364
LH0021CK	337	LM4670ITL	13	LM4840LQ	357	LM4876M	17
LH0021K	337	LM4670SD	247	LM4840MH	357	LM4876MM	243
LH0041CG	338	LM4671ITL	13	LM4840MT	357	LM4877IBP	15
LH0041CJ	338	LM4673SD	33	LM48410SQ	249	LM4878IBP	15
LH0041E	338	LM4673TM	13	LM48411TL	383	LM4879IBL	15
LH0041G	338	LM4674ATL	117	LM48413TL	384	LM4879IBP	15
LH0101ACK	338	LM4675SD	33	LM4844TL	356	LM4879MM	243
LH0101AK	338	LM4675TL	13	LM4845ITL	358	LM4880M	106
LH0101CK	338	LM4680SD	346	LM4846TL	358	LM4880N	106
LH0101K	338	LM4681SQ	346	LM4849MH	358	LM4881M	96
LM12CL	339	LM4682SQ	347	LM4850LD	359	LM4881MM	254
LM1875T	10	LM4700TF	347	LM4850MM	117	LM4881N	96
LM1876T	341	LM4701T	348	LM4850MT	359	LM48820TM	150
LM1876TF	341	LM4702	348	LM48510SD	384	LM48821TL	386
LM1877M	240	LM4702A	348	LM48511SQ	384	LM48822TL	386
LM1877N	240	LM4702B	348	LM48512TL	384	LM48823TL	386
LM1877N-1	240	LM4702BTA	348	LM4851IBL	359	LM48824TM	387
LM1877N-10	240	LM4702CTA	348	LM4851ITL	359	LM4882M	273
LM1877N-2	240	LM4730TA	341	LM4851LQ	359	LM4882MM	273
LM1877N-3	240	LM4731TA	341	LM48520TL	385	LM4883SQ	367
LM1877N-4	240	LM4732TA	348	LM4852ITL	360	LM4884MH	33
LM1877N-5	240	LM4733TA	349	LM4852LQ	360	LM48860TL	387
LM1877N-6	240	LM4734TA	349	LM4853LD	359	LM48861TM	387
LM1877N-7	240	LM4752T	349	LM4853MM	117	LM4888SQ	248
LM1877N-8	240	LM4752TS	349	LM4854IBL	360	LM4889ITL	15
LM1877N-9	240	LM4753T	350	LM4854LD	361	LM4889LD	243
LM1895N	342	LM4755T	350	LM4854MT	361	LM4889MA	17
LM1896N	341	LM4755TS	350	LM48555TL	385	LM4889MM	17
LM2002	174	LM4756TA	350	LM48556TL	385	LM48901RL	388
LM2002A	174	LM4765T	341	LM48557TL	386	LM48901SQ	388
LM2005M	9	LM4766T	351	LM4855IBL	361	LM4890IBL	15
LM2005T-M	9	LM4780TA	348	LM4855ITL	361	LM4890IBP	15
LM2005T-S	9	LM4781TA	349	LM4855LQ	361	LM4890ITL	15
LM2876T	342	LM4782TA	349	LM4856ITL	362	LM4890LD	243
LM2876TF	342	LM4802BLQ	351	LM4856LQ	362	LM4890M	17
LM2877P	342	LM4804LQ	351	LM4857ITL	362	LM4890MM	17
LM2878P	342	LM4805LQ	351	LM4857SP	363	LM4891IBP	15
LM2879T	343	LM4808LD	272	LM4858LD	359	LM4891LD	243
LM2895P	342	LM4808M	103	LM4858MM	117	LM4891M	105
LM2896P	206	LM4808MM	103	LM4859SP	363	LM4891MM	105
LM377N	240	LM4809LD	352	LM4859TL	363	LM4892IBP	367
LM378N	240	LM4809LQ	352	LM4860M	364	LM4892LD	368
LM379S	339	LM4809MA	96	LM4861M	105	LM4892M	97
LM380N	238	LM4809MM	96	LM4862M	17	LM4892MM	97

LM4893ITL	15	LM4940TS	378	LV47009P	160	M5106P	212
LM4893M	17	LM4941TM	378	LV47011P	160	M51101L	410
LM4893MM	243	LM49450SQ	395	LV47017P	403	M51102L	410
LM4894IBP	118	LM4946SQ	378	LV47022P	160	M51103L	222
LM4894ITL	118	LM4946TM	379	LV4900H	164	M51124	212
LM4894ITP	118	LM49047TL	379	LV4900HR	398	M5112Y	212
LM4894LD	108	LM4949TL	380	LV4901H	399	M5115P	217
LM4894MM	108	LM4950TA	380	LV4904V	399	M51168AP	410
LM4895IBP	368	LM4950TS	380	LV4910T	400	M51182L	227
LM4895ITP	368	LM4952TS	380	LV4912GP	398	M5118L	410
LM4895LD	109	LM4953SD	381	LV49152V	403	M51501L	411
LM4895MM	109	LM4954TL	15	LV49157V	402	M51503L	411
LM4897MM	368	LM4961LQ	381	LV4920H	162	M51512L	411
LM4898ITL	118	LM4962TL	381	LV4921V	173	M51513L	218
LM4898LD	108	LM4980SD	382	LV4923VH	174	M51513R	218
LM4898MM	108	LM4982TL	382	LV4924VH	400	M51514AL	223
LM4899ITL	368	LM4985TM	382	LV4970M	400	M51514L	411
LM4899LD	109	LM4990ITL	15	LV49821VH	403	M51515BL	221
LM4899MM	109	LM4990LD	369	LV4985VH	401	M51515L	221
LM4900LD	188	LM4990MH	369	LV4991M	401	M51516L	221
LM4900M	17	LM4990MM	17	LV4991TH	401	M51517L	222
LM4900MM	17	LM4991LD	188	LV4991TT	401	M51518L	222
LM4901IBL	369	LM4991MA	17	LV4992TT	401	M5155L	411
LM4901LD	369	LM4992SD	111	LV4993M	402	M5155P	215
LM4901MM	369	LM4995SD	188	LV4993TH	402	M51601L	70
LM4902LD	188	LM4995TM	15	LV4995TT	401	M51602P	412
LM4902MM	17	LM675T	339	LV549	336	M5160L	70
LM4903MM	17	LM759/883	341	LX1701CLQ	404	M5218L	410
LM4904ITL	15	LM759CH	341	LX1702CLQ	404	M61558FP	413
LM4905LD	188	LM759CP	340	LX1704CLQ	404	M61571AFP	412
LM4905LQ	369	LM759MH	341	LX1705ILQ	404	M61571BFP	412
LM4905MM	17	LM77000CP	340	LX1708ILQ	404	µA2001M	33
LM4906LD	370	LM820M	205	LX1710CDB	405	µA2001V	471
LM4906MM	370	LM831M	340	LX1711CDB	405	µA2002M	472
LM4908LQ	370	LM831N	340	LX1720-01CDB	405	µA2002V	472
LM4908MA	103	LME49600TS	395	LX1721CDB	406	µA2051M	17
LM4908MM	103	LME49610TS	395	LX1722CDB	406	µA2051R	112
LM49100GR	387	LME49810TB	395	LX1725ILQ	406	µA2051V	188
LM49101TM	389	LME49811TB	396	LX1790CJ	407	µA2051W	15
LM4910LQ	370	LME49830TB	396	LX1790CLM	407	µA2202A	101
LM4910MA	252	LN2012SQ	29	LX1792CDU	407	µA2203A	42
LM4910MM	252	LN4088SQ	397	LX1792CJ	407	µA2551M	11
LM4911LD	371	LN4088SQA	282	LX1792CLM	407	µA2551V	12
LM4911MM	371	LN4863LQ	272	LY8005UL	11	µA2551W	13
LM49120TL	389	LN4863M	21	LY8006BL	408	µA706A	214
LM4912MM	371	LN4863MT	30	LY8006UL	408	µA706B	214
LM4913MH	371	LN4863MTE	30	LY8010BL	12	µA7307	472
LM4914MH	372	LN4871LD	272	LY8010CL	13	µA759	471
LM49150TL	389	LN4871M	105	LY8210AL	408	µA783	8
LM49151TL	390	LN4871MM	105	LY8210CL	408	MAX13301AUM/V+	456
LM49153TM	390	LN4888	248	LY8210IL	408	MAX13330GEE/V+T	455
LM4915LQ	372	LN4888A	398	LY8601UL	106	MAX13331GEE/V+T	455
LM4916LD	155	LN4890M	17	LY8602BL	408	MAX4295EEE	414
LM4916MM	155	LN4890MM	17	LY8602UL	408	MAX4295ESE	414
LM4917MT	372	LN4990A	15	LY8661EB	282	MAX4297EAG	414
LM4917SD	372	LN6011	22	LY8661EL	282	MAX4297EWG	414
LM4919MM	155	LN3386	121	LY8661SL	409	MAX4298ESD	414
LM49200TL	391	LPA2104MS	11	LY8662EL	397	MAX4298EUB	415
LM4920TL	373	LPA2104SO	11	LY8663AL	409	MAX4299EUE	413
LM4921ITL	391	LPA2108SPF	525	LY8663BL	409	MAX4299EWP	415
LM4922TL	373	LPA8003SOF	17	LY8663IL	409	MAX4335EXT-T	415
LM4923LQ	373	LPA8003SPF	17	LY8890BL	188	MAX4336EXT-T	415
LM4924MM	374	LP8302MS	11	LY8890UL	17	MAX4337EKA-T	103
LM4924SD	374	LR6212B	15	LY8891BL	188	MAX4337EUA	103
LM49250RL	392	LR6212M	17	LY8891UL	17	MAX4338EUB	416
LM49251TL	392	LR6311	13	LY8892BB	369	MAX4364ESA	105
LM49270SQ	391	LS045	396	LY8892BL	188	MAX4365ETA	416
LM4928SD	374	LS1517	23	LY8892UB	369	MAX4365EUA	416
LM4928TL	374	LS2003	174	LY8892UL	17	MAX4365-TA	416
LM4930ITL	375	LS2030	10	LY8893UL	105	MAX4366EBL-T	15
LM4931ITL	375	LS2030A	10	LY8895UL	97	MAX4366EKA-T	105
LM49321RL	377	LS2822	37	LY8896SL	105	MAX4366ETA	188
LM4934RL	376	LS7264	397	M2073G-D08-T	37	MAX4366EUA	105
LM49350RL	393	LS7265	159	M2073G-S08-R	37	MAX4367EBL-T	417
LM49352RL	393	LS7269A	159	M2073L-D08-T	37	MAX4367EKA-T	416
LM4935RL	376	LT1166CN8	397	M2073L-S08-R	37	MAX4367ETA	416
LM4936MH	377	LT1166CS8	397	M4670G-K08-3030	247	MAX4367EUA	416
LM49370RL	394	LV47002P	160	M4670L-K08-3030	247	MAX4368EBL-T	417
LM4937TL	377	LV47004P	160	M5101P	212	MAX4368EKA-T	416

MAX4368ETA	416	MAX9718AEUB	108	MAX9724AEBC+T	431	MAX9789AETJ+	447
MAX4368EUA	416	MAX9718AEUB+	108	MAX9724AETC+	431	MAX9789BETJ+	447
MAX4369EBL-T	417	MAX9718EBEL+TG45	368	MAX9724BEBC+T	431	MAX9789CETJ+	447
MAX4409ETP	417	MAX9718EBEL-T	368	MAX9724BETC+	432	MAX9790AETJ+	448
MAX4409EUD	417	MAX9718BETB	109	MAX9724CEBC+T	431	MAX9790BETJ+	448
MAX4410EBE-T	373	MAX9718BETB+T	109	MAX9724CETC+	431	MAX9791AETI+	449
MAX4410EUD	372	MAX9718BEUB	109	MAX9724DEBC+T	431	MAX9791BETI+	449
MAX4411BEBE-T	373	MAX9718BEUB+	109	MAX9724DETCT+	432	MAX9792AETI+	449
MAX4411BETP	103	MAX9718CEBL+TG45	368	MAX9725AEBC-T	427	MAX9796EBX+T	450
MAX4411EBE-T	373	MAX9718CEBL-T	368	MAX9725AETC	428	MAX9820ETB+	448
MAX4411ETP	103	MAX9718CETB	109	MAX9725BEBC-T	427	MAX98300ETA+	460
MAX8678BETE+	418	MAX9718CETB+T	109	MAX9725BETC	428	MAX98300EWL+	460
MAX97000EWA+	457	MAX9718CEUB	109	MAX9725CEBC-T	427	MAX98302ETD+	461
MAX97001EWP+	458	MAX9718CEUB+	109	MAX9725CETC	428	MAX98303EWE+	461
MAX97002EWP+	459	MAX9718DEBL+TG45	368	MAX9725DEBC-T	427	MAX98304EWL+	461
MAX9700AEBE-T	419	MAX9718DEBL-T	368	MAX9725DETC	428	MAX98306ETD+	461
MAX9700AETB	418	MAX9718DETB	109	MAX9726AEBP	432	MAX98307ETE+	462
MAX9700AEUB	418	MAX9718DETB+T	109	MAX9726AETP	432	MAX98308EWC+	462
MAX9700BEBC-T	419	MAX9718DEUB	109	MAX9726BEBP	432	MAX98309EWL+	462
MAX9700BETB	418	MAX9718DEUB+	109	MAX9726BETP	432	MAX9830ETA+	450
MAX9700BEUB	418	MAX9718EEBL+TG45	368	MAX9728AETC+	431	MAX98310EWL+	462
MAX9700CEBC-T	419	MAX9718EETB+T	109	MAX9728AEUD+	433	MAX98314EWL+	463
MAX9700CETB	418	MAX9718EETB+	109	MAX9728BETC+	432	MAX98355AEWL+	463
MAX9700CEUB	418	MAX9718FEBL+TG45	368	MAX9728BEUD+	433	MAX98355BEWL+	463
MAX9700DEBC-T	419	MAX9718FETB+T	109	MAX9729ETI+	433	MAX98356EWL+	463
MAX9700DETB	418	MAX9718FEUB+	109	MAX9730EBP+T	434	MAX98400AETX+	464
MAX9700DEUB	418	MAX9718GEBL+TG45	368	MAX9730ETI	434	MAX98400BETG+	464
MAX9701EBP-T	419	MAX9718GETB+T	109	MAX9730ETI+	434	MAX98500EWE+	384
MAX9701ETG+	419	MAX9718GEUB+	109	MAX9730EWP+TG45	434	MAX98502EWE+	384
MAX9702ETI+	420	MAX9718HEBL+TG45	368	MAX9736AETJ+	434	MAX9850ETI+	450
MAX9702ETI+	420	MAX9718HETB+T	109	MAX9736BETJ+	434	MAX9851ETM+	451
MAX9703ETJ	420	MAX9718HEUB+	109	MAX9737ETG+	435	MAX9853ETM+	452
MAX9704ETJ	421	MAX9719AEAE	425	MAX9738EWP+TG45	435	MAX9856ETL+	453
MAX9705AEBC+T	420	MAX9719AEBE+T	426	MAX9741ETN+	435	MAX9875ERP+TG45	454
MAX9705AETB+T	418	MAX9719AETE	425	MAX9742ETX+	436	MAX9877EWP+TG45	454
MAX9705AEUB+	418	MAX9719AETE+	425	MAX9744ETI+	436	MAX9879ERV+	455
MAX9705BEBC+T	420	MAX9719AEUE+	426	MAX9750AETI	436	MB3705	227
MAX9705BETB+T	418	MAX9719BEAE	426	MAX9750AEUI	437	MB3712	205
MAX9705BEUB+	418	MAX9719BEBE+T	426	MAX9750BETI	436	MB3713	205
MAX9705CEBC+T	420	MAX9719BETE	427	MAX9750BEUI	437	MB3714A	465
MAX9705CETB+T	418	MAX9719BEUE+	426	MAX9750CETI	436	MB3715A	465
MAX9705CEUB+	418	MAX9719CEAE	426	MAX9750CEUI	437	MB3722	222
MAX9705DEBC+T	420	MAX9719CEBE+T	426	MAX9751ETI	437	MB3730	465
MAX9705DETB+T	418	MAX9719CETE	427	MAX9751EUI	438	MB3730A	465
MAX9705DEUB+	418	MAX9719CEUE+	426	MAX9752AETI	436	MB3731	465
MAX9706ETX+	421	MAX9719DEAE	426	MAX9752BETI	436	MB3732	465
MAX9707ETX+	422	MAX9719DEBE+T	426	MAX9752CETI	436	MB3733	465
MAX9708ECB	422	MAX9719DETE	427	MAX9753ETI	437	MB3734	465
MAX9708ETN	423	MAX9719DEUE+	426	MAX9754ETI	438	MB3735	466
MAX9709ECB+	422	MAX97200AEWC+	457	MAX9755ETI	438	MB3736	466
MAX9709ETN+	423	MAX97200BEWC+	457	MAX9755EUI	438	MB3737A	466
MAX9710ETP	422	MAX9720AEBE+T	427	MAX9756ETX	439	MB3742	466
MAX9710EUE	423	MAX9720AEUE	428	MAX9757ETJ	439	MBA915	467
MAX9711ETC	423	MAX9720BEBE+T	427	MAX9758ETJ	440	MBA915A	467
MAX9711ETC+	423	MAX9720BEUE	428	MAX9759ETE+	439	MC13060D	468
MAX9712EBC-T	419	MAX9721AEBC+T	427	MAX9760ETI	440	MC1306P	239
MAX9712ETB	418	MAX9721AETC	428	MAX9760EUI	441	MC13106	234
MAX9712EUB	418	MAX9721BEBC+T	427	MAX9761ETI	441	MC13109	234
MAX9713ETJ	420	MAX9721BETC	428	MAX9761EUI	441	MC1316P	242
MAX9714ETJ	421	MAX9721CEBC+T	427	MAX9762ETI	442	MC13304T3	234
MAX9715ETE	424	MAX9721CETC	428	MAX9762EUI	442	MC13306T3	234
MAX9715EUE	424	MAX97220AETE+	458	MAX9763ETI	442	MC13306T3S	234
MAX9716EBL-T	15	MAX97220BETE+	458	MAX9763EUI	443	MC13308T4	468
MAX9716ETA	188	MAX97220CETE+	459	MAX9765ETJ	443	MC13309T3S	234
MAX9716EUA	105	MAX97220DETE+	459	MAX9766ETJ	444	MC13320T3	234
MAX9717AEBL-T	424	MAX97220EETE+	458	MAX9767ETJ	444	MC13500T2	157
MAX9717AETA	424	MAX9722AETE	429	MAX9768BETG+	444	MC13513T4	181
MAX9717AEUA	97	MAX9722AEUE	429	MAX9768ETG+	444	MC13516T2	157
MAX9717BEBL-T	425	MAX9722BETE	429	MAX9770ETI	445	MC1438	467
MAX9717BETA	285	MAX9722BEUE	430	MAX9770EUI	445	MC1454G	467
MAX9717BEUA	285	MAX97236EWA+	460	MAX9775EBX+T	446	MC1538	467
MAX9717CEBL-T	425	MAX9723AEBE+T	430	MAX9776EBX+T	446	MC1554G	467
MAX9717CETA	285	MAX9723AETE+	430	MAX9776ETJ+	446	MC3360P	467
MAX9717CEUA	285	MAX9723BEBE-T	430	MAX9777ETI	440	MC34119D	144
MAX9717DEBL-T	425	MAX9723BETE+	430	MAX9778ETI	441	MC34119DTB	144
MAX9717DETA	285	MAX9723CEBE+T	430	MAX9787ETI	447	MC34119P	144
MAX9717DEUA	285	MAX9723CETE+	430	MAX9788EBP+T	447	MC4017	33
MAX9718AEBL-T	118	MAX9723DEBE+T	430	MAX9788ETI+	448	MC4066	257
MAX9718AETB	108	MAX9723DETE+	430	MAX9788EWP+TG45	447	MC4082	248



