

2-1 Power Transistors	14
2-1-1 Transistors for Audio Amplifiers	14
• Complementary Transistors for Output	14
• Complementary Transistors for Output built-in Temperature Compensation	14
• Transistors for Driver and Temperature Compensation	14
2-1-2 Transistors for SMPS	16
• Transistors for DC-DC Converter	16
• Transistors for AC100V Input	16
• Transistors for AC200V Input	16
2-1-3 Transistors for Display Deflection Output	17
2-1-4 List of General Purpose Transistors by Part No.	18
2-2 MOS FETs	22
2-3 Power Transistor Arrays & MOS FET Arrays	24
2-3-1 Arrays for Sink Drive	24
• General Purpose Arrays	24
• Arrays with Built-in Avalanche Diode between Collector and Base	26
• Arrays with Built-in Flywheel Diode	27
2-3-2 Arrays for Source Drive	28
• General Purpose Arrays	28
• Arrays with Built-in Flywheel Diode	28
2-3-3 Arrays for Motor Drive	29
• H-Bridge Arrays	29
• 3-Phase Motor Drive Arrays	30
• 5-Phase Motor Drive Arrays	30
• Arrays for Stepper Motor Dual Power Supply Drive	30
2-3-4 MOS Arrays for "S" shape Correction Switch of CRT Display	32

2-1-1 Transistors for Audio Amplifiers

■ Complementary Transistors for Output

P _c (W)	I _c (A)	V _{CEO} (V)	Chip						Package	Fig. No.
			Single Transistor				Darlington			
			General		LAPT					
30	6	80	2SA1725	2SC4511					TO-220F	1
	6	110					2SB1686	2SD2642	TO-220F	
50	6	80	2SA1726	2SC4512					TO-220	2
	6	110					2SB1659	2SD2589	TO-220	
60	6	80	2SA1693	2SC4466					TO-3P	3
	6	80	2SA1907	2SC5099					TO-3PF	4
	6	110					2SB1685	2SD2641	TO-3P	3
	6	110					2SB1687	2SD2643	TO-3PF	3
75	8	120	2SA1908	2SC5100					TO-3PF	4
	8	150					2SB1587	2SD2438	TO-3PF	
80	8	120	2SA1694	2SC4467					TO-3P	3
	10	140	2SA1909	2SC5101					TO-3PF	4
	8	150					2SB1559	2SD2389	TO-3P	3
	10	150					2SB1588	2SD2439	TO-3PF	3
	14	150			2SA1860	2SC4886			TO-3PF	4
85	15	150					2SB1649	2SD2562	TO-3PF	4
	15	180	2SA1673	2SC4388					TO-3PF	
100	10	140	2SA1695	2SC4468					TO-3P	3
	10	150			2SA1186	2SC2837			TO-3P	
	10	150					2SB1560	2SD2390	TO-3P	
125	14	150			2SA1303	2SC3284			TO-3P	3
130	15	150					2SB1647	2SD2560	TO-3P	
	15	160			2SA1386	2SC3519			TO-3P	
	15	180	2SA1492	2SC3856					TO-3P	
	15	180			2SA1386A	2SC3519A			TO-3P	
150	15	230			2SA1294	2SC3263			TO-3P	
	12	150					2SB1570	2SD2401	MT-200 (2-screw mount)	
	15	160			2SA1215	2SC2921			MT-200 (2-screw mount)	
200	15	200	2SA1493	2SC3857					MT-200 (2-screw mount)	
	17	150					2SB1648	2SD2561	MT-200 (2-screw mount)	
	17	180			2SA1216	2SC2922			MT-200 (2-screw mount)	
	17	200	2SA1494	2SC3858					MT-200 (2-screw mount)	
	17	230			2SA1295	2SC3264			MT-200 (2-screw mount)	

LAPT: Multi-Emitter for High Frequency

■ Complementary Transistors for Output built-in Temperature Compensation

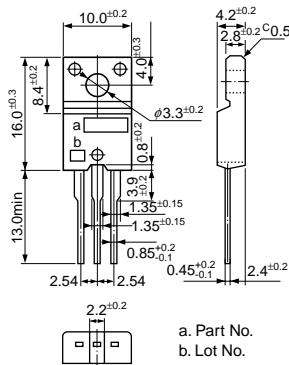
Part No.		P _c (W)	I _c (A)	V _{CEO} (V)	Package	Fig. No.
SAP09P	SAP09N	80	10	150	Original 5-pin power package	6
SAP10P	SAP10N	100	12	150	Original 5-pin power package	
SAP16P	SAP16N	150	15	160	Original 5-pin power package	