MC4086	248	MIX2015	477	µPC1277H	229	MSK121B-5	491
MC4088	248	MIX2018	477	µPC1278H	229	MSK138	491
MC4089	250	MIX2018	476	µPC1280V	207	MSK138B	491
MC4863M	30	MIX2110	13	µPC1288V	236	MSK139	491
MC4863MP	30	MIX2145	25	µPC1298V	473	MSK139B	491
MC4863P	21	MIX3001	40	µPC1308V	474	MSK141	491
MC4863S	21	MIX3002	47	µPC131	198	MSK141B	491
MC4873LP	367	MIX3003	477	µPC1310V	475	MSK142	491
MC4873M	366	MIX3004	477	µPC1316C	198	MSK142B	491
MC4873MP	366	MIX3005	478	µPC1318AV	475	MSK145	492
MC4890D	188	MIX3006	478	µPC1321V	475	MSK145B	492
MC4890S	17	MIX3007	40	µPC1331V	475	MSK146	492
MC4990C	15	MIX3008	478	µPC1332V	475	MSK1461	496
MC4990D	188	MIX3018	478	µPC1335V	236	MSK1461B	496
MC4990P	17	MIX3063	21	µPC1350C	204	MSK146B	492
MC4990S	17	MM1006D	479	µPC2002	174	MSK147	492
MC4996	188	MM1006XF	479	µPC2002H	174	MSK147B	492
MC6205D	20	MM1104AF	479	µPC2002V	174	MSK155	492
MC6205S	20	MM1104BF	479	µPC2005H	9	MSK155E	492
MCD4155	191	MM1104CF	479	µPC2005V	9	MSK155H	492
MCD4218	468	MM1104FFK	479	µPC206	210	MSK171	493
MCD4221	470	MM1316FK	480	µPC20C	210	MSK171B	493
MD2012Q	27	MM1336CF	480	µPC2500A	476	MSK172	493
MD2012S	191	MM1336DF	480	µPC2500AH	476	MSK172B	493
MD2013	27	MM1376CF	481	µPC2581V	348	MSK173	493
MD2600	104	MM3111	17	µPC41C	211	MSK173-1	493
MD3123	26	MP1720DH-12	418	µPC563	472	MSK173B	493
MD4011	12	MP1720DH-216	418	µPC571C	210	MSK173B-1	493
MD4101	19	MP1720DH-3	418	µPC571H	210	MSK181	493
MD4102D	12	MP1720DH-6	418	µPC575C2	203	MSK181E	493
MD4102S	11	MP1720DH-9	418	µPC576H	203	MSK181EZ	493
MD4103C	13	MP1720DQ-12	418	µPC578C	472	MSK181H	493
MD4103D	119	MP1720DQ-216	418	MPQ7731DF	483	MSK181HZ	493
MD4103P	119	MP1720DQ-3	418	MS6308G	271	MSK181Z	493
MD4103S	119	MP1720DQ-6	418	MS6308MG	271	MSK182	494
MD4105D	20	MP1720DQ-9	418	MS6330G	485	MSK182E	494
MD4105P	20	MP1740EC	13	MS6331G	485	MSK182H	494
MD4105S	20	MP7000	481	MS6331MG	485	MSK183	494
MD4114	11	MP7720DP	482	MS6332G	485	MSK184	495
MD4115	119	MP7720DS	482	MS6333G	486	MSK185	495
MD4117	20	MP7721DF	482	MS6333Q	486	MSK186	495
MD4123	11	MP7722DF	482	MS6334G	486	MSK186E	495
MD4132	468	MP7731DS	483	MS6335G	487	MSK186H	495
MD4133	280	MP7740DN	482	MS6335Q	487	MSK2541	497
MD4133B	469	MP7741DQ	483	MS6336TG	487	MSK2541B	497
MD4161	469	MP7742DF	482	MS6337G	488	MSK4200	496
MD4203	40	MP7745DF	482	MS6337Q	488	MSK4200B	496
MD4205	191	MP7747DQ	483	MS6541G	6	MSK4200E	496
MD4230	191	MP7748DF	483	MS6544G	6	MSK4201	497
MD4255	469	MP7782DF	484	MS6821G	488	MSK4201B	497
MD4881	416	MP8040DN	484	MS6821TG	488	MSK4201E	497
MD6019P	22	MP8042DF	484	MS6853MG	117	MSK4204RHD	498
MD6019Q	190	MP8044DF	485	MS6853TG	359	MSK4204RHS	498
MD7120K6-G	470	MP8046DF	484	MS6863TG	30	MSK4204RHU	498
MD8403	40	MP9720DS	482	MS6864TG	489	MSK4210	498
MDA2010	220	µPC1001H	215	MS6865TG	489	MSK4220	498
MDA2020	220	µPC1020H	216	MS6890G	17	MSK4222	498
ME5103	13	µPC1025H	211	MS6890MG	17	MSK4223	499
ME5105	25	µPC1030H	217	MS6891G	105	MSK4225	499
MEAP2010ITLX	13	µPC1154H	473	MS6891MG	105	MSK4226	499
MEAP2010LD	12	µPC1155H	217	MS6894MG	108	MSK4227	500
MEAP6204ITLX	152	µPC1156H	217	MS6895G	489	MSK541	496
MEAP6204LD	20	µPC1177H	473	MS6901MG	369	MSK541B	496
MEAP6204MM	20	µPC1181H3	205	MSC1157MS-K	489	MT6905	119
MEAP6204SP	20	µPC1182H3	205	MSC1157RS	489	MX-3364	8
MFC4000B	471	µPC1185H2	221	MSK101	490	MX-3393	203
MFC8020	240	µPC1188H	231	MSK101B	490	MX-3426	66
MFC8020A	240	µPC1212C	207	MSK105	490	MX-3440	241
MFC8021	240	µPC1213C	207	MSK105B	490	MX-3623	216
MFC8021A	240	µPC1218H	473	MSK115	490	MX-3918	219
MFC8022A	240	µPC1225H	473	MSK115B	490	MX-3977	67
MFC9020	471	µPC1230H2	225	MSK115E	490	MX-4875	207
MIC386	121	µPC1238H	10	MSK121-1	491	MX-5375	205
MIX2001	476	µPC1238V	10	MSK121-10	491	MX-5421	223
MIX2005	476	µPC1241H	236	MSK121-2	491	MX-5451	206
MIX2007	476	µPC1242H	236	MSK121-5	491	MX-5475	182
MIX2008	477	µPC1260G	474	MSK121B-1	491	MX-5596	66
MIX2009	477	µPC1263C2	198	MSK121B-10	491	NAU82011VG	13
MIX2010	13	µPC1274V	474	MSK121B-2	491	NAU82011WG	11

NAU82039VG	13	NJM2149R	144	NLMD5820M	525	NTE1141	203
NAU8223YG	500	NJM2149RB1	144	NS4002	305	NTE1150	216
NAU8224YG	500	NJM2149V	144	NS4066	257	NTE1155	200
NAU8401YG	501	NJM2151AM	138	NS4088	248	NTE1160	216
NAU8812RG	501	NJM2151AV	138	NS4145L	20	NTE1165	122
NAU8812YG	502	NJM2151AVF1	138	NS4145M	20	NTE1166	122
NAU8820YG	502	NJM2166E	510	NS4145MM	20	NTE1180	200
NCP2704FCC	503	NJM2166EE	510	NS4146	20	NTE1185	203
NCP2809ADMR2	503	NJM2166R	511	NS4148M	20	NTE1218	629
NCP2809ADMR2G	503	NJM2166V	510	NS4148MM	20	NTE1219	629
NCP2809BDMR2	503	NJM2168	6	NS4149	525	NTE1224	57
NCP2809BDMR2G	503	NJM2169	6	NS4149MM	408	NTE1228	200
NCP2811ADT	504	NJM2171AR	511	NS4150M	20	NTE1232	174
NCP2811AFC	431	NJM2768BM	511	NS4150MM	20	NTE1240	57
NCP2811AMT	504	NJM2768BRB1	511	NS4158M	20	NTE1273	220
NCP2811BDT	504	NJM2768M	511	NS4159	525	NTE1274	605
NCP2811BFC	431	NJM2769AM	511	NS4160M	525	NTE1278	219
NCP2811BMT	504	NJM2769BM	511	NS4161M	20	NTE1281	602
NCP2815AFCT	505	NJM2769BRB1	511	NS4162M	526	NTE1282	602
NCP2815BFCT	505	NJM2770R	144	NS4163	526	NTE1285	205
NCP2820FCT1	13	NJM2770RB1	144	NS4196M	526	NTE1286	205
NCP2820FCT1G	13	NJM2772V	512	NS4203M	527	NTE1287	220
NCP2820FCT2G	13	NJM2774V	513	NS4203N	527	NTE1288	174
NCP2820MUTBG	505	NJM2775AM	510	NS4205M	40	NTE1293	221
NCP2821FCT1G	344	NJM2776RB2	512	NS4210M	528	NTE1294	205
NCP2823AFC	13	NJM2777D	512	NS4215M	527	NTE1315	656
NCP2823BFC	13	NJM2777M	512	NS4248M	527	NTE1316	656
NCP2824FC	505	NJM2777V	512	NS4248MM	528	NTE1317	656
NCP2830MUTXG	506	NJM386BD	121	NS4248N	527	NTE1320	602
NCP2890AFCT2	15	NJM386BL	121	NS4249	529	NTE1323	604
NCP2890AFCT2G	15	NJM386BM	121	NS4250	529	NTE1326	608
NCP2890DMR2	17	NJM386D	121	NS4251	529	NTE1327	608
NCP2890DMR2G	17	NJM386L	121	NS4259M	529	NTE1328	608
NCP2892AFCT2G	15	NJM386M	121	NS4263	527	NTE1329	629
NCP2892BFCT2G	15	NJU7081M	514	NS4266	530	NTE1330	640
NCP2990FCT2G	15	NJU7081R	514	NS4268	530	NTE1331	640
NCP2991FC	15	NJU7081RB1	514	NS4298M	530	NTE1333	602
NCP2993FCT	506	NJU7081V	514	NS4356	531	NTE1336	607
NCP4894DMR2	108	NJU7082BM	514	NS4358	531	NTE1337	608
NCP4894DMR2G	108	NJU7082BV	514	NS4358M	531	NTE1338	611
NCP4894FCT1	118	NJU7084M	514	NS4730	468	NTE1339	611
NCP4894FCT1G	118	NJU7084R	514	NS4731	531	NTE1340	608
NCP4894MNR2	108	NJU7085SF7	515	NS4733	532	NTE1343	629
NCP4894MNR2G	108	NJU7085V	515	NS4863	21	NTE1344	629
NCP4896FCT1	507	NJU7086	515	NS4871	17	NTE1345	640
NCP4896FCT1G	507	NJU7089KV1	188	NS4890MM	17	NTE1347	640
NCP9002FCT2G	15	NJU7089R	17	NS4990-2	188	NTE1350	579
NCP9004FCT1G	13	NJU7089VC3	516	NS4990-3	188	NTE1351	579
NCS2211D	105	NJU72040V	523	NS8001	17	NTE1356	646
NCS2211MN	272	NJU72501MJJE	523	NS8002	17	NTE1358	643
NCS8353MNT	507	NJU8710R	516	NTE1009	202	NTE1359	629
NCV2211D	105	NJU8711V	516	NTE1023	208	NTE1362	222
NCV2890DMR2G	188	NJU8713V	517	NTE1024	604	NTE1363	64
NE58633BS	508	NJU8714VB2	517	NTE1027	604	NTE1365	64
NEC575	203	NJU8715KN1	517	NTE1028	607	NTE1367	71
NJM2070D	507	NJU8716AV	518	NTE1029	208	NTE1368	222
NJM2070M	507	NJU8716BV	518	NTE1031	201	NTE1369	72
NJM2073D	37	NJU8719V	518	NTE1032	201	NTE1370	200
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NJM2073S	509	NJU8721V	519	NTE1043	210	NTE1373	72
NJM2076D	509	NJU8725V	519	NTE1058	56	NTE1375	122
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NJM2096D	509	NJU8752BV	519	NTE1093	211	NTE1378	10
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NJM2113D	144	NJU8754KM1	520	NTE1102	213	NTE1383	71
NJM2113L	510	NJU8754V	521	NTE1107	208	NTE1387	207
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NJM2113V	144	NJU8757KN2	521	NTE1112	213	NTE1389	225
NJM2128M	510	NJU8757V	521	NTE1115	8	NTE1390	225
NJM2135D	144	NJU8758V	522	NTE1115A	8	NTE1391	225
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NJM2135L	510	NJU8790V	522	NTE1117	214	NTE1393	226
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NJM2135R	144	NJW1105M	524	NTE1127	215	NTE1395	70
NJM2135V	144	NJW1109D	524	NTE1137	57	NTE1396	9
NJM2149D	144	NJW1109M	524	NTE1139	605	NTE1398	70
NJM2149M	144	NJW1109V	524	NTE1140	203	NTE1399	227