■ Transistors for Driver and Temperature Compensation

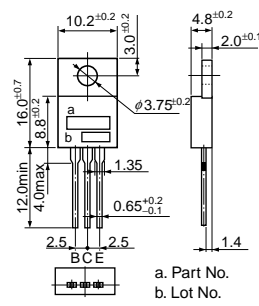
Part No.		P _c (W)	V _{CEO} (V)	I _c (A)	h _{FE} (min)	f _r (MHz)	Package	Remarks	Fig. No.
2SC4495		25	50	3	500	40	TO-220F	Temperature compensation	1
2SA1859	2SC4883	20	150	2	60	60/120	TO-220F	Driver	
2SA1859A	2SC4883A	20	180	2	60	60/120	TO-220F	Driver	

External Dimensions

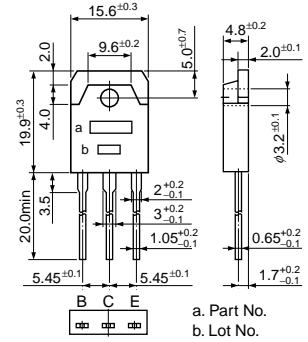
• No. 1 (TO-220F)



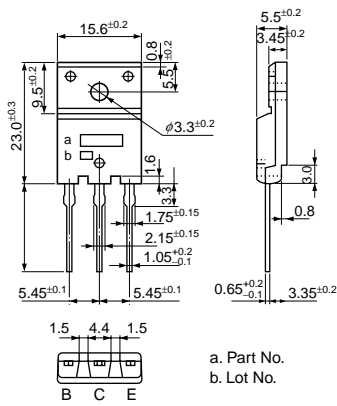
• No. 2 (TO-220)



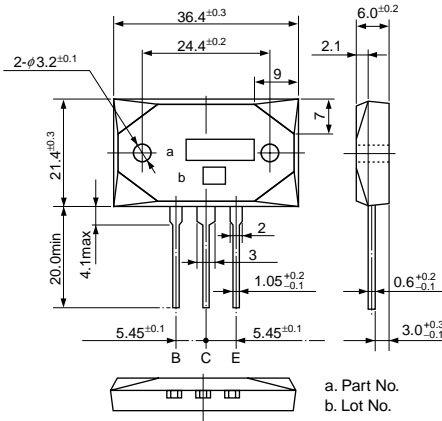
• No. 3 (TO-3P)



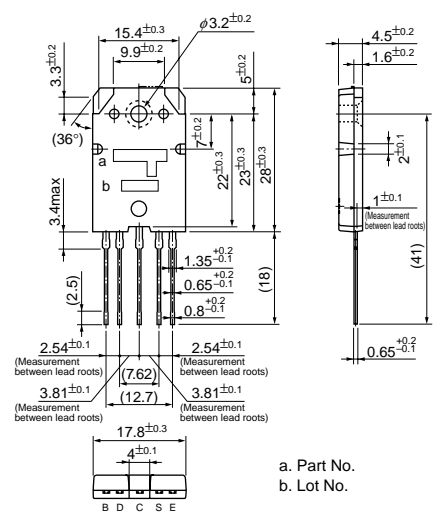
• No. 4 (TO-3PF)



• No. 5 (MT-200)



• No. 6 (SAP)



(unit: mm)

2-1-2 Transistors for SMPS

■ Transistors for DC-DC Converter

Part No.	V _{CB0} (V)	V _{CE0} (V)	I _c (A)	P _c (W)	Package	Fig. No.
2SC5370	60	40	12	30	TO-220F	1
2SC4024	100	50	10	35	TO-220F	
2SC4131			15	60	TO-3PF	2
2SC4153	200	120	7	30	TO-220F	
2SC3834				50	TO-220	3
2SC3835				70	TO-3P	4

■ Transistors for AC100V Input

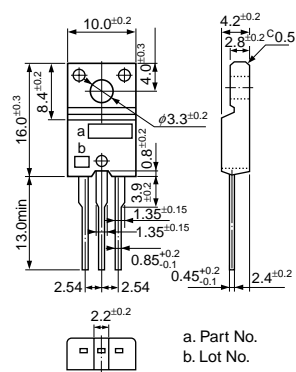
Part No.	V _{CB0} (V)	V _{CE0} (V)	I _c (A)	P _c (W)	Package	Fig. No.	
2SC5271	250	200	5	30	TO-220F	1	
2SC4073	500	400	5	30	TO-220F		
2SC4418				30	TO-220F		
2SC4662				30	TO-220F		
2SC3890			7	30	TO-220F		3
2SC4130				30	TO-220F		
2SC3832			50	TO-220	2		
2SC4296			75	TO-3PF			
2SC4138			10	80	TO-3P		4
2SC4297			12	75	TO-3PF		2
2SC3833				100	TO-3P		
2SC5071				100	TO-3P		
2SC4298			15	80	TO-3PF		2
2SC4139				120	TO-3P		
2SC4434				120	TO-3P		
2SC4140			18	130	TO-3P	4	
2SC5130	400	5	30	TO-220F			
2SC4546		7	30	TO-220F			
2SC4907	500	6	30	TO-220F	1		
2SC3830			50	TO-220			
2SC3831			10	100			TO-3P
2SC5249	600	3	35	TO-220F	1		

■ Transistors for AC200V Input

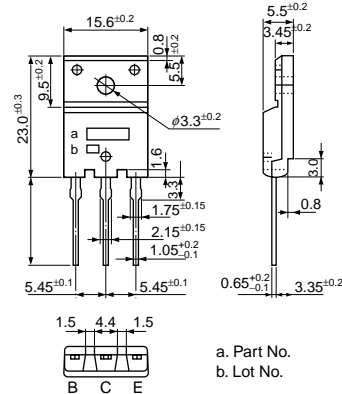
Part No.	V _{CB0} (V)	V _{CE0} (V)	I _c (A)	P _c (W)	Package	Fig. No.		
2SC4517	900	550	3	30	TO-220F	1		
2SC5239				50	TO-220	3		
2SC4518				35	TO-220F	1		
2SC5287			5	80	TO-3P	4		
2SC4557				80	TO-3PF	2		
2SC3927			10	120	TO-3P	4		
2SC5586				5	70	TO-3PF	2	
2SC4706					14	130	TO-3P	4
2SC4908			800	550	3	35	TO-220F	1
2SC4304						35	TO-220F	
2SC4020						50	TO-220	3
2SC4445					7	60	TO-3PF	2
2SC4299						70	TO-3PF	
2SC3678						80	TO-3P	
2SC4300					5	75	TO-3PF	2
2SC3679	100	TO-3P				4		
2SC4301	7	80			TO-3PF	2		
2SC3680		120			TO-3P	4		
2SC4517A	1000	550			3	30	TO-220F	1
2SC4518A					5	35	TO-220F	
2SC5002					7	80	TO-3PF	
2SC5124	1500	800			10	100	TO-3PF	2

External Dimensions

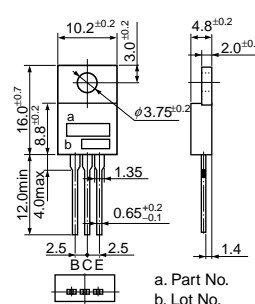
• No. 1 (TO-220F)



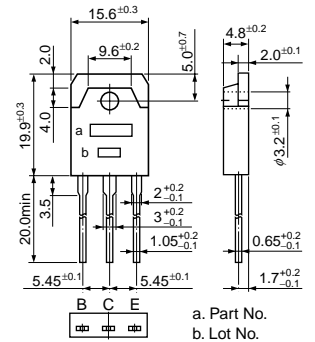
• No. 2 (TO-3PF)



• No. 3 (TO-220)



• No. 4 (TO-3P)



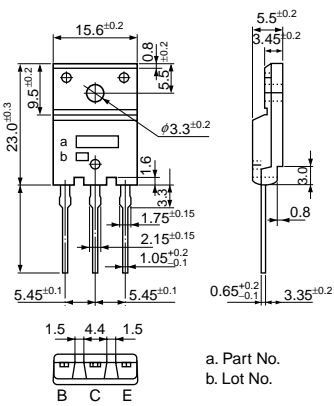
(unit: mm)

2-1-3 Transistors for Display Deflection Output

Part No.	V _{CB0} (V)	V _{CEO} (V)	I _c (A)	P _c (W)	Package	Fig. No.
2SC5002	1500	800	7	80	TO-3PF	1
2SC5124			10	100		

External Dimensions

• No. 1 (TO-3PF)



a. Part No.
b. Lot No.