NTE1463	68	NTE7165	533	P9403	274	PA3332G-N24	542
NTE1465	66	NTE7169	10	PA01	5	PA3332L-N24	542
NTE1467	227	NTE7171	167	PA02	537	PA3427G-N24	35
NTE1470	203	NTE7184	533	PA0202L-N24	97	PA3428G-N24	35
NTE1472	200	NTE7186	532	PA0202-N24	97	PA3428L-N24	35
NTE1476	228	NTE7197	344	PA02A	537	PA3428-N24	35
NTE1477	228	NTE7198	159	PA02M	537	PA3431L-N20	33
NTE1481	228	NTE7199	180	PA03	538	PA3431-N20	33
NTE15031	660	NTE7201	37	PA03A	538	PA400	605
NTE15034	659	NTE7202	160	PA04	538	PA401	605
NTE1516	207	NTE7203	533	PA04A	538	PA45	540
NTE1530	204	NTE7204	320	PA05	538	PA46	540
NTE1566	176	NTE7207	137	PA05A	538	PA4819G-S08	105
NTE1602	229	NTE7210	311	PA07	538	PA4819L-S08	105
NTE1606	206	NTE7211	616	PA07A	538	PA4819-S08	105
NTE1612	123	NTE7212	616	PA10	5	PA4835G-N28	34
NTE1619	124	NTE7220	628	PA10A	5	PA4835G-P28	34
NTE1626	229	NTE7221	5	PA12	5	PA4835L-N28	34
NTE1627	123	NTE740A	238	PA12A	5	PA4835L-P28	34
NTE1637	207	NTE784	173	PA12H	5	PA4835-N28	34
NTE1667	182	NTE804	240	PA12M	5	PA4835-P28	34
NTE1675	230	NTE810A	241	PA13	539	PA4863-D16	21
NTE1685	229	NTE812	241	PA13A	539	PA4863-N20	30
NTE1687	206	NTE823	121	PA1517-D18	24	PA4863-S16	21
NTE1704	64	NTE825	242	PA1517-D20	542	PA4863-S18	305
NTE1707	230	NTE862	238	PA1517L-D18	24	PA4867L-N20	366
NTE1724	231	NTE990	240	PA1517L-D20	542	PA4867L-P20	366
NTE1789	58	NTP3000	534	PA16	539	PA4867-N20	366
NTE1798	229	NTP3000A	534	PA16A	539	PA4867-P20	366
NTE1802	231	NTP3100	535	PA2005G-H14-B	542	PA4871G-S08	17
NTE1815	651	NTP3100L	481	PA2005G-J11-A	9	PA4871L-S08	17
NTE1816	656	NTP7000	481	PA2005-H14-B	542	PA4871-S08	17
NTE1817	656	NXA2004	534	PA2005-J11-A	9	PA4894G-SM2	108
NTE1818	656	OCA7106	96	PA2005L-H14-B	542	PA4990G-S08	17
NTE1819	656	OCA7106DL	352	PA2005L-J11-A	9	PA4990L-S08	17
NTE1820	663	OCA7188	273	PA2009-J11-A	236	PA4990-S08	17
NTE1830	231	OCA7188QAD	248	PA2009L-J11-A	236	PA500	605
NTE1831	231	OCA7190BAD	15	PA2019A	166	PA500X	605
NTE1832	232	OCA7192BAD	15	PA21	495	PA501	605
NTE1850	232	OCA7198QAD	248	PA21A	495	PA501X	605
NTE1851	233	OCA7210BAD	13	PA21M	495	PA5417-J15-A	137
NTE1852	176	OCA7210DL	505	PA2308G-S08	271	PA5417L-J15-A	137
NTE1871	656	OCYP7190	17	PA2308L-S08	271	PA6021-D20-T	251
NTE1874	656	OM931	535	PA2308-S08	271	PA6021L-D20-T	251
NTE1877	662	OM961	535	PA234	238	PA60DK	540
NTE1878	611	OM991	535	PA243	238	PA60EU	541
NTE1879	660	OMA2541SD	536	PA246	540	PA6112-SM2	15
NTE1882	652	OMA2541SK	497	PA25	497	PA6203G-SH2	113
NTE1898	233	OMA2541SKC	497	PA25A	497	PA6203L-SH2	113
NTE1899	233	OMA541DZ	492	PA26	539	PA6204G-S08	20
NTE7000	233	OMA541KC	496	PA2616-H09	275	PA6204G-SM1	20
NTE7011	73	OMA541SD	492	PA2616L-H09	275	PA6204L-S08	20
NTE7029	659	OMA541SDZ	492	PA277	240	PA6204L-SM1	20
NTE7030	651	OMA541SFB	536	PA28	497	PA73	5
NTE7031	652	OMA541SK	496	PA28A	497	PA7375G-J15	543
NTE7032	653	OMA541SKC	496	PA29	539	PA7375L-J15	543
NTE7040	234	OMA8201SF	536	PA29A	539	PA73M	5
NTE7041	234	OPA2541AM	497	PA3002	234	PA74	541
NTE7051	235	OPA2541BM	497	PA3005	227	PA7468G-SH3	42
NTE7052	235	OPA2541SM	497	PA301	605	PA7468L-SH3	42
NTE7053	235	OPA2544BM	497	PA3011G-N24	22	PA7468-SH3	42
NTE7055	198	OPA2544SM	497	PA3011L-N24	22	PA7469-D16	101
NTE7059	74	OPA2544T	537	PA3011-N24	22	PA7469G-D16	101
NTE7061	70	OPA502BM	5	PA3017L-N20	33	PA7469G-S16	101
NTE7068	157	OPA502SM	5	PA3017-N20	33	PA7469L-D16	101
NTE7070	180	OPA511AM	5	PA3027A	266	PA7469L-S16	101
NTE7088	234	OPA512BM	5	PA3029A	266	PA7469-S16	101
NTE7101	236	OPA512SM	5	PA3029B	266	PA7493-D16	108
NTE7102	236	OPA541AM	496	PA306	240	PA7493L-D16	108
NTE7105	236	OPA541AP	537	PA3112G-SM2	15	PA7493L-S16	108
NTE7113	74	OPA541BM	496	PA3112L-SM2	15	PA7493-S16	108
NTE7114	237	OPA541SM	496	PA3112-SM2	15	PA74A	541
NTE7118	237	OPA544F	339	PA3202L-N24	97	PA7522-H12	5
NTE7119	23	OPA544T	339	PA3202-N24	97	PA7522-H14-B	5
NTE7143	10	OPA544T-1	339	PA3212G-N24	35	PA7522L-H12	5
NTE7145	234	OPA547F	537	PA3212L-N24	35	PA7522L-H14-B	5
NTE7146	532	OPA547T	537	PA3212-N24	35	PA75CC	541
NTE7157	35	OPA548F	537	PA3312L-N24	35	PA75CD	541
NTE7163	168	OPA548T	537	PA3312-N24	35	PA75CX	541

PA76	497	PAM8603MNH	47	PT8915-S	562	RT9131CN	6
PA76A	497	PAM8606XB	552	PTC732	240	RT9131CS	6
PA9008A	544	PAM8610TR	553	PTC740	238	S-100W	572
PA9009A	544	PAM8615RHR	553	PTC742	240	S1531G	572
PA9069A-J11	159	PAM8620TR	554	PTC780	200	S1A0051	573
PA9069AL-J11	159	PAM8803NH	179	R2A15108SN	563	S1A0067X01	295
PAC007A	660	PAM8901JER	554	R2A15112FP	563	S1A0071	573
PAC008A	652	PAM8901JR	554	R2A15117FP	563	S1A0136A01-A0B0	177
PAC009A	659	PAM8902AKER	554	R2A15120FA	564	S1A0136A01-S0B0	177
PAC010A	627	PAM8902AZER	555	R2A15122FP	564	S1A0386A01-D0B0	121
PAC011A	626	PAM8902HKER	554	R2A15123FP	564	S1A0386A01-S0B0	121
PAC012A	627	PAM8902HZER	555	R2S15102NP	565	S1A2201X01-D0B0	205
PAC013A	626	PAM8902KER-P	554	R2S15103NP	565	S1A2206D01-D0B0	294
PAC014A	638	PAM8902ZER-P	555	R5052CE	289	S1A2206D01-H0B0	182
PAC10A	627	PAM8908JER	555	RA-0105	565	S1A2209A01-D0B0	37
PAC11A	626	PAU001A	266	RA-2500	565	S1A2209A01-S0B0	37
PAL001A	543	PCM1774RGP	556	RC4861M	105	S1A2213C01-D0B0	294
PAL002A	543	PJ2822MCD	37	RH5030	566	S1A2213C01-H0B0	296
PAL003A	168	PJ2822MCS	37	RH-IX0054CE	203	S1T8602B01-D0B0	152
PAL005A	160	PJ34119CD	144	RH-IX0225CE	223	S1T8602B01-S0B0	152
PAL006A	160	PJ34119CS	144	RH-IX0934CE	229	S-40W	238
PAL007A	160	PJ386CD	121	RH-IX1020	8	S486L-S08	96
PAL007B	160	PJ386CS	121	RH-IX1059AFZZ	216	S486-S08	96
PAL007C	160	PP330	556	RH-IX1064AFZZ	219	S-60W	238
PAL008A	545	PP330	557	RH-IX1065AFZZ	219	SA07	574
PAL010A	544	PP330	557	RH-IX1070	200	SA09	574
PAM8001NHR	545	PT2001-TX	557	RH-IX1089A	608	SA1622	176
PAM8001XHR	546	PT2002-TX	558	RH-IX1107AFZZ	205	SA1622A	176
PAM8002AZN	25	PT2004	117	RH-IX1108AFZZ	205	SA1622B	176
PAM8002BSC	20	PT2004L	117	RH-IX1112	656	SA1622S	176
PAM8003DR	50	PT2300	108	RH-IX1135CE	229	SA4871KA	17
PAM8004DR	546	PT2300-S	108	RSN307M44	567	SA4871XA	17
PAM8006ATR	546	PT2301-A	558	RSN307M44A	567	SA50	496
PAM8006HR	547	PT2301-B	558	RSN307M44A-P	567	SA51	497
PAM8006TR	546	PT2303-D	21	RSN307M44-P	567	SA56	572
PAM8007DHR	547	PT2303-S	21	RSN308M22	568	SA58631TK	575
PAM8007NHR	547	PT2303-TX	30	RSN308M24-9	568	SA58632BS	575
PAM8008DR	548	PT2305	559	RSN308M24-P	568	SA58635UK	25
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PAM8015AKR	550	PT2308L-S	103	RSN310R36-P	570	SA58672UK	13
PAM8101AAB	550	PT2308P-S	103	RSN310R37A-P	570	SA60	575
PAM8124RHR	26	PT2308-S	103	RSN310R37-P	570	SA7264	397
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PAM8202	550	PT2309-S	6	RSN311W64A-P	571	SA7264B	576
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PAM8302AADC	11	PT2332-S	559	RSN311W64D-P	571	SA7265A	577
PAM8302AASC	11	PT2332-X	559	RSN312H24	568	SA7267	159
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PAM8302LAYCR	12	PT2334-LQ	560	RSN314H41A-P	566	SA7269A	577
PAM8302S8R	551	PT2336-LQ	559	RSN314H41C	566	SA7347	577
PAM8303AAZN	13	PT2338-MS	15	RSN315H41-P	569	SA7411	92
PAM8303ABSC	119	PT2365-MS	97	RSN315H42B-P	569	SA7411S	92
PAM8303ABYC	119	PT2365-S	97	RSN315H42C-P	569	SA7412	93
PAM8303CAZN	13	PT2366-MS	17	RSN315H42-P	569	SA7412H	577
PAM8303CBSC	119	PT2366-S	17	RSN33M5-P	567	SA7454	24
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PAM8303DBSC	119	PT5301ESMD	15	RSN3502	566	SA7496L	256
PAM8303DBYC	119	PT5303EMSJ	108	RSN3502A	566	SA7496LS	256
PAM8304ASR	119	PT5303ESMD	118	RSN3502B	566	SC1308LD	271
PAM8304AYR	119	PT5304EMSH	20	RSN3502C-P	566	SC1308LS	271
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PAM8402	551	PT5305S	11	RSN35H2A-P	566	SC4811	184
PAM8403DR	40	PT5306EQFN	12	RSN35H2B-P	566	SC4863D	21
PAM8403DR-H	40	PT5306ESMD	13	RSN35H2-P	566	SC4863M	30
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PAM8404ZE	117	PT5322ESOP	21	RSN36S5-P	568	SC4871AD	105
PAM8406DR	551	PT5322TSOP	21	RT9101CWSC	13	SC4871AM	105
PAM8406ER	551	PT5326Q	117	RT9101GQW	12	SC4871AMM	105
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PAM8602ENHR	547	PT5326SMD	561	RT9104GN	570	SC4871BD	178
PAM8603ANHR	552	PT8913-S	561	RT9104GQW	571	SC4871BM	17
PAM8603MDE	120	PT8914-S	562	RT9104GS	570	SC4871BMM	17

SC4871BMP	17	Si2707-A10-GM	580	SK3915	218	SK9816	123
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SC8002BD	105	Si8241CB	582	SK3922	205	SK9849	611
SC8002BM	105	Si8244BB	582	SK3923	205	SK9876	58
SC8002BMM	105	Si8244CB	582	SK3969	214	SK9889	663
SC8002BMP	105	SJ2038	21	SK3972	629	SK9890	656
SC8002D	178	SJ8305	119	SK4815	651	SK9891	651
SC8002M	17	SJ8403D	40	SK4821	200	SK9892	656
SC8002MM	17	SJ8403S	40	SK4822	72	SK9893	656
SC8002MP	17	SK10007	602	SK4828	206	SK9895	231
SCA2005	11	SK10018	230	SK4831	182	SK9896	231
SD7408	119	SK10140	656	SK4839	227	SK9897	656
SD7408LS	41	SK10141	656	SK7600	205	SK9948	229
SDC2025	37	SK10142	232	SK7601	205	SK9981	64
SDC4890	17	SK10150	232	SK7603	226	SK9987	643
SDV1005-600	242	SK10151	176	SK7608	122	SK9997	611
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SGM4810YMS	106	SK10169	660	SK7649	221	SL34119D	144
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SGPLM386	121	SK3276	239	SK7758	201	SM7497	585
SGSC34119	144	SK3282	201	SK7759	209	SM7498HL	586
SGSCLM386	121	SK3291	605	SK7770	212	SM7511	22
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SH4863M	21	SK3363	210	SK7774	215	SM7511L	22
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SH4863N	21	SK3370	201	SK7782	57	SM7512FL	586
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SH4890IBP	15	SK3372	209	SK7790	217	SM7512SG	586
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SH4890MM	17	SK3436	607	SK7808	223	SM7513FL	586
SH4990ITL	15	SK3446	212	SK7814	225	SM7513S	586
SH4990LD	369	SK3455	240	SK7815	225	SM7513SG	586
SH4990MM	369	SK3456	239	SK9012	240	SM7513SL	586
SH4990MM	369	SK3459	56	SK9068	240	SM7516	587
SH7496L-DI	256	SK3468	203	SK9126	242	SN16975	214
SH7496L-SO	256	SK3473	203	SK9127	242	SN2005I308E	12
SI1010G	578	SK3474	211	SK9186	225	SN2005IE08E	11
SI1020G	578	SK3492	202	SK9189	640	SN2010BI	13
SI1020GL	578	SK3499	202	SK9190	213	SN2010W	13
SI1020H	578	SK3524	173	SK9191	70	SN2012I420E	27
SI1030GL	578	SK3701	202	SK9208	68	SN2030I424E	587
SI1050	579	SK3708	216	SK9210	121	SN2145W	25
SI1050G	579	SK3726	219	SK9225	9	SN4018I416E	587
SI1050GL	579	SK3730	218	SK9226	214	SN4018II16E	588
SI1125H	579	SK3739	202	SK9228	220	SN4066DJ	257
SI1125HD	579	SK3740	629	SK9251	10	SN4066J	257
SI1130H	580	SK3741	629	SK9252	174	SN4088AJ	248
SI1135HD	579	SK3744	219	SK9267	219	SN4088DJ	248
SI1225HD	579	SK3827	122	SK9268	219	SN4088J	248
SI1340H	580	SK3852	174	SK9269	227	SN4188J	248
SI1361H	580	SK3853	174	SK9313	70	SN4201M	20
SI-18751	10	SK3872	219	SK9361	221	SN4832J	282
SI-18752	10	SK3873	218	SK9394	205	SN4910M	252
Si2704-A10-GM	580	SK3875	221	SK9395	222	SN4911J	103
Si2704-A10-GQ	581	SK3877	210	SK9396	222	SN4911W	373
Si2705-A10-GM	580	SK3888	200	SK9406	640	SN4915I416E	285
Si2705-A10-GQ	581	SK3889	200	SK9745	229	SN4990AIF09E	15
Si2706-A10-GM	580	SK3890	216	SK9757	611	SN4990DI	15
Si2706-A10-GQ	581	SK3914	66	SK9815	230	SN4990WI	15