(unit: mm)

2-1-4 List of General Purpose Transistors by Part No.

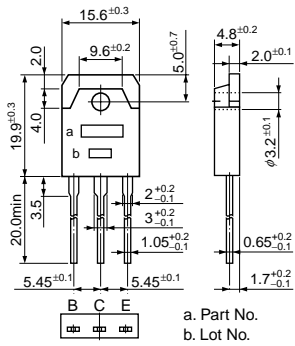
Part No.	V _{cb0} (V)	V _{ce0} (V)	I _c (A)	P _c (W)	Package	Remarks	Fig. No.
2SA1186	-150	-150	-10	100	TO-3P	LAPT	1
2SA1215	-160	-160	-15	150	MT-200 (2-screw mount)	LAPT	2
2SA1216	-180	-180	-17	200	MT-200 (2-screw mount)	LAPT	
2SA1262	-60	-60	-4	30	TO-220		3
2SA1294	-230	-230	-15	130	TO-3P	LAPT	1
2SA1295	-230	-230	-17	200	MT-200 (2-screw mount)	LAPT	2
2SA1303	-150	-150	-14	125	TO-3P	LAPT	1
2SA1386	-160	-160	-15	130	TO-3P	LAPT	
2SA1386A	-180	-180	-15	130	TO-3P	LAPT	
2SA1488	-60	-60	-4	25	TO-220F		4
2SA1488A	-80	-80	-4	25	TO-220F		
2SA1492	-180	-180	-15	130	TO-3P		1
2SA1493	-200	-200	-15	150	MT-200 (2-screw mount)		2
2SA1494	-200	-200	-17	200	MT-200 (2-screw mount)		
2SA1567	-50	-50	-12	35	TO-220F	Low V _{CE} (sat)	4
2SA1568	-60	-60	±12	35	TO-220F	Low V _{CE} (sat)	
2SA1667	-150	-150	-2	25	TO-220F		
2SA1668	-200	-200	-2	25	TO-220F		
2SA1673	-180	-180	-15	85	TO-3PF		5
2SA1693	-80	-80	-6	60	TO-3P		1
2SA1694	-120	-120	-8	80	TO-3P		
2SA1695	-140	-140	-10	100	TO-3P		
2SA1725	-80	-80	-6	30	TO-220F		4
2SA1726	-80	-80	-6	50	TO-220		3
2SA1746	-70	-50	-12	60	TO-3PF	Low V _{CE} (sat)	5
2SA1859	-150	-150	-2	20	TO-220F		4
2SA1859A	-180	-180	-2	20	TO-220F		
2SA1860	-150	-150	-14	80	TO-3PF	LAPT	5
2SA1907	-80	-80	-6	60	TO-3PF		
2SA1908	-120	-120	-8	75	TO-3PF		
2SA1909	-140	-140	-10	80	TO-3PF		
2SA2003	-60	-60	-5	25	TO-220F		4
2SA2042	-50	-50	-10	30	TO-220F		
2SB1257	-60	-60	-4	25	TO-220F	Darlington	
2SB1258	-100	-100	-6	30	TO-220F	Darlington	
2SB1259	-120	-120	-10	30	TO-220F	Darlington	5
2SB1351	-60	-60	-12	30	TO-220F	Darlington	
2SB1352	-60	-60	-12	60	TO-3PF	Darlington	
2SB1382	-120	-120	-16	75	TO-3PF	Darlington	1
2SB1383	-120	-120	-25	120	TO-3P	Darlington	
2SB1420	-120	-120	-16	80	TO-3P	Darlington	
2SB1559	-160	-160	-8	80	TO-3P	Darlington	
2SB1560	-160	-150	-10	100	TO-3P	Darlington	2
2SB1570	-160	-150	-12	150	MT-200 (2-screw mount)	Darlington	
2SB1587	-160	-150	-8	75	TO-3PF	Darlington	5
2SB1588	-160	-150	-10	80	TO-3PF	Darlington	
2SB1647	-150	-150	-15	130	TO-3P	Darlington	1
2SB1648	-150	-150	-17	200	MT-200 (2-screw mount)	Darlington	2
2SB1649	-150	-150	-15	85	TO-3PF	Darlington	5
2SB1659	-110	-110	-6	50	TO-220	Darlington	3
2SB1685	-110	-110	-6	60	TO-3P	Darlington	1
2SB1686	-110	-110	-6	30	TO-220F	Darlington	4
2SB1687	-110	-110	-6	60	TO-3PF	Darlington	5
2SC2023	300	300	2	40	TO-220		3
2SC2837	150	150	10	100	TO-3P	LAPT	1
2SC2921	160	160	15	150	MT-200 (2-screw mount)	LAPT	2
2SC2922	180	180	17	200	MT-200 (2-screw mount)	LAPT	
2SC3179	80	60	4	30	TO-220		3
2SC3263	230	230	15	130	TO-3P	LAPT	1
2SC3264	230	230	17	200	MT-200 (2-screw mount)	LAPT	2