SN4994J	108	STA518	597	STK078	608	STK350-010	611
SN76001	213	STA530	599	STK078-105	608	STK350-020	611
SN76001A	213	STA533WF	597	STK078G	609	STK350-030	611
SN76001AN	213	STA540	543	STK080	608	STK350-040	611
SN76001AND	588	STA540SAN	543	STK080G	609	STK350-050	611
SN76001N	213	STA541SA	599	STK082	608	STK350-200	613
SN76002	588	STA543SA	600	STK082-105	608	STK350-210	613
SN76003N	175	STA550	600	STK082G	609	STK350-220	613
SN76007N	241	STA575	600	STK083	608	STK350-230	613
SN76008	588	STA7056	235	STK083G	609	STK350-240	613
SN76013N	175	STA7360	237	STK084	608	STK350-250	613
SN76018	588	STH1517	23	STK084G	609	STK350-530TE	613
SN76021ND	241	STH1517P	24	STK085	608	STK400-010	614
SN76023	175	STH4010YEF	13	STK085-105	608	STK400-020	614
SN76827	588	STH4010YZF	13	STK085G	609	STK400-030	614
SN76829	588	STH4986HQ	601	STK086	608	STK400-040	614
SPEMA2004A	20	STH4988SQ	248	STK086G	609	STK400-050	614
SS8021	103	STK0025	602	STK1030	643	STK400-060	614
SSM2135P	589	STK0029	602	STK1035	644	STK400-070	614
SSM2135S	589	STK0030	602	STK1039	644	STK400-080	614
SSM2211CP	105	STK0035	602	STK1040	643	STK400-090	614
SSM2211S	105	STK0039	602	STK1040II	645	STK400-100	614
SSM2250RM	117	STK0040	602	STK1045	644	STK400-110	614
SSM2250RU	359	STK0040II	603	STK1049	644	STK400-210	614
SSM2301CPZ	589	STK0045	602	STK1050	643	STK400-220	614
SSM2301RMZ	589	STK0049	602	STK1050II	645	STK400-230	614
SSM2302CPZ	104	STK0050	602	STK1055	644	STK400-240	614
SSM2304CPZ	589	STK0050II	603	STK1059	644	STK400-250	614
SSM2305CPZ	590	STK0055	602	STK1060	643	STK400-260	614
SSM2305RMZ	11	STK0059	602	STK1060II	645	STK400-270	614
SSM2306CPZ	589	STK0060	602	STK1070	643	STK400-280	614
SSM2311CBZ	13	STK0060II	603	STK1070II	645	STK400-290	614
SSM2315CBZ	13	STK0070	602	STK1080	643	STK400-300	614
SSM2317CBZ	590	STK0070II	603	STK1080II	645	STK400-310	614
SSM2319CBZ	590	STK0080	602	STK1100II	645	STK400-450	615
SSM2335CBZ	13	STK0080II	603	STK2025	646	STK400-460	615
SSM2356CBZ	590	STK0100	602	STK2029	646	STK400-470	615
SSM2375CBZ	591	STK0100II	603	STK2030	646	STK400-480	615
SSM2377ACBZ	591	STK0105	602	STK2038II	648	STK400-490	615
SSM2380CBZ	591	STK011	604	STK2040	646	STK400-500	615
SSM2517CBZ	592	STK013	604	STK2050	646	STK400-510	615
SSM2518CBZ	592	STK014	604	STK2125ST	646	STK400-520	615
SSM2518CPZ	593	STK015	604	STK2129	646	STK400-530	615
SSM2519ACBZ	593	STK016	604	STK2135	646	STK400-650	615
SSM2529ACBZ	594	STK0177	608	STK2139	646	STK400-660	615
SSM2804CBZ	594	STK018	605	STK2145	646	STK400-670	615
SSM2932ACBZ	595	STK020	605	STK2155	646	STK400-680	615
SSM3302ACPZ	595	STK021	605	STK2230	649	STK400-690	615
STA323W	163	STK022	605	STK2240	649	STK400-700	615
STA326	163	STK024	605	STK2250	649	STK400-710	615
STA328	163	STK025	605	STK2260	649	STK400-720	615
STA333BW	596	STK027	605	STK280-100	610	STK400-730	615
STA333BWS	596	STK0292	609	STK280-130	610	STK401-010	615
STA333W	596	STK030	606	STK282-100E	610	STK401-020	615
STA335BW	596	STK031	605	STK282-140E	610	STK401-030	615
STA335BWS	596	STK032	605	STK282-170E	610	STK401-040	615
STA335BWSQS	596	STK035	605	STK290-100	611	STK401-050	615
STA339BW	596	STK0352	609	STK290-130	611	STK401-060	615
STA339BWS	596	STK036	605	STK3042	611	STK401-070	615
STA370BWS	597	STK040	606	STK3042II	611	STK401-080	615
STA500	597	STK041	606	STK3042IIA	611	STK401-090	615
STA501	598	STK043	606	STK3042III	611	STK401-100	615
STA502	598	STK043-105	606	STK3044	650	STK401-110	615
STA505	597	STK0452	609	STK3044II	650	STK401-120	615
STA505A	597	STK050	607	STK3056	650	STK401-130	615
STA506	597	STK054	607	STK3062	611	STK401-140	615
STA506A	597	STK055	608	STK3062II	611	STK401-210	615
STA508	597	STK056	607	STK3062IIA	611	STK401-220	615
STA508A	597	STK057	608	STK3062III	611	STK401-230	615
STA510	598	STK058	608	STK3076	650	STK401-240	615
STA5100	601	STK060	608	STK3082	611	STK401-250	615
STA510A	597	STK062	608	STK3082II	611	STK401-260	615
STA510F	597	STK067	608	STK3082IIA	611	STK401-270	615
STA515	597	STK070	607	STK3082III	611	STK401-280	615
STA5150	601	STK071	608	STK3102II	611	STK401-290	615
STA515W	597	STK075	608	STK3102III	611	STK401-300	617
STA516B	597	STK075G	609	STK3122III	611	STK401-310	617
STA517B	597	STK077	608	STK3152III	611	STK401-320	617
		STK077G	609	STK350-000	611		

STK401-330	617	STK404-090	622	STK4100MK5	655	STK413-400	630
STK401-340	617	STK404-090S	622	STK4101	641	STK413-420	630
STK4017	651	STK40401I	651	STK41011I	656	STK413-430	630
STK4018II	651	STK4040V	652	STK4101V	656	STK4140MK2	655
STK4019	651	STK4040X	652	STK4102	641	STK4140MK5	655
STK402-020	616	STK4040XI	652	STK4102II	656	STK4141	641
STK402-030	616	STK404-100	622	STK4102V	656	STK41411I	656
STK40204	616	STK404-100S	622	STK4110MK2	655	STK4141V	656
STK402-040	616	STK404-120	622	STK4110MK5	655	STK4141X	657
STK402-050	616	STK404-120N-E	622	STK4111	641	STK4142	641
STK402-070	616	STK404-120S	622	STK4111II	656	STK4142II	656
STK402-071	616	STK404-130	623	STK4111V	656	STK4142V	656
STK402-090	616	STK404-130S	623	STK4112	641	STK4144MK2	658
STK4020II	651	STK404-140	623	STK411-200E	627	STK4144MK5	658
STK4021	651	STK404-140N-E	623	STK411-210E	627	STK4145MK2	658
STK402-100	616	STK404-140S	623	STK411-220E	627	STK4145MK5	658
STK402-120	616	STK404-200-E	623	STK411-230E	627	STK415	629
STK402-220	617	STK404-230-E	623	STK411-240E	627	STK415-090E	631
STK402-230	617	STK4042II	652	STK411-290E	627	STK4150MK2	655
STK402-240	617	STK4042V	652	STK4112II	656	STK4150MK5	655
STK402-250	617	STK4042X	652	STK4112V	656	STK4151	641
STK402-270	617	STK4042XI	652	STK411-550E	627	STK415-100E	631
STK4022II	651	STK4044II	652	STK4115G	627	STK415-120E	631
STK4023	651	STK4044V	652	STK412-000	628	STK415-130E	631
STK4024	651	STK4044X	652	STK412-010	628	STK415-140E	631
STK402-480	618	STK4044XI	652	STK412-020	628	STK4151II	656
STK4024II	651	STK4046II	653	STK41203	628	STK4151V	656
STK4024V	652	STK4046V	653	STK412-030	628	STK4151X	657
STK4025	651	STK4046X	653	STK412-040	628	STK4152	641
STK4026	651	STK4046XI	653	STK412-090	628	STK4152II	656
STK402-680	619	STK4048II	653	STK4120MK2	655	STK4152V	656
STK4026II	651	STK4048V	653	STK4120MK5	655	STK4154MK2	658
STK4026V	652	STK4048X	653	STK4121	641	STK4154MK5	658
STK40270N	616	STK4048XI	653	STK412-100	629	STK4155MK2	658
STK4028	651	STK405	625	STK412-150	629	STK4155MK5	658
STK4028II	651	STK405-010	624	STK412-150C-E	629	STK4159MK2	659
STK4028V	652	STK405-010A	624	STK412-150M	629	STK416-090E	632
STK4028X	652	STK405-030	624	STK41217	629	STK4160MK2	655
STK402-920	618	STK405-030A	624	STK412-170	629	STK4160MK5	655
STK402-930	618	STK405-050	624	STK412-170C-E	629	STK4161	641
STK402-940	618	STK405-050A	624	STK4121II	656	STK416-100E	632
STK402-950	618	STK405-070	624	STK4121J	628	STK416-120E	632
STK4029S	616	STK405-070A	624	STK4121V	656	STK416-130E	632
STK403-030	619	STK405-090	624	STK4122	641	STK4161II	656
STK403-040	619	STK405-090A	624	STK412-200	628	STK4161V	656
STK403-050	619	STK4050II	653	STK412-210	628	STK4161X	657
STK403-070	620	STK4050V	653	STK412-220	628	STK4162	641
STK403-090	621	STK405-100	624	STK41223	628	STK4162II	656
STK4030II	651	STK405-100A	624	STK412-230	628	STK4162V	656
STK4030V	652	STK405-110	624	STK412-240M	628	STK4164MK2	658
STK4030X	652	STK405-110A	624	STK412-290	628	STK4164MK5	658
STK403-100	621	STK405-120	624	STK4122II	656	STK4165MK2	658
STK403-120	621	STK405-120A	624	STK4122V	656	STK4165MK5	658
STK403-130	621	STK4065	654	STK412-410	628	STK4169MK2	659
STK403-240A	620	STK4067	654	STK41242	628	STK417-090	627
STK403-250A	620	STK407-040B	624	STK412-420	628	STK4170MK2	655
STK4032II	651	STK407-050E	624	STK412-430	628	STK4170MK5	655
STK4032V	652	STK407-070E	624	STK41244	628	STK4171	641
STK4032X	652	STK407-090E	624	STK412-440	628	STK417-100	627
STK403-430	621	STK407-100E	624	STK412-490	628	STK417-120	627
STK403-440	621	STK407-120E	624	STK413	629	STK417-130	627
STK403-450	621	STK407-130E	624	STK413-000	630	STK4171II	656
STK4034II	651	STK407-240	625	STK413-010	630	STK4171V	656
STK4034V	652	STK407-250	625	STK413-020	630	STK4171X	657
STK4034X	652	STK407-270	625	STK413-030	630	STK4172	641
STK4036	651	STK407-290	625	STK413-090	630	STK4172II	656
STK4036II	651	STK408-040E	627	STK4130MK2	655	STK4172V	656
STK4036V	652	STK408-050E	627	STK4130MK5	655	STK4174MK2	658
STK4036X	652	STK408-070E	627	STK4131	641	STK4174MK5	658
STK4036XI	652	STK408-090E	627	STK4131II	656	STK4175MK2	658
STK4038II	651	STK408-230	627	STK4131V	656	STK4175MK5	658
STK4038V	652	STK408-230M	627	STK4132	641	STK4176X	657
STK4038X	652	STK408-240	627	STK413-200	630	STK4179MK2	659
STK4038XI	652	STK410-000	626	STK413-210	630	STK4180MK2	655
STK404-050	622	STK410-010	626	STK413-220	630	STK4180MK5	655
STK404-050S	622	STK410-020	626	STK413-230	630	STK4181	641
STK404-070	622	STK410-030	626	STK413-290	630	STK4181II	656
STK404-070N-E	622	STK410-090	626	STK4132II	656	STK4181V	656
STK404-070S	622	STK4100MK2	655	STK4132V	656	STK4181X	657

STK4182	641	STK428-630	633	STK442-110	638	SVI3102C	667
STK4182II	656	STK428-640	633	STK442-120	638	SVI3102D	667
STK4182V	656	STK430	629	STK442-130	638	SVI3203	666
STK4184MK2	658	STK4301	662	STK443	629	SVI3204	666
STK4184MK5	658	STK430II	629	STK443-050	640	SVI3205	666
STK4185MK2	658	STK430III	629	STK443-070	640	SVI3205B	666
STK4185MK5	658	STK4311	662	STK443-090	640	SVI3205C	666
STK4186X	657	STK43205	634	STK4432	663	SVI3206D	666
STK4189MK2	659	STK432-050	634	STK45303	639	SVI4003	668
STK4190MK2	655	STK432-070	634	STK453-030	639	SVI4004A	668
STK4190MK5	655	STK432-090	634	STK453-030A	639	SVIGS4132M2M	667
STK4191	641	STK432-420	628	STK453-060	639	SVIGS4221M2M	668
STK419-110	631	STK433	629	STK457	640	SVIK4141-2M	667
STK419-130	631	STK433-030	636	STK459	640	TA0102A	669
STK419-140	631	STK433-030E	636	STK460	640	TA0103A	669
STK4191II	656	STK433-040	636	STK461	640	TA0104A	670
STK4191V	656	STK433-040E	636	STK463	640	TA0105A	670
STK4191X	657	STK433-040N-E	636	STK465	640	TA1101B	671
STK4192	641	STK433-060	636	STK4773	663	TA2002F	671
STK4192II	656	STK433-060E	636	STK4793	663	TA2002FN	671
STK4192V	656	STK433-060N-E	636	STK4803	663	TA2020-020	672
STK4194MK2	658	STK433-070	636	STK4813	663	TA2021	672
STK4194MK5	658	STK433-070E	636	STK4833	663	TA2021B	672
STK4195MK2	658	STK433-090	636	STK4843	663	TA2022	673
STK4195MK5	658	STK433-090E	636	STK4853	663	TA2024	672
STK4196MK10	657	STK433-100	636	STK4863	663	TA2024B	672
STK4196X	657	STK433-100E	636	STK4873	663	TA2024C	672
STK4199MK2	659	STK433-105	629	STK48801	641	TA2041	674
STK4200MK2	655	STK433-120	636	STK488-010	641	TA2069AF	675
STK4200MK5	655	STK433-120E	636	STK488-020	641	TA2072AF	676
STK4201II	659	STK433-130	636	STK488-050	641	TA2103F	676
STK4201V	660	STK433-130E	636	STK4893	663	TA2120FN	675
STK4201X	657	STK433-130N-E	636	STK490-040	642	TA2123AF	677
STK4204MK2	661	STK4332	663	STK490-070	642	TA2131FL	678
STK4204MK5	661	STK433-230	637	STK490-090	642	TA2131FLG	678
STK4205MK2	661	STK433-230A-E	637	STK490-110	642	TA2131FN	677
STK4205MK5	661	STK433-240	637	STK490-140	642	TA2145AF	678
STK4206X	657	STK433-240A-E	637	STK490-220	642	TA2152FLG	679
STK4209MK2	662	STK433-260	637	STK490-310	642	TA2152FN	679
STK4210MK2	655	STK433-260A-E	637	STK490-340	642	TA2160FN	679
STK4210MK5	655	STK433-270	637	STK4913	663	TA2170FL	680
STK4211II	659	STK433-270A-E	637	STK496-070	624	TA2170FTG	680
STK4211V	660	STK433-290	637	STK496-090	624	TA2179FNG	680
STK4211X	657	STK433-290-E	637	STK496-220	627	TA2208A/LS	681
STK4214MK2	661	STK433-300	637	STK496-270	625	TA3020	681
STK4214MK5	661	STK433-300-E	637	STK496-420Y	627	TA6206F	298
STK4215MK2	661	STK433-320	637	STK496-430	627	TA6210AH	234
STK4215MK5	661	STK433-320-E	637	STK496-620Y	626	TA7029AP	208
STK4216MK10	657	STK433-330	637	STK496-630	626	TA7062P	213
STK4216X	657	STK433-330-E	637	STK499-040	615	TA7066P	227
STK4219MK2	662	STK433-330N-E	637	STK499-070	615	TA7092AP	208
STK4220MK2	655	STK433-730-E	636	STK499-080	615	TA7140P	682
STK4220MK5	655	STK433-760-E	636	STK499-090	642	TA7200P	201
STK4221II	659	STK433-840N-E	638	STK499-120	643	TA7201P	682
STK4221V	660	STK433-870N-E	638	STK499-130	627	TA7202P	218
STK4224MK2	661	STK433-890N-E	638	STK499-140	642	TA7203P	204
STK4224MK5	661	STK433-930	639	STK499-220E	627	TA7204P	201
STK4225MK2	661	STK433-940	639	STK499-230E	627	TA7205AP	200
STK4225MK5	661	STK433-960	639	STK499-240E	627	TA7205P	200
STK4229MK2	662	STK433-970	639	STK499-290E	627	TA7207P	228
STK4230MK2	655	STK433A	629	STK8020	664	TA7208P	228
STK4230MK5	655	STK435	629	STK8030	664	TA7209P	218
STK4231II	659	STK435-105	629	STK8040	664	TA7210P	682
STK4231V	660	STK4352	663	STK8050	664	TA7211P	224
STK4234MK2	661	STK435A	629	STK8060	664	TA7212P	224
STK4234MK5	661	STK436	629	STK8250	665	TA7213P	228
STK4235MK2	661	STK436-105	629	STK8250II	665	TA7214P	228
STK4235MK5	661	STK4362	663	STK8260	665	TA7215P	223
STK4239MK2	662	STK436A	629	STK8260II	665	TA7216P	682
STK4241II	659	STK437	629	STK8270	665	TA7217AP	200
STK4241V	660	STK4372	663	STK8270II	665	TA7220P	683
STK425-050	632	STK439	629	STK8280	665	TA7222AP	219
STK425-070	632	STK4392	663	STK8280II	665	TA7223P	683
STK425-090	632	STK441	629	SVI2003	666	TA7224P	683
STK426-530	633	STK441-105	629	SVI2004A	666	TA7225P	684
STK4273	660	STK4412	663	SVI3101B	667	TA7227P	226
STK428-430	635	STK442-040	638	SVI3101C	667	TA7229P	220
STK428-610A	633	STK442-070	638	SVI3101D	667	TA7230P	207
STK428-610-E	633	STK442-090	638	SVI3102B	667	TA7232P	178



TA7233P	684	TA8217P	690	TAA621AX1	213	TB2903HQ	160
TA7235P	685	TA8218AH	690	TAA900	694	TB2904HQ	160
TA7236P	684	TA8220H	298	TAS2505IRG	695	TB2905HQ	160
TA7237AP	685	TA8220HQ	298	TAS2521IRG	695	TB2906HQ	160
TA7238AP	219	TA8221AH	234	TAS2552YF	696	TB2912HQ	726
TA7238P	219	TA8221AHQ	234	TAS2553YF	696	TB2913HQ	160
TA7240AP	231	TA8221AL	234	TAS5102DAD	696	TB2921AHQ	160
TA7240P	231	TA8221ALQ	234	TAS5103DAP	697	TB2921HQ	160
TA7241AP	231	TA8223K	691	TAS5110A	697	TB2922HQ	727
TA7241P	231	TA8225H	301	TAS5111A	698	TB2923AHQ	160
TA7246P	685	TA8225HQ	301	TAS5112A	699	TB2923HQ	160
TA7250AP	296	TA8225L	301	TAS5121DKD	700	TB2924AFG	727
TA7250BP	296	TA8225LQ	301	TAS5121IDKD	700	TB2924FG	727
TA7250P	296	TA8225P	35	TAS5122DCA	701	TB2926CHQ	160
TA7251AP	296	TA8229K	691	TAS5132DDV	162	TB2926HQ	160
TA7251BP	296	TA8231L	301	TAS5142DDV	162	TB2929HQ	728
TA7251P	296	TA8231LQ	301	TAS5142DKD	702	TB2932HQ	728
TA7252AP	685	TA8233BH	298	TAS5152DKD	702	TB2933HQ	728
TA7252P	685	TA8233BHQ	298	TAS5162DDV	162	TB2934HQ	726
TA7263P	231	TA8233H	298	TAS5162DKD	702	TB2936HQ	160
TA7264P	231	TA8238K	299	TAS5176DDW	703	TB2938HQ	160
TA7268P	682	TA8246AH	157	TAS5182DCA	171	TB2946HQ	160
TA7269P	685	TA8246AHQ	157	TAS5186ADDV	703	TB2959HQ	728
TA7270AP	231	TA8248K	691	TAS5261DKD	704	TBA1908A	730
TA7270P	231	TA8251AH	166	TAS5342ADDV	704	TBA310AS	8
TA7271AP	231	TA8251AHQ	166	TAS5342DDV	704	TBA641A12	214
TA7271P	231	TA8252H	164	TAS5342LADDV	704	TBA641B11	214
TA7273P	686	TA8252HQ	164	TAS5342LDDV	704	TBA641B72	214
TA7274P	232	TA8254BHQ	691	TAS5352ADDV	704	TBA641BX1	214
TA7275P	232	TA8254H	691	TAS5352DDV	704	TBA690	728
TA7280P	233	TA8255AH	166	TAS5414ATDK	706	TBA700+	728
TA7281P	233	TA8255AHQ	166	TAS5414TDK	706	TBA790	246
TA7282AP	177	TA8256BH	165	TAS5424ATDK	707	TBA790A	246
TA7283AP	31	TA8256BHQ	165	TAS5424TDK	707	TBA790D	8
TA7286P	685	TA8256H	165	TAS5601DCA	708	TBA790K	729
TA7294P	686	TA8258H	157	TAS5602DCA	708	TBA790KD	246
TA7295P	686	TA8258HQ	157	TAS5611DKD	709	TBA790LA	246
TA7299P	231	TA8259H	164	TAS5611PHD	710	TBA790LB	246
TA7313AP	66	TA8260AH	302	TAS5612DKD	711	TBA790LC	246
TA7331F	686	TA8261H	164	TAS5612LADDV	712	TBA790S	8
TA7331P	178	TA8262H	164	TAS5612PHD	713	TBA790T	8
TA7336P	686	TA8263AH	167	TAS5613DKD	709	TBA790U	8
TA7368F	687	TA8263BH	167	TAS5613PHD	710	TBA800	214
TA7368P	299	TA8264AH	167	TAS5614DKD	711	TBA800A	214
TA7376P	687	TA8264AHQ	167	TAS5614LADDV	712	TBA800C	214
TA7625F	687	TA8265K	692	TAS5614PHD	713	TBA810	8
TA7625P	687	TA8266H	167	TAS5615DKD	709	TBA810ACB	8
TA7628HP	688	TA8268AH	167	TAS5615PHD	710	TBA810ACBS	8
TA7628P	688	TA8268HS	167	TAS5616DKD	711	TBA810AD	8
TA7688F	688	TA8269P	692	TAS5616PHD	713	TBA810ADS	8
TA7688P	688	TA8270H	160	TAS5624ADDV	712	TBA810AP	8
TA7738P	688	TA8270HQ	160	TAS5630DKD	709	TBA810APS	8
TA7767F	689	TA8270P	160	TAS5630PHD	710	TBA810AS	8
TA7769P	37	TA8271H	692	TAS5631BDKD	711	TBA810AT	8
TA8111AP	689	TA8271HQ	692	TAS5631BPHD	713	TBA810D	8
TA8119P	689	TA8271P	692	TAS5631DKD	711	TBA810DAS	8
TA8145FN	300	TA8272H	167	TAS5631PHD	713	TBA810DS	8
TA8157AF	300	TA8273H	167	TAS5701PAP	714	TBA810P	8
TA8157AFN	300	TA8275H	167	TAS5704PAP	715	TBA810S	8
TA8159FN	300	TA8275HQ	167	TAS5705PAP	716	TBA810SH	8
TA8200AH	157	TA8276H	167	TAS5706APAP	718	TBA810T	8
TA8201AK	468	TA8276HQ	167	TAS5706BPAP	718	TBA820	214
TA8205AH	234	TA8277H	692	TAS5706PAP	718	TBA820BC2	205
TA8205AHQ	234	TA8277HQ	692	TAS5707PHD	165	TBA820M	205
TA8205AL	234	TA8283HQ	692	TAS5708PHD	719	TBA820MC2	205
TA8205ALQ	234	TA8803NHR	179	TAS5709APHP	165	TBA820M-D08	205
TA8207K	177	TAA2008	693	TAS5709PHD	165	TBA820M-S08	205
TA8207P	177	TAA2009	693	TAS5710PHD	719	TBA820MT	205
TA8208H	690	TAA4100	694	TAS5711PHD	720	TBA915	729
TA8210AH	234	TAA4100A	694	TAS5713PHD	721	TBA915G	729
TA8210AHQ	234	TAA611A12	213	TAS5715PHD	723	TBA915K	729
TA8210AL	234	TAA611A55	215	TAS5716PHD	718	TC2001	730
TA8210ALQ	234	TAA611B12	213	TAS5717PHD	724	TC4864EUA	17
TA8211AH	180	TAA611C11	213	TAS5719PHD	724	TC94B06WBG	25
TA8213K	181	TAA611C72	213	TAS5727PHD	721	TCA1004	731
TA8215H	234	TAA611CX1	213	TB2140FTG	725	TCA120	8
TA8215L	234	TAA611E12	213	TB2173FTG	725	TCA1365B	732
TA8216H	157	TAA611E55	215	TB2901HQ	173	TCA150	246
TA8216HQ	157	TAA621A11	213	TB2902HQ	726	TCA150D	8

TCA150KA	246	TDA1551Q	738	TDA2822D	37	TDA7292	159
TCA150KB	246	TDA1552Q	739	TDA2822M	37	TDA7293HS	532
TCA150S	8	TDA1553CQ	739	TDA2824	748	TDA7293V	532
TCA150T	8	TDA1553Q	739	TDA2824S	748	TDA7294HS	533
TCA150U	8	TDA1554Q	237	TDA2870	748	TDA7294S	532
TCA160B	731	TDA1555Q	739	TDA3000	748	TDA7294V	533
TCA2365	732	TDA1556Q	740	TDA4920	749	TDA7295S	532
TCA2465	732	TDA1557Q	739	TDA4925	749	TDA7295V	533
TCA2465A	732	TDA1558Q	237	TDA4930	749	TDA7296AV	758
TCA2465G	733	TDA1560Q	740	TDA4935	749	TDA7296S	532
TCA365	731	TDA1561Q	740	TDA7050	61	TDA7296SV	532
TCA760B	731	TDA1562Q	741	TDA7050T	61	TDA7296V	533
TCA830	8	TDA1562Q/S10	741	TDA7052	235	TDA7297	755
TCA830A	8	TDA1562SD	741	TDA7052A	749	TDA7297D	755
TCA830S	8	TDA1562ST	741	TDA7052AT	749	TDA7297SA	755
TCA830SM	731	TDA1563Q	741	TDA7052B	749	TDA7298	533
TCA940	8	TDA1564J	742	TDA7052BT	749	TDA7299	758
TCA940E	8	TDA1564TH	743	TDA7053	750	TDA7350	235
TDA1004	733	TDA1565TH	743	TDA7053A	275	TDA7350A	235
TDA1004A	733	TDA1566J	744	TDA7053AT	275	TDA7353	235
TDA1009	733	TDA1566TH	744	TDA7056	235	TDA7360	237
TDA1010A	734	TDA1904	233	TDA7056A	275	TDA7360HS	237
TDA1011	734	TDA1905	233	TDA7056AT	750	TDA7362	237
TDA1011A	734	TDA1908	745	TDA7056B	275	TDA7365	758
TDA1013	176	TDA1908A	745	TDA7057AQ	750	TDA7370	543
TDA1013A	176	TDA1910	745	TDA7057Q	750	TDA7370B	543
TDA1013B	176	TDA1910HS	745	TDA7231A	533	TDA7372A	759
TDA1015	734	TDA2002	174	TDA7233	750	TDA7372B	759
TDA1015T	734	TDA2002A	174	TDA7233D	751	TDA7374B	543
TDA1016	734	TDA2003	174	TDA7233S	751	TDA7375AH	543
TDA1020	734	TDA2003H	174	TDA7235	533	TDA7375AV	543
TDA1030	734	TDA2003V	174	TDA7236	751	TDA7375H	543
TDA1037	735	TDA2004	9	TDA7236D	751	TDA7375V	543
TDA1042	246	TDA2004A	9	TDA7240A	33	TDA7376B	167
TDA1042B	246	TDA2005	9	TDA7240AD	33	TDA7376PD	758
TDA1045	729	TDA2005M	9	TDA7240AH	33	TDA7377H	543
TDA1051	729	TDA2005S	9	TDA7240AV	33	TDA7377V	543
TDA1056	246	TDA2006	10	TDA7241B	751	TDA7381	160
TDA1099SP	735	TDA2006H	10	TDA7241BH	751	TDA7382	160
TDA1100SP	735	TDA2006V	10	TDA7241BV	751	TDA7383	160
TDA1102SP	735	TDA2007	745	TDA7245	752	TDA7384A	168
TDA1103	736	TDA2007A	745	TDA7245A	752	TDA7385	160
TDA1103SP	736	TDA2008	174	TDA7246	752	TDA7386	160
TDA1111SP	736	TDA2008V	174	TDA7250	752	TDA7388A	302
TDA1308	271	TDA2009	236	TDA7253	753	TDA7389	160
TDA1308AT	271	TDA2009A	236	TDA7253L	753	TDA7389A	302
TDA1308AUK	736	TDA2010	220	TDA7255	753	TDA7390	759
TDA1308T	271	TDA2020	220	TDA7256	753	TDA7391	759
TDA1308TT	271	TDA2025	745	TDA7261	754	TDA7391PD	759
TDA1400	737	TDA2030	10	TDA7262	754	TDA7393	543
TDA1410H	174	TDA2030A	10	TDA7263	532	TDA7394	543
TDA1420H	174	TDA2030AH	10	TDA7263L	754	TDA7396	759
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TDA1512Q	736	TDA2030V	10	TDA7264	397	TDA7480	157
TDA1514A	237	TDA2038	21	TDA7264A	576	TDA7481	158
TDA1515BQ	233	TDA2040	10	TDA7265	159	TDA7482	158
TDA1516BQ	231	TDA2040A	10	TDA7265SA	159	TDA7490	158
TDA1516CQ	231	TDA2040H	10	TDA7266	755	TDA7490L	158
TDA1517	23	TDA2040V	10	TDA7266B	755	TDA7490LSA	761
TDA1517ATW	737	TDA2050H	10	TDA7266D	755	TDA7490SA	761
TDA1517P	24	TDA2050V	10	TDA7266L	756	TDA7491HV	760
TDA1518BQ	231	TDA2051H	10	TDA7266M	756	TDA7491LP	760
TDA1518Q	231	TDA2051V	10	TDA7266MA	756	TDA7491MV	762
TDA1519	23	TDA2052	533	TDA7266P	756	TDA7491P	760
TDA1519A	23	TDA2075A	746	TDA7266S	755	TDA7492	760
TDA1519B	23	TDA22003L-TB9	785	TDA7266SA	755	TDA7492MV	762
TDA1519C	23	TDA2500	747	TDA7267	533	TDA7492P	760
TDA1519CSP	23	TDA2610	746	TDA7267A	180	TDA7493	762
TDA1519CTD	738	TDA2610A	746	TDA7267T	533	TDA7494	763
TDA1519CTH	738	TDA2611A	176	TDA7268	757	TDA7494S	762
TDA1519Q	23	TDA2611AQ	176	TDA7269	159	TDA7495	181
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TDA1520AQ	738	TDA2613	748	TDA7269ASA	159	TDA7496	181
TDA1520B	738	TDA2614	179	TDA7269SA	159	TDA7496L	256
TDA1520BQ	738	TDA2615	275	TDA7273	757	TDA7496S	763
TDA1521	232	TDA2616	275	TDA7273D	757	TDA7496SSA	763
TDA1521A	232	TDA2616Q	275	TDA7285	757	TDA7497	181
TDA1521Q	232	TDA2822	748	TDA7285D	757	TDA7497S	181

TDA7497SA	181	TDA8588AJ	774	TDF8597TH	788	TPA0223DGQ	371
TDA7498	760	TDA8588BJ	774	TDF8599ATH	788	TPA0232PWP	102
TDA7498E	764	TDA8588J	774	TDF8599BTH	788	TPA0233DGQ	806
TDA7498L	760	TDA8589AJ	774	TDF8599CTH	788	TPA0242PWP	102
TDA7498MV	762	TDA8589BJ	774	TDF8599TD	788	TPA0243DGQ	806
TDA7499	159	TDA8589J	774	TDF8599TH	788	TPA0252PWP	807
TDA7499SA	159	TDA8591J	775	TEA2021	788	TPA0253DGQ	806
TDA7538	160	TDA8592J	775	TEA2024	789	TPA02A	537
TDA7560	160	TDA8592Q	775	TEA2025B	37	TPA0312PWP	35
TDA7560A	302	TDA8593J	775	TEA2025D	36	TPA032D01DCA	802
TDA7561	726	TDA8593Q	775	TEA2025LS	37	TPA032D02DCA	803
TDA7562	763	TDA8594J	776	TFA9800J	789	TPA032D03DCA	803
TDA7563	763	TDA8594SD	776	TFA9810T	789	TPA032D04DCA	804
TDA7563A	763	TDA8595J	776	TFA9812HN	790	TPA102DGN	254
TDA7563AH	763	TDA8595SD	776	TFA9815T	789	TPA112D	103
TDA7563APD	764	TDA8595TH	776	TFA9841J	790	TPA112DGN	103
TDA7563ASM	763	TDA8596TH	777	TFA9842AJ	791	TPA12	5
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TDA7564	726	TDA8920J	779	TFA9843J	791	TPA1517NE	542
TDA7564B	726	TDA8920TH	777	TFA9879HN	791	TPA152D	807
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TDA7571	765	TDA8922CTH	778	TFA9890UK	793	TPA2000D4DAP	809
TDA7575B	766	TDA8922J	160	TFA9895UK	793	TPA2001D1GQC	808
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TDA7575PD	766	TDA8924TH	777	TK10417M	794	TPA2001D2PWP	96
TDA7801	766	TDA8925J	779	TK10565M	794	TPA2005D1DGN	11
TDA7801H	766	TDA8925ST	779	TK10566M	795	TPA2005D1DRB	12
TDA7801PD	767	TDA8926J	779	TK10569M	794	TPA2005D1GQY	809
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TDA7850	544	TDA8927J	779	TLV320DAC26	795	TPA2006D1DRB	12
TDA7850A	160	TDA8927ST	779	TMPA2008DS	28	TPA2008D2PWP	139
TDA7850AH	160	TDA8927TH	780	TMPA2010DM	13	TPA2010D1YEF	13
TDA7850H	544	TDA8928J	779	TMPA2012DS	27	TPA2010D1YZF	13
TDA7854	160	TDA8928ST	779	TMPA2055DM	505	TPA2011D1YFF	13
TDA8510J	767	TDA8931T	780	TMPA208DS	795	TPA2012D2RTJ	27
TDA8511J	768	TDA8932BT	163	TMPA2155DM	798	TPA2012D2YZH	117
TDA8512J	768	TDA8932BTW	163	TMPA2155DS	191	TPA2013D1RGP	810
TDA8541	105	TDA8932T	163	TMPA2156D2	799	TPA2013D1YZH	810
TDA8541T	105	TDA8932TW	163	TMPA218DS	796	TPA2014D1RGP	810
TDA8542	768	TDA8933BTW	163	TMPA221DS	796	TPA2014D1YZH	810
TDA8542AT	769	TDA8933T	163	TMPA268BDS	796	TPA2015D1YZH	810
TDA8542T	768	TDA8939TH	781	TMPA268DS	28	TPA2016D2YZH	810
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TDA8543	769	TDA8942P	781	TMPA402DS	29	TPA2018D1YZF	811
TDA8543T	769	TDA8943SF	782	TMPA4200DSIP	797	TPA2025D1YZG	253
TDA8547	768	TDA8944AJ	782	TMPA4200DSIT	797	TPA2026D2YZH	810
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TDA8551	770	TDA8946AJ	782	TMPA4300DSIP	798	TPA2031D1YZF	13
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TDA8558	770	TDA8950TH	778	TP2050	800	TPA2035D1YZF	13
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TDA8559	771	TDA8953TH	783	TP6902	800	TPA2037D1YFF	13
TDA8559T	771	TDA8954J	784	TP6905	800	TPA2038D1YFF	344
TDA8560Q	771	TDA8954TH	784	TPA005D02DCA	801	TPA2039D1YFF	13
TDA8561Q	768	TDF8530TH	785	TPA005D12DCA	801	TPA2050D4YZK	812
TDA8562Q	768	TDF8541J/N2	776	TPA005D14DCA	802	TPA2051D3YFF	812
TDA8563AQ	771	TDF8541J/S/N2	776	TPA0102PWP	183	TPA2054D4YZK	813
TDA8563Q	771	TDF8541SD/N2	776	TPA0103PWP	804	TPA2080D1YZG	813
TDA8564Q	768	TDF8541TH/N2	786	TPA0112PWP	35	TPA2100P1YZH	813
TDA8565Q	768	TDF8544J/N2	776	TPA0122PWP	35	TPA3000D1PWP	250
TDA8566Q	771	TDF8544SD/N2	776	TPA0132PWP	102	TPA3001D1PWP	250
TDA8566TH	772	TDF8544TH/N2	786	TPA0142PWP	102	TPA3002D2PHP	107
TDA8566TH1	772	TDF8546J/N1	776	TPA0152PWP	805	TPA3003D2PFB	814
TDA8567Q	772	TDF8546SD/N1	776	TPA0162PWP	805	TPA3004D2PHP	107
TDA8568Q	772	TDF8551J	786	TPA0172PWP	805	TPA3005D2PHP	118
TDA8569Q	772	TDF8553J	786	TPA02	537	TPA3007D1PW	250
TDA8571J	772	TDF8554J/N2	787	TPA0202PWP	97	TPA3008D2PHP	41
TDA8580	773	TDF8554J/N4	787	TPA0211DGN	806	TPA301D	105
TDA8581	773	TDF8555J/N1	786	TPA0212PWP	35	TPA301DGN	105
TDA8586Q	773	TDF8590TH	777	TPA0213DGQ	371	TPA302D	807
TDA8586TH	774	TDF8591TH	777	TPA0222PWP	35	TPA3100D2PHP	151