Part No.	V _{CB0} (V)	V _{CE0} (V)	I _c (A)	P _c (W)	Package	Remarks	Fig. No.
2SC3284	150	150	14	125	TO-3P	LAPT	1
2SC3519	160	160	15	130	TO-3P	LAPT	
2SC3519A	180	180	15	130	TO-3P	LAPT	
2SC3678	900	800	3	80	TO-3P		
2SC3679	900	800	5	100	TO-3P		
2SC3680	900	800	7	120	TO-3P		
2SC3830	600	500	6	50	TO-220		3
2SC3831	600	500	10	100	TO-3P		1
2SC3832	500	400	7	50	TO-220		3
2SC3833	500	400	12	100	TO-3P		1
2SC3834	200	120	7	50	TO-220		3
2SC3835	200	120	7	70	TO-3PF		5
2SC3851	80	60	4	25	TO-220F		4
2SC3851A	100	80	4	25	TO-220F		
2SC3852	80	60	3	25	TO-220F	High h _{FE} /Low V _{CE} (sat)	
2SC3852A	100	80	3	25	TO-220F	High h _{FE} /Low V _{CE} (sat)	
2SC3856	180	180	15	130	TO-3P		1
2SC3857	200	200	15	150	MT-200 (2-screw mount)		2
2SC3858	200	200	17	200	MT-200 (2-screw mount)		
2SC3890	500	400	7	30	TO-220F		4
2SC3927	900	550	10	120	TO-3P		1
2SC4020	900	800	3	50	TO-220		3
2SC4024	100	50	10	35	TO-220F	High h _{FE} /Low V _{CE}	4
2SC4064	50	50	12	35	TO-220F	Low V _{CE} (sat)	4
2SC4065	60	60	±12	35	TO-220F	Low V _{CE} (sat)	
2SC4073	500	400	5	30	TO-220F		
2SC4130	500	400	7	30	TO-220F		
2SC4131	100	50	15	60	TO-3PF	Low V _{CE} (sat)	5
2SC4138	500	400	10	80	TO-3P		1
2SC4139	500	400	15	120	TO-3P		
2SC4140	500	400	18	130	TO-3P		
2SC4153	200	120	7	30	TO-220F		4
2SC4296	500	400	10	75	TO-3PF		5
2SC4297	500	400	12	75	TO-3PF		
2SC4298	500	400	15	80	TO-3PF		
2SC4299	900	800	3	70	TO-3PF		
2SC4300	900	800	5	75	TO-3PF		
2SC4301	900	800	7	80	TO-3PF		
2SC4304	900	800	3	35	TO-220F		4
2SC4381	150	150	2	25	TO-220F		
2SC4382	200	200	2	25	TO-220F		
2SC4388	200	180	15	85	TO-3PF		5
2SC4418	500	400	5	30	TO-220F		4
2SC4434	500	400	15	120	TO-3P		1
2SC4445	900	800	3	60	TO-3PF		5
2SC4466	120	80	6	60	TO-3P		1
2SC4467	160	120	8	80	TO-3P		
2SC4468	200	140	10	100	TO-3P		4
2SC4495	80	50	3	25	TO-220F	High h _{FE} /Low V _{CE} (sat)	
2SC4511	120	80	6	30	TO-220F		3
2SC4512	120	80	6	50	TO-220		
2SC4517	900	550	3	30	TO-220F		4
2SC4517A	1000	550	3	30	TO-220F		
2SC4518	900	550	5	35	TO-220F		
2SC4518A	1000	550	5	35	TO-220F		
2SC4546	600	400	7	30	TO-220F		5
2SC4557	900	550	10	80	TO-3PF		
2SC4662	500	400	5	30	TO-220F		4
2SC4706	900	600	14	130	TO-3P		1
2SC4883	150	150	2	20	TO-220F		4
2SC4883A	180	180	2	20	TO-220F		
2SC4886	150	150	14	80	TO-3PF	LAPT	5