TPA3100D2RGZ	150	TPA721DGN	105	TS4900IDT	105	U413B	833
TPA3101D2PWP	151	TPA731D	105	TS4900IST	105	U413B-FP	833
TPA3101D2RGZ	150	TPA731DGN	105	TS4902IDT	105	U420B	833
TPA3106D1VFPFR	814	TPA741D	105	TS4902IST	105	U820B	205
TPA3107D2PAP	815	TPA741DGN	105	TS4909IQT	828	U821B	833
TPA3110D2PWP	54	TPA751D	105	TS4956EIJT	828	UA1029-H14	834
TPA3112D1PWP	815	TPA751DGN	105	TS4961TIQT	828	UA1029L-H14	834
TPA3113D2PWP	54	TPA751GQC	823	TS4962IQT	12	UA8229-H14-B	834
TPA3116D2DAD	816	TPS1035	730	TS4962MEIJT	13	UA8229-J15-A	691
TPA3117D2RHB	816	TPS4070	823	TS4972IJT	15	UL1401L	834
TPA3118D2DAP	816	TPS4100	159	TS4973IJT	829	UL1401R	834
TPA311D	97	TS2007EIJT	344	TS4974IQT	829	UL1402L	834
TPA311DGN	97	TS2007EIKJT	344	TS4975EIJT	830	UL1402R	834
TPA3120D2PWP	26	TS2007FC	344	TS4982IQT	829	UL1403L	834
TPA3121D2PWP	26	TS2007IQT	824	TS4984EIJT	830	UL1403R	834
TPA3122D2N	817	TS2012EIJT	117	TS4984FC	830	UL1405L	834
TPA3123D2PWP	26	TS2012FC	117	TS4984IQT	830	UL1440T	8
TPA3124D2PWP	26	TS2012IQT	27	TS4985EIJT	831	UL1461L	835
TPA3125D2N	817	TS34119CA	144	TS4990IDT	17	UL1480P	214
TPA3130D2DAP	816	TS34119CD	144	TS4990IJT	15	UL1481K	8
TPA3131D2RHB	817	TS34119CS	144	TS4990IQT	188	UL1482K	214
TPA3132D2RHB	817	TS419-2IST	824	TS4990IST	17	UL1490N	246
TPA3200D1DCP	818	TS419-2QT	825	TS4994EIJT	118	UL1491R	729
TPA321D	105	TS419-4IST	824	TS4994EIKJT	118	UL1492R	729
TPA321DGN	105	TS419-4QT	825	TS4994FC	118	UL1493R	729
TPA4411MRTJ	103	TS419-8IST	824	TS4994IJT	118	UL1495N	246
TPA4411RTJ	103	TS419-8QT	825	TS4994IQT	108	UL1496R	729
TPA4411YZH	373	TS419IDT	105	TS4994IST	108	UL1497R	729
TPA4860D	364	TS419IST	105	TS4995EIJT	831	UL1498R	729
TPA4861D	105	TS419QT	824	TS4997IQT	831	ULN-2274B	240
TPA6010A4PWP	819	TS421-2IST	416	TS4999EIJT	831	ULN-2275P	240
TPA6011A4PWP	22	TS421-2QT	825	TSDC05IJT	15	ULN-2276P	240
TPA6012A4PWP	818	TS421-4IST	416	TVCM-23	240	ULN-2277P	240
TPA6013A4PWP	22	TS421-4QT	825	TVCM-25	240	ULN-2278P	240
TPA6017A2PWP	33	TS421-8IST	416	TVCM-26	240	ULN2280A	238
TPA6020A2RGW	98	TS421-8QT	825	TVCM-35	238	ULN2281B	238
TPA6021A4N	251	TS421IDT	17	TVCM-65	240	ULN2283B	834
TPA6030A4PWP	819	TS421IST	17	TVCM-81	200	ULN2283B-1	834
TPA6040A4RHB	820	TS421QT	824	TX2068	42	ULN3701Z	174
TPA6041A4RHB	820	TS4601BEIJT	827	TX4066DI	832	ULN3701ZH	174
TPA6043A4RHB	820	TS4601EIJT	827	TX4066ES	832	ULN3701ZV	174
TPA6045A4CRHB	820	TS4621BEIJT	25	TX4066QF	257	ULN3702Z	174
TPA6047A4RHB	820	TS4621EIJT	25	TX4066SO	832	ULN3702ZV	174
TPA6100A2D	254	TS4621MLEIJT	24	TX4088DI	273	ULN3703Z	174
TPA6100A2DGK	254	TS482ID	103	TX4088ES	273	ULN3703ZH	174
TPA6101A2D	254	TS482IQT	826	TX4088QF	248	ULN3705M	834
TPA6101A2DGK	254	TS482IST	103	TX4088SO	273	ULN3718BM	835
TPA6102A2D	254	TS482IT	103	TX4098DI	832	ULN3718M	835
TPA6102A2DGK	254	TS4851IJT	359	TX4098ES	832	ULN3750B	835
TPA6110A2DGN	254	TS4855IJT	359	TX4098QF	832	ULN3751Z	10
TPA6111A2D	106	TS486-1IQT	825	TX4098SO	832	ULN3755C	497
TPA6111A2DGN	106	TS486-1IST	825	TX4663DI	273	ULN3755W	539
TPA6112A2DGQ	15	TS486-2IQT	825	TX4663ES	273	ULN3782M	835
TPA6120A2DWP	820	TS486-2IST	825	TX4663SO	273	ULN3784B	238
TPA6130A2RTJ	821	TS486-4IQT	825	TX4809MS	96	ULN3793W	229
TPA6130A2YZH	821	TS486-4IST	825	TX4871DI	178	ULX3777W	70
TPA6132A2RTE	555	TS486IDT	96	TX4871SO	17	ULX3788W	227
TPA6135A2RTE	821	TS486-IQT	826	TX6103DI	40	UTC1316	198
TPA6136A2YFF	822	TS486IST	96	TX6103SO	40	UTC2206	182
TPA6138A2P	822	TS4871IDT	105	TX8002DI	178	UTC3541-D	6
TPA6139A2PW	822	TS4871IQT	188	TX8002SO	17	UTC3541-S	6
TPA6139A2RG	823	TS487-1IQT	826	TX8005DI	178	UTC3544	6
TPA6140A2YF	25	TS4871IST	105	TX8005SO	17	UTCPC1316	198
TPA6141A2YF	24	TS487-1IST	826	TX8302D	12	VA2101DNG8	12
TPA6203A1GQV	152	TS4872IJT	15	TX8302M	11	VA2101MSG8	11
TPA6203A1ZQV	152	TS487-2IQT	826	TX8302S	11	VA2101SOG8	11
TPA6204A1DGN	20	TS487-2IST	826	TX8305H	119	VA2102DNG8	119
TPA6204A1DRB	20	TS487-4IQT	826	TX8305Q	118	VMA2012	836
TPA6205A1DGN	113	TS487-4IST	826	U2431B	833	VMA2013	836
TPA6205A1DRB	113	TS487IDT	106	U2432B	833	VMA2015	836
TPA6205A1ZQV	152	TS487IQT	826	U2433B	833	VMA2016	836
TPA6211A1DGN	20	TS487IST	106	U2822B	37	WAA2140FC-9	13
TPA6211A1DRB	20	TS488IQT	827	U2823B	37	WAA2141FC-9	13
TPA6211A1TDGNRQ1	20	U4083B	144	U4083B	144	WAA2145FC-9	25
TPA701D	105	TS4890IDT	17	U4083B-AFP	144	WAA2148Q-20	837
TPA701DGN	105	TS4890IQT	188	U410B	833	WAA2149Q-20	836
TPA711D	97	TS4890IST	17	U410D	833	WAA2890DM-8	17
TPA711DGN	97	TS489IQT	827	U411B	833	WAA2991QS-9	837
TPA721D	105	TS489IST	106	U412B	833	WAA8822YG	839

WD2013FN .....	179	YD1008 .....	10	YD7265 .....	159	YDA175-QZ .....	853
WM8731LSEFL .....	837	YD1013B .....	176	YD7368 .....	299	YESAM274 .....	160
WM8731SEDS .....	838	YD1016 .....	843	YD7496L .....	256	YESAM438 .....	160
WM8750LSEFL .....	840	YD1028 .....	23	YD7738 .....	688	ZA2030EWR .....	854
WM9001ECS .....	839	YD1316 .....	198	YD8001D .....	17	K1021YH1 .....	176
WM9001GEFL .....	840	YD1517P .....	24	YD8001N .....	178	K1075YH1 .....	70
WM9010ECS .....	841	YD1519 .....	23	YD810 .....	8	K174YH11 .....	220
WM9711LGEFL .....	841	YD1519B .....	23	YD820 .....	205	K174YH14 .....	174
X00407A .....	174	YD2025 .....	37	YD8207 .....	177	K174YH15 .....	290
XE3004 .....	842	YD2025A .....	37	YD8217 .....	690	K174YH17 .....	291
XPT2010ITL .....	13	YD2025D .....	36	YD8227 .....	35	K174YH18 .....	292
XPT4809LD .....	352	YD2025H .....	843	YD8602 .....	152	K174YH19 .....	10
XPT4809LQ .....	352	YD2030 .....	10	YDA131-EZ .....	844	K174YH20 .....	292
XPT4809M .....	96	YD2030A .....	10	YDA135-VZ .....	844	K174YH22 .....	292
XPT4809MM .....	96	YD2050 .....	10	YDA137-AZ .....	845	K174YH24 .....	235
XPT4871LD .....	188	YD2073 .....	37	YDA138-EZ .....	845	K174YH25 .....	9
XPT4871M .....	17	YD2206 .....	182	YDA139-EZ .....	846	K174YH27 .....	9
XPT4871MM .....	17	YD2611 .....	176	YDA139-WZ .....	846	K174YH29 .....	236
XPT4871N .....	178	YD2822 .....	37	YDA142-EZ .....	847	K174YH30 .....	10
XPT4890ITL .....	15	YD34119 .....	144	YDA143-EZ .....	847	K174YH33 .....	10
XPT4890M .....	17	YD34119A .....	144	YDA144B-PZ .....	30	K174YH4A .....	291
XPT4890MM .....	17	YD386 .....	121	YDA144B-QZ .....	29	K174YH4B .....	291
XPT4990ITL .....	15	YD4165 .....	307	YDA145-PZ .....	25	K174YH5 .....	291
XPT4990LD .....	112	YD4533 .....	29	YDA146-SZ .....	848	K174YH7 .....	8
XPT4990MH .....	112	YD5104 .....	295	YDA147-QZ .....	848	K174YH9 .....	8
XPT4990MM .....	17	YD5265 .....	58	YDA147-SZ .....	848	KA1436YH1 .....	144
XR-T65119 .....	144	YD6282 .....	177	YDA148-QZ .....	849	KP1054YH1 .....	61
XZ2822D .....	37	YD6283 .....	31	YDA153-PZ .....	850	KP1064YH2 .....	144
XZ2822N .....	37	YD6409 .....	182	YDA153-QZ .....	850	KP1436YH1 .....	144
XZ4836MT .....	269	YD665 .....	177	YDA161-VZ .....	851	KP174YH31 .....	293
XZ4863MT .....	30	YD667 .....	842	YDA162-QZ .....	851	KP174YH34 .....	37
XZ4871P .....	178	YD668 .....	177	YDA163C-SZ .....	852	KΦ1054YH1 .....	61
XZ4871S .....	17	YD669 .....	843	YDA165-PZ .....	852	KΦ147YH2101 .....	61
YD1001 .....	300	YD7000 .....	29	YDA168B-PZ .....	853	KΦ174YH17 .....	291
YD1006 .....	10	YD7112 .....	66	YDA169-QZ .....	853	ЭКР1436YH1 .....	144

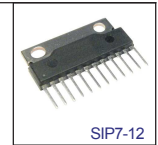
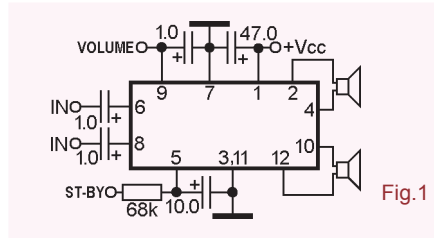
**Schematic diagram**

**Short description**

**Characteristics**

## Dual BTL power audio amplifier with DC volume control and stand-by

1233-F12 AN17822A  
 AN7522 CD7522CS  
 AN7522N CD17821CS  
 AN17820A NTE7221  
 AN17820B PA7522-H12  
 AN17821A PA7522L-H12



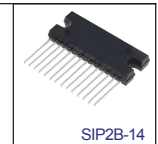
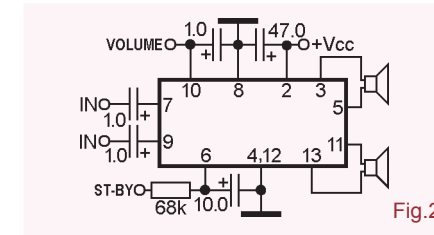
**Application:** TV, audio equipments, personal computers, active speakers  
**Features:**

- Pin-to-pin and case compatible types with variable electrical characteristics
  - Built-in stand-by function (stand-by: LOW) and DC volume control circuit ( $UVol = 0 \dots 1.25V$ )
  - Built-in thermal shutdown circuit (operates at about  $T_j = 150^\circ C$ ). Reset automatically if the temperature drops.
- Fig.1 shows a typical application

Type	Case	V <sub>ccm</sub>	V <sub>ccmx</sub>	I <sub>cc0</sub>	P <sub>outmx</sub>	R <sub>L</sub>	B <sub>w</sub>	R <sub>in</sub>	THD	G <sub>vo</sub>	Mnf
1233-F12	SIP7-12	3.5V	13.5V	45mA	2x3W	8Ω	15Hz-30kHz	30kΩ	0.1%	33dB	Utc
AN7522	SIP7-12	3V	13.5V	45mA	2x3W	8Ω	15Hz-30kHz	30kΩ	0.1%	33dB	Pan
AN7522N	SIP7-12	3V	13.5V	45mA	2x3W	8Ω	15Hz-30kHz	30kΩ	0.1%	33dB	Pan
AN17820A	SIP7-12	3V	13.5V	45mA	2x3W	8Ω	15Hz-30kHz	30kΩ	0.1%	33dB	Pan
AN17820B	SIP7-12	3V	13.5V	45mA	2x3W	8Ω	15Hz-30kHz	30kΩ	0.1%	33dB	Pan
AN17821A	SIP7-12	3.5V	13.5V	50mA	2x5W	8Ω	15Hz-30kHz	30kΩ	0.1%	33dB	Pan
AN17822A	SIP7-12	3V	13.5V	45mA	2x3W	8Ω	15Hz-30kHz	30kΩ	0.1%	33dB	Pan
CD17821CS	SIP7-12	3.5V	13.5V	50mA	2x5W	8Ω	15Hz-30kHz	30kΩ	0.1%	33dB	Hje
CD7522CS	SIP7-12	3V	13.5V	45mA	2x3W	8Ω	15Hz-30kHz	30kΩ	0.1%	33dB	Hje
CD17821CS	SIP7-12	3.5V	13.5V	50mA	2x5W	8Ω	15Hz-30kHz	30kΩ	0.1%	33dB	Hje
NTE7221	SIP7-12	3V	13.5V	45mA	2x5W	8Ω	15Hz-30kHz	30kΩ	0.1%	33dB	Nte
PA7522-H12	SIP7-12	3V	13.5V	45mA	2x3W	8Ω	15Hz-30kHz	30kΩ	0.1%	33dB	Utc
PA7522L-H12	SIP7-12	3V	13.5V	45mA	2x3W	8Ω	15Hz-30kHz	30kΩ	0.1%	33dB	Utc

## Dual BTL power audio amplifier with DC volume control and stand-by

1233-H14-B  
 PA7522-H14-B  
 PA7522L-H14-B



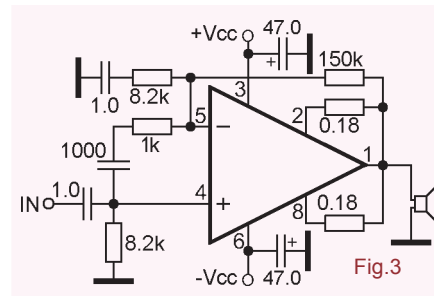
**Application:** TV, audio equipments, personal computers, active speakers  
**Features:**

- Pin-to-pin, case and electrical characteristics compatible types
  - Built-in stand-by function (stand-by: LOW) and DC volume control circuit ( $UVol = 0 \dots 1.25V$ )
  - Built-in thermal shutdown circuit (operates at about  $T_j = 150^\circ C$ ). Reset automatically if the temperature drops.
- Fig.2 shows a typical application.

Type	Case	V <sub>ccm</sub>	V <sub>ccmx</sub>	I <sub>cc0</sub>	P <sub>outmax</sub>	R <sub>L</sub>	B <sub>w</sub>	R <sub>in</sub>	THD	G <sub>vo</sub>	Mnf
1233-H14-B	SIP2B-14	3V	13.5V	45mA	2x3W	8Ω	15Hz-30kHz	30kΩ	0.1%	33dB	Utc
PA7522-H14B	SIP2B-14	3V	13.5V	45mA	2x3W	8Ω	15Hz-30kHz	30kΩ	0.1%	33dB	Utc
PA7522L-H14B	SIP2B-14	3V	13.5V	45mA	2x3W	8Ω	15Hz-30kHz	30kΩ	0.1%	33dB	Utc

## Power operational/audio amplifier

1468 OPA512SM  
 3571 PA01  
 3572 PA10  
 3573 PA10A  
 8510 PA12  
 8515 PA12A  
 8520 PA12H  
 8530 PA12M  
 OPA502BM PA73  
 OPA502SM PA73M  
 OPA511AM TPA12  
 OPA512BM TPA12A



**Application:** HiFi home audio systems  
**Features:**

- Pin-to-pin and case compatible types with variable electrical characteristics

## Dual power audio amplifier with stand-by



STK403-070

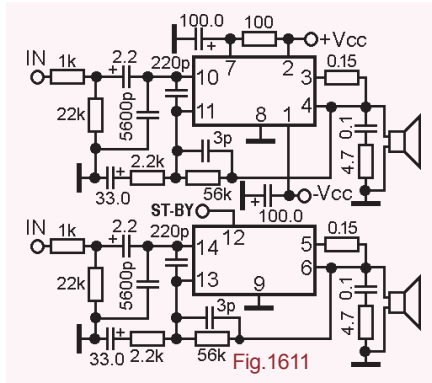


Fig.1611

*Application:* Hi-Fi component systems

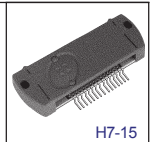
*Features:*

- Class AB power audio amplifier
- Dual (bipolar, symmetrical) power supply
- Stand-by function (Ust < 0.6V: stand-by; Ust > 0.6V: operates)
- Designed to support 6Ω loads
- Typ. 0.03% THD

Fig.1611 shows a typical application.

Type	Case	Uccmin	Uccmax	Icc0	Poutmax	Rlnom	Bw	Rin	THD	Gv	Mnf
STK403-070	H7-14	±30V	±50V	40mA	2x40W	6Ω	20Hz-50kHz	55kΩ	0.03%	30dB	San

## 3-channel power audio amplifier with stand-by



STK403-240A  
STK403-250A

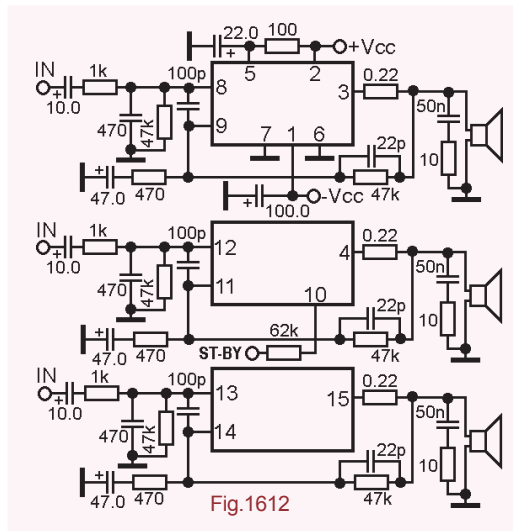


Fig.1612

*Application:* home theater multispeaker audio systems, Hi-Fi component systems

*Features:*

- Pin-to-pin and case compatible types with variable electrical characteristics
- Class AB power audio amplifier
- Dual (bipolar, symmetrical) power supply
- Stand-by function (Ust < 0.6V: stand-by; Ust > 0.6V: operates)
- Designed to support 6Ω loads

Fig.1612 shows a typical application.

Type	Case	Uccmn	Uccmx	Icc0	Poutmx	Rlnom	Bw	Rin	THD	Gv	Mnf
STK403-240A	H7-15	±18V	±38V	45mA	3x40W	6Ω	20Hz-50kHz	55kΩ	0.02%	30dB	San
STK403-250A	H7-15	±20V	±46V	45mA	3x50W	6Ω	20Hz-50kHz	55kΩ	0.02%	30dB	San



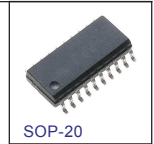
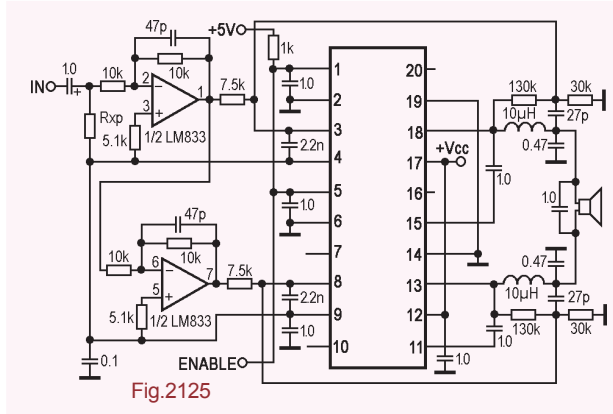
- Output mute function (MUTE, active LOW)
- Built-in sleep function (SLEEP, active LOW)
- Protection (PROT pin) warning signal output terminal for overcurrent, overtemperature, output DC voltage, low Vcc voltage and clock detection. PROT terminal outputs "LOW" level when either of those detection circuitries detects an abnormality state

Fig.21124 shows a typical application

Type	Case	V <sub>ccmn</sub>	V <sub>ccmx</sub>	I <sub>cc0</sub>	P <sub>outmx</sub>	R <sub>L</sub>	B <sub>w</sub>	R <sub>in</sub>	THD	G <sub>vc</sub>	Mnf
YDA175-QZ	QFN-32	5.0V	18.0V	31mA	2x15W	4Ω	20Hz-20kHz	3.3MΩ	0.05%	0dB..6dB	Ymh

### BTL class-D power audio amplifier with shutdown

ZA2030EWR



Application: TV sets and portable radio

Features:

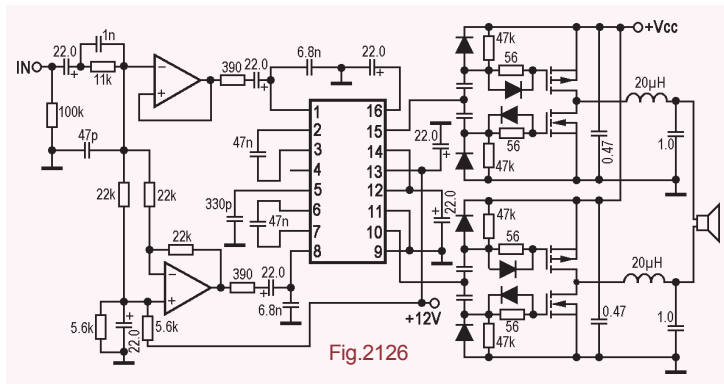
- Shutdown (ENABLE pin) built-in (active: LOW)

Fig.2125 shows a typical application

Type	Case	V <sub>ccmn</sub>	V <sub>ccmx</sub>	I <sub>cc0</sub>	I <sub>outmx</sub>	P <sub>outmx</sub>	R <sub>L</sub>	B <sub>w</sub>	R <sub>in</sub>	THD	G <sub>vc</sub>	Mnf
ZA2030EWR	SOP-20	2.4V	22V	10mA	4A	30W	8Ω	20Hz-20kHz	30kΩ	0.1%	32dB	Vim

### BTL class-D power audio amplifier with shutdown

ZXCD1000

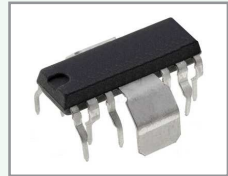




Application: home theater HiFi systems

Fig.2126 shows a typical application

Type	Case	V <sub>ccmn</sub>	V <sub>ccmx</sub>	I <sub>cc0</sub>	P <sub>outmx</sub>	R <sub>L</sub>	B <sub>w</sub>	R <sub>in</sub>	THD	G <sub>vc</sub>	Mnf
ZXCD1000	eQSOP-16	12V	18V	10mA	100W*	8Ω	20Hz-20kHz	1.8kΩ	0.05%	10dB	Zx

**Case drawings**



16-DIP-F 	206A 	4209 	644A 	BGA-8 
BGA-8A 	BGA-9 WCSP-9 	BGA-10 	BGA-12 	BGA-14 
BGA-15 	BGA-16 	BGA-18 	BGA-18 	BGA-20 
BGA-24 	BGA-25 	BGA-29 	BGA-30 	BGA-32 
BGA-36 	BGA-42 	BGA-49 	CB-313 	CERDIP-18 
CLIPWATT-11 	CLIPWATT-15 	CLIPWATT-19 	CP-8 CP8-2 	CP-16 LFCSP-16 
CP-20 	CP-24A 	CP-28 VQFN-28 	CP-32 	CP-48-1 



**Manufacturers logos and URL**



**A1s- A1semi Electronics Ltd.**  
<http://www.a1semi.com/>



**Ad- Analog Devices**  
<http://www.analog.com>



**Ads- ADsemi Semiconductor Inc.**  
<http://www.adsemi.net/>



**Agm- Agamem Microelectronic Inc.**  
<http://www.agamem.com.tw/eng/>



**Ait- AiT Semiconductor Inc.**  
<http://www.analog.com.tw>



**All- Allegro MicroSystems Inc.**  
<http://www.allegromicro.com>



**Amc- AMIC Technology, Inc.**  
[www.amictechnology.com](http://www.amictechnology.com)



**Amz- Amazing Microelectronic**  
<http://www.amazingIC.com>



**Ana- Anachip Corp.**  
[www.anachip.com.tw](http://www.anachip.com.tw)



**Ang- Angstrom**  
<http://www.angstrom.ru>



**Anp- Anpec Electronics Corp.**  
[www.anpec.com.tw](http://www.anpec.com.tw)



**Ant- Advanced Analogic Technologies, Inc.**  
<http://www.analogictech.com>



**Aot- Irico Aotom (Hong Kong) Holdings Co., Ltd.**  
<http://www.aotom.com>



**Apg- Apogee Technology, Inc.**  
<http://www.apogeemems.com>



**Apo- Apexone Microelectronics (Shanghai) Inc.**  
<http://www.apexonemicro.com/index.asp>



**Apx- Apex Microtechnology Corp. (acquired by Cirrus Logic)**  
<http://www.apexmicrotech.com>



**Asi- ASIC Microelectronics**  
<http://www.asic.com.cn/>



**Ask- Asahi Kasei Microdevices Corp.**  
<http://www.akm.com/akm/en/>



**Asm- Austria Microsystems AG**  
<http://www.austriamicrosystems.com>



**Atm- Atmel Corporation**  
<http://www2.atmel.com/>



**Avi- Avic Electronics Corp.**  
<http://www.avictek.com>

**SMD marking codes  
for power audio amplifiers in SMD cases**



SMD-codes					
SMD code	Type	Poutmax	RL	Case	Pg.
****	MAX9718AEUB+	1.4W	4Ω	SOP-10	108
****	MAX9718BEUB+	1.4W	4Ω	SOP-10	109
****	MAX9718CEUB+	1.4W	4Ω	SOP-10	109
****	MAX9718DEUB+	1.4W	4Ω	SOP-10	109
****	MAX9718EEUB+	1.4W	4Ω	SOP-10	109
****	MAX9718FEUB+	1.4W	4Ω	SOP-10	109
****	MAX9718GEUB+	1.4W	4Ω	SOP-10	109
****	MAX9718HEUB+	1.4W	4Ω	SOP-10	109
****	MAX9724AETC+	2x60mW	32Ω	QFN-12	431
****	MAX9724BETC+	2x60mW	32Ω	QFN-12	432
****	MAX9718BETB+T	1.4W	4Ω	DFN-10	109
****	MAX9718CEBT+T	1.4W	4Ω	DFN-10	109
****	MAX9718DEBT+T	1.4W	4Ω	DFN-10	109
****	MAX9724CETC+	2x60mW	32Ω	QFN-12	431
****	MAX9724DETC+	2x60mW	32Ω	QFN-12	432
****	MAX9830BEWC+	3.3W	4Ω	BGA-12	462
****	MAX9830OETA+	2.6W	4Ω	DFN-8	460
****	MAX9724AEBCT+	2x60mW	32Ω	BGA-12	431
****	MAX9724BEBCT+	2x60mW	32Ω	BGA-12	431
****	MAX9718BEBL+TG45	1.4W	4Ω	BGA-9	368
****	MAX9718CEBL+TG45	1.4W	4Ω	BGA-9	368
****	MAX9718DEBL+TG45	1.4W	4Ω	BGA-9	368
****	MAX9724DEBCT+	2x60mW	32Ω	BGA-12	431
****	MAX9830BETD+	2x3.7W	4Ω	DFN-14	461
****	MAX9718EEBL+TG45	1.4W	4Ω	BGA-9	368
****	MAX9718FEBL+TG45	1.4W	4Ω	BGA-9	368
****	MAX9718GEBL+TG45	1.4W	4Ω	BGA-9	368
****	MAX9718HEBL+TG45	1.4W	4Ω	BGA-9	368
****	MAX9724CEBCT+	2x60mW	32Ω	BGA-12	431
****	MAX9830OEWL+	2.6W	4Ω	BGA-9	460
****	MAX9830ETE+	3.3W	4Ω	QFN-16	462
****	MAX9830EWL+	1.4W	4Ω	BGA-9	462
****	MAX9830EWL+	1.4W	4Ω	BGA-9	462
****	MAX9722OEEETE+	2x125mW	16Ω	QFN-16	458
****	MAX9718EETB+T	1.4W	4Ω	DFN-10	109
****	MAX9718FETB+T	1.4W	4Ω	DFN-10	109
****	MAX9718GETB+T	1.4W	4Ω	DFN-10	109
****	MAX9718HETB+T	1.4W	4Ω	DFN-10	109
005	FAN7005MU	2x300mW	8Ω	MSOP-8	254
01	TS4601EIJT	2x75mW	16Ω	BGA-16	827
024	FAN7024MPX	675mW	8Ω	DFN-10	243
024	FAN7024MU	675mW	8Ω	MSOP-8	17
0410	SI2704-A10-GM	2x5W	8Ω	QFN-24	580
0510	SI2705-A10-GM	2x5W	8Ω	QFN-24	580
0610	SI2706-A10-GM	2x5W	8Ω	QFN-24	580
0710	SI2707-A10-GM	2x5W	8Ω	QFN-24	580
1166	LT1166CN8	60W*	4Ω	DIP-8	397
1166	LT1166CS8	60W*	4Ω	SOP-8	397
1442	G1442RD1D	2.6W	3Ω	DFN-8	188
1442	G1442RK1U	2.6W	3Ω	DFN-8	188
1445	G1445B31U	2.6W	3Ω	BGA-8	258
1445	G1445RD1D	2.6W	3Ω	DFN-8	188
1453	G1453R41U	2x2.6W	3Ω	TOFN-16	258
1453L	G1453LR41U	2x2.6W	3Ω	TOFN-16	258
1454	G1454R41U	2x2.1W	3Ω	TOFN-16	258
1454L	G1454LR41U	2x2.1W	3Ω	TOFN-16	258
1720K	MP1720DH-3	2.7W	4Ω	MSOP-10EP	418
1720L	MP1720DH-6	2.7W	4Ω	MSOP-10EP	418
1720M	MP1720DH-9	2.7W	4Ω	MSOP-10EP	418
1720N	MP1720DH-12	2.7W	4Ω	MSOP-10EP	418
1720P	MP1720DH-216	2.7W	4Ω	MSOP-10EP	418
2000D1	TPA2000D1GQC	2W	4Ω	BGA-48	808
2000D1	TPA2000D1PW	2W	4Ω	HSOP-16	808
2000D2	TPA2000D2PWP	2x2W	3Ω	SSOP-24	96
2001D1	TPA2001D1GQC	1W	8Ω	BGA-48	808
2001D1	TPA2001D1PW	1W	8Ω	HSOP-16	808
2004	PT2004	2x2.2W	4Ω	BGA-16	117
2004	PT2004L	2x2.2W	4Ω	BGA-16	117
2005A	EUA2005J	1.5W	8Ω	DFN-8	12
2010	AZAU2010	2.9W	4Ω	BGA-9	13
2010A	EUA2010J	3W	4Ω	DFN-8	247
2010B	EUA2010BJ	3W	4Ω	DFN-8	12
2011	AZAD2010	2.9W	4Ω	BGA-9	13
2011A	EUA2011AJ	2.5W	4Ω	DFN-8	12
201A	ISL992011IAZ	1.5W	8Ω	BGA-9	288
201A	ISL992011RTAZ	1.5W	8Ω	TDFN-8	288
201B	ISL992011IBZ	1.5W	8Ω	BGA-9	288
201B	ISL992011RTBZ	1.5W	8Ω	TDFN-8	288
201C	ISL992011ICZ	1.5W	8Ω	BGA-9	288
201C	ISL992011RTCZ	1.5W	8Ω	TDFN-8	288
201D	ISL992011IDZ	1.5W	8Ω	BGA-9	288
201D	ISL992011RTDZ	1.5W	8Ω	TDFN-8	288
202A	ISL99202IIAZ	2x70mW	16Ω	BGA-12	289
202A	ISL99202IRTAZ	2x70mW	16Ω	TOFN-12	289

SMD-codes					
SMD code	Type	Poutmax	RL	Case	Pg.
202B	ISL99202IBZ	2x70mW	16Ω	BGA-12	289
202B	ISL99202IRTBZ	2x70mW	16Ω	TOFN-12	289
203	ISL99203IIZ	1.5W	4Ω	BGA-20	290
21	AZ2H165	2x100mW	16Ω	BGA-16	24
21	AZ2H165M	2x100mW	16Ω	BGA-16	25
21	RT9101CWSC	2.65W	4Ω	BGA-9	13
21	TS4621BEIJT	2x56mW	32Ω	BGA-16	25
21	TS4621EIJT	2x50mW	32Ω	BGA-16	25
21	TS4621MEIJT	2x56mW	16Ω	BGA-16	24
2102	AZAD2102B	3.1W	4Ω	BGA-9	120
2131	TA2131FLG	2x8mW	16Ω	QFN-24	678
2140	WAA2140FC-9	2.4W	4Ω	BGA-9	13
2141	WAA2141FC-9	2W	4Ω	BGA-9	13
2145	WAA2145FC-9	2.4W	4Ω	BGA-9	25
2201	AZAD2201B	2x3.1W	4Ω	BGA-16	117
2333	PT2333	2.5W	4Ω	BGA-9	13
2338	KBK2338B-MSOP	3W	4Ω	SSOP-8	11
2367	PT2367	1W	8Ω	BGA-8	15
2811A	BMS46EFV	2x20W	4Ω	HTSSOP-54	154
2811A	NCP2811ADT	2x64mW	32Ω	TSSOP-14	504
2811A	NCP2811AFC	2x64mW	32Ω	BGA-12	431
2811A	NCP2811AMT	2x64mW	32Ω	QFN-12	504
2811B	NCP2811BDT	2x64mW	32Ω	TSSOP-14	504
2811B	NCP2811BFC	2x64mW	32Ω	BGA-12	431
2811B	NCP2811BMT	2x64mW	32Ω	QFN-12	504
2990	AUD2990CS09	2W	4Ω	BGA-9	111
2993	NCP2993FCT	1.35W	8Ω	BGA-9	506
2K	MP1720DQ-216	2.7W	4Ω	DFN-10	418
2K1	TPA301D	350mW	8Ω	SOP-8	105
3111	TPA311D	250mW	8Ω	SOP-8	97
3419	SGSC34119	250mW	32Ω	SOP-8	144
3541	BH3541F	2x62mW	16Ω	SOP-8	6
3544	BH3544F	2x62mW	16Ω	SOP-8	6
3547	BH3547F	2x77mW	16Ω	SOP-8	6
3548	BH3548F	2x62mW	16Ω	SOP-8	6
4011	MD4011	3W	4Ω	DFN-8	12
4103	MD4103D	3W	4Ω	DFN-8 2x2	119
4103	MD4103P	3W	4Ω	SOP-8EP	119
4103	MD4103S	3W	4Ω	MSOP-8	119
4105	MD4105D	3.3W	4Ω	DFN-8	20
4105P	MD4105P	3.3W	4Ω	SOP-8	20
4105S	MD4105S	3.3W	4Ω	MSOP-8	20
4114P	MD4114	4W	4Ω	SOP-8	11
4115P	MD4115	5W	4Ω	ESOP-8L	119
4123P	MD4123	3W	4Ω	SOP-8	11
4132	MD4132	2.3W	8Ω	QFN-28	468
4133	MD4133	2.3W	8Ω	QFN-20	280
4133B	MD4133B	2.3W	8Ω	QFN-20L	469
416	TK10416M	280mW	32Ω	SOP-8	794
417	TK10417M	200mW	32Ω	SOP-8	794
4201	AK4201EU	2x65mW	16Ω	DFN-12	54
4201A	SN4201M	1.4W	4Ω	MSOP-8	20
4213	AK4213EC	1.6W+2x64mW	8(16)Ω	BGA-29	54
4821	TS4821D	2x100mW	16Ω	SOP-8	103
4821	TS4821Q	2x100mW	16Ω	DFN-8	826
4821	TS4821S	2x100mW	16Ω	SSOP-8	103
4821	TS4821T	2x100mW	16Ω	SOP-8	103
48511SQ	LM48511SQ	5.4W	4Ω	LQFN-24	384
4863	MC4863M	2x2.2W	4Ω	TSSOP-20	30
4863	MC4863P	2x2.2W	4Ω	TSSOP-20EP	30
4863	MC4863S	2x2.2W	4Ω	TSSOP-16EP	21
4863	MC4863S	2x2.2W	4Ω	SOP-16	21
4866TQ	SGM4866YQ1G16	2x1.28W	8Ω	QFN-16	257
4871	TS48711QT	1W	8Ω	DFN-8	188
4871	TS48711ST	1W	8Ω	SSOP-8	105
4871	TS48711TD	1W	8Ω	SOP-8	105
4872	TS4872JLT	1W	8Ω	BGA-9	15
4873	MC4873LP	2x2.1W	4Ω	TSSOP-28EP	367
4873	MC4873M	2x2.1W	4Ω	TSSOP-20	366
4873	MC4873MP	2x2.1W	4Ω	TSSOP-20EP	366
4881	MD4881	1W	8Ω	TSSOP-8	416
4890	MC4890D	1W	8Ω	DFN-8	188
4890	MC4890S	1.1W	8Ω	MSOP-8	17
4890	TS4890IDT	1W	8Ω	SOP-8	17
4890	TS4890IQ	1W	8Ω	DFN-8	188
4890	TS4890IST	1W	8Ω	SSOP-8	17
4890M	SH4890M	1W	8Ω	SOP-8	17
4890YG	SGM4890YG	1.1W	8Ω	BGA-9	15
4891	SGM4891YDE8G	1.2W	8Ω	DFN-8	188
4894	NCP4894MNR2	1.8W	8Ω	DFN-10	108
4894	NCP4894MNR2G	1.8W	8Ω	DFN-10	108
4894YG	SGM4894YD8	1.1W	8Ω	BGA-9	152
4896YG	SGM4896YG	1.15W	8Ω	BGA-8	152
4910B	SN4910M	2x35mW	16Ω	MSOP-8	252

## I<sup>2</sup>C-bus specification



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# The I<sup>2</sup>C-bus specification

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## 1 PREFACE

### 1.1 Version 1.0 - 1992

This version of the 1992 I<sup>2</sup>C-bus specification includes the following modifications:

- Programming of a slave address by software has been omitted. The realization of this feature is rather complicated and has not been used.
- The “low-speed mode” has been omitted. This mode is, in fact, a subset of the total I<sup>2</sup>C-bus specification and need not be specified explicitly.
- The Fast-mode is added. This allows a fourfold increase of the bit rate up to 400 kbit/s. Fast-mode devices are downwards compatible i.e. they can be used in a 0 to 100 kbit/s I<sup>2</sup>C-bus system.
- 10-bit addressing is added. This allows 1024 additional slave addresses.
- Slope control and input filtering for Fast-mode devices is specified to improve the EMC behaviour.

NOTE: Neither the 100 kbit/s I<sup>2</sup>C-bus system nor the 100 kbit/s devices have been changed.

### 1.2 Version 2.0 - 1998

The I<sup>2</sup>C-bus has become a de facto world standard that is now implemented in over 1000 different ICs and licensed to more than 50 companies. Many of today's applications, however, require higher bus speeds and lower supply

voltages. This updated version of the I<sup>2</sup>C-bus specification meets those requirements and includes the following modifications:

- The High-speed mode (Hs-mode) is added. This allows an increase in the bit rate up to 3.4 Mbit/s. Hs-mode devices can be mixed with Fast- and Standard-mode devices on the one I<sup>2</sup>C-bus system with bit rates from 0 to 3.4 Mbit/s.
- The low output level and hysteresis of devices with a supply voltage of 2 V and below has been adapted to meet the required noise margins and to remain compatible with higher supply voltage devices.
- The 0.6 V at 6 mA requirement for the output stages of Fast-mode devices has been omitted.
- The fixed input levels for new devices are replaced by bus voltage-related levels.
- Application information for bi-directional level shifter is added.

### 1.3 Version 2.1 - 2000

Version 2.1 of the I<sup>2</sup>C-bus specification includes the following minor modifications:

- After a repeated START condition in Hs-mode, it is possible to stretch the clock signal SCLH (see Section 13.2 and Figs 22, 25 and 32).
- Some timing parameters in Hs-mode have been relaxed (see Tables 6 and 7).

## I<sup>2</sup>S-bus specification

# I<sup>2</sup>S bus specification

## 1.0 INTRODUCTION

Many digital audio systems are being introduced into the consumer audio market, including compact disc, digital audio tape, digital sound processors, and digital TV-sound. The digital audio signals in these systems are being processed by a number of (V)LSI ICs, such as:

- A/D and D/A converters;
- digital signal processors;
- error correction for compact disc and digital recording;
- digital filters;
- digital input/output interfaces.

Standardized communication structures are vital for both the equipment and the IC manufacturer, because they increase system flexibility. To this end, we have developed the inter-IC sound (I<sup>2</sup>S) bus – a serial link especially for digital audio.

## 2.0 BASIC SERIAL BUS REQUIREMENTS

The bus has only to handle audio data, while the other signals, such as sub-coding and control, are transferred separately. To minimize the number of pins required and to keep wiring simple, a 3-line serial bus is used consisting of a line for two time-multiplexed data channels, a word select line and a clock line.

Since the transmitter and receiver have the same clock signal for data transmission, the transmitter as the master, has to generate the bit clock, word-select signal and data. In complex systems however, there may be several transmitters and receivers, which makes it difficult to define the master. In such systems, there is usually a system master controlling digital audio data-flow between the various ICs. Transmitters then, have to generate data under the control of an external clock, and so act as a slave. Figure 1 illustrates some simple system configurations and the basic interface timing. Note that the system master can be combined with a transmitter or receiver, and it may be enabled or disabled under software control or by pin programming.

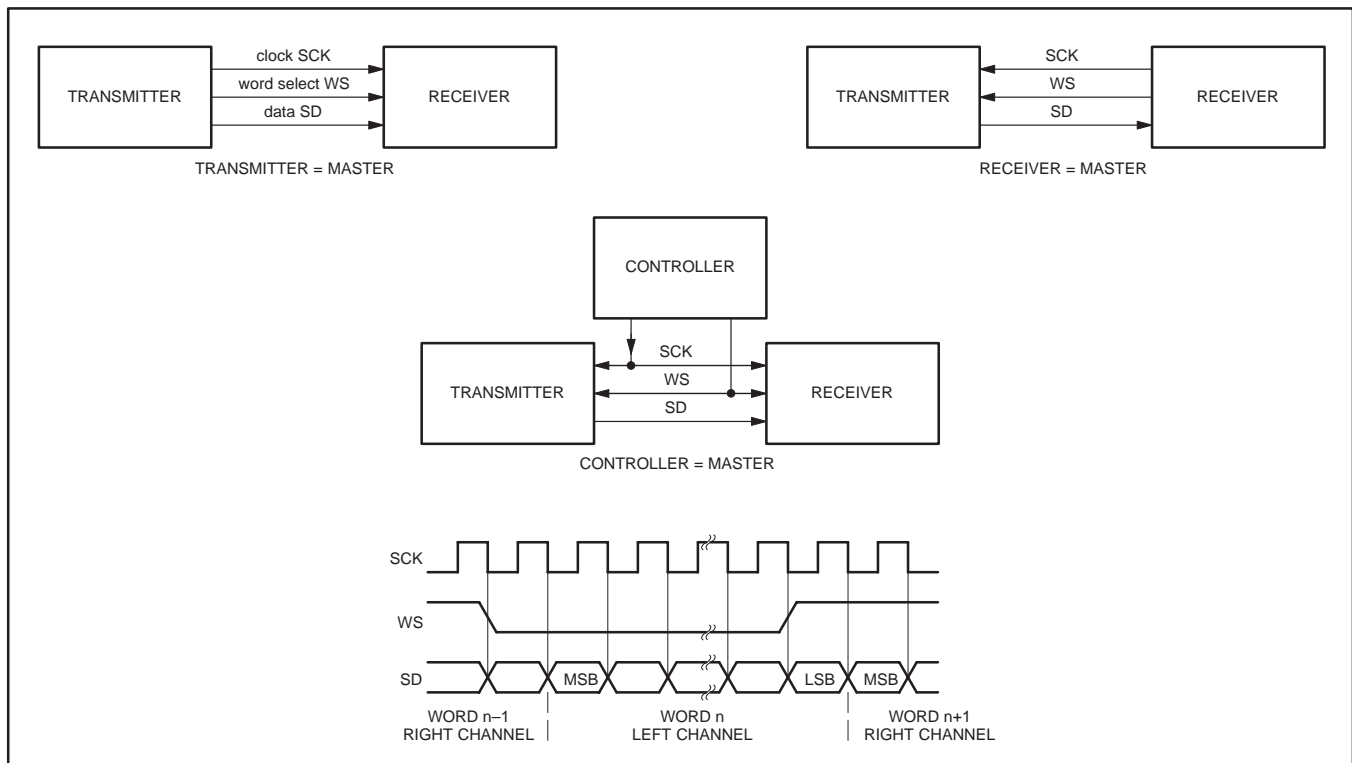


Figure 1. Simple System Configurations and Basic Interface Timing

## **SPI interface specification**

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## SPI interface specification

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### OBJECTIVE

This document specifies the Serial Peripheral Interface (SPI) that is used in the 1-axis SCA61T and the 2-axis SCA100T inclinometers.

### THE SPI INTERFACE

A Serial Peripheral Interface (SPI) system consists of one master device and one or more slave devices. The master is defined as a microcomputer providing the SPI clock, and the slave as any integrated circuit receiving the SPI clock from the master. The ASIC in VTI Technologies' products always operates as a slave device in master-slave operation mode.

The SPI has a 4-wire synchronous serial interface. Data communication is enabled with a low active Slave Select or Chip Select wire (CSB). Data is transmitted with a 3-wire interface consisting of wires for serial data input (MOSI), serial data output (MISO) and serial clock (SCK)..

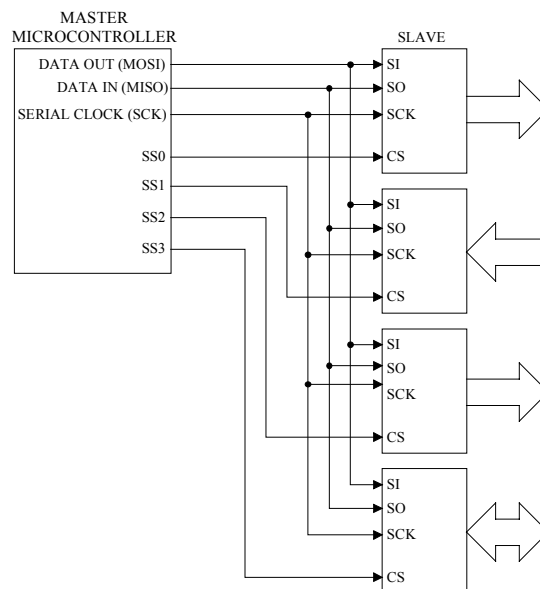


Figure 1. Typical SPI connection

The SPI interface in VTI products is designed to support almost any micro controller that uses software implemented SPI. However it is not designed to support any particular hardware implemented SPI found in many commercial micro controllers. The SPI interface is used for testing and calibration purposes, and it can also be used in the final application. Some of the test and calibration commands are disabled in normal use, and are not documented here. The data transfer uses the following 4-wire interface:

MOSI	master out slave in	$\mu\text{P} \rightarrow \text{ASIC}$
MISO	master in slave out	$\text{ASIC} \rightarrow \mu\text{P}$
SCK	serial clock	$\mu\text{P} \rightarrow \text{ASIC}$
CSB	chip select (low active)	$\mu\text{P} \rightarrow \text{ASIC}$



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