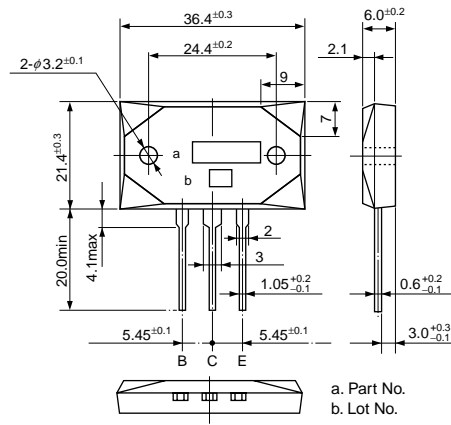
Part No.	V _{CB0} (V)	V _{CE0} (V)	I _c (A)	P _c (W)	Package	Remarks	Fig. No.
2SC4907	600	500	6	30	TO-220F		4
2SC4908	900	800	3	35	TO-220F		
2SC5002	1500	800	7	80	TO-3PF		5
2SC5071	500	400	12	100	TO-3P		1
2SC5099	120	80	6	60	TO-3PF		5
2SC5100	160	120	8	75	TO-3PF		
2SC5101	200	140	10	80	TO-3PF		
2SC5124	1500	800	10	100	TO-3PF		
2SC5130	600	400	5	30	TO-220F		4
2SC5239	900	550	3	50	TO-220		3
2SC5249	600	600	3	35	TO-220F		4
2SC5271	250	200	5	30	TO-220F		
2SC5287	900	550	5	80	TO-3P		1
2SC5333	300	300	2	35	TO-220F		4
2SC5370	60	40	12	30	TO-220F	Low V _{CE} (sat)	
2SC5487	60	60	5	25	TO-220F		
2SC5586	900	550	5	80	TO-3PF		5
2SD1769	120	120	6	50	TO-220	Darlington	3
2SD1785	120	120	6	30	TO-220F	Darlington	
2SD1796	60±10	60±10	4	25	TO-220F	Darlington	4
2SD2014	120	80	4	25	TO-220F	Darlington	
2SD2015	150	120	4	25	TO-220F	Darlington	
2SD2016	200	200	3	25	TO-220F	Darlington	
2SD2017	300	250	6	35	TO-220F	Darlington	
2SD2045	120	120	6	50	TO-3PF	Darlington	5
2SD2081	120	120	10	30	TO-220F	Darlington	4
2SD2082	120	120	16	75	TO-3PF	Darlington	5
2SD2083	120	120	25	120	TO-3P	Darlington	1
2SD2141	380±50	380±50	6	35	TO-220F	Darlington	4
2SD2389	160	150	8	80	TO-3P	Darlington	1
2SD2390	160	150	10	100	TO-3P	Darlington	
2SD2401	160	150	12	150	MT-200 (2-screw mount)	Darlington	2
2SD2438	160	150	8	75	TO-3PF	Darlington	5
2SD2439	160	150	10	80	TO-3PF	Darlington	
2SD2557	200	200	5	70	TO-3P	Darlington	1
2SD2558	200	200	5	60	TO-3PF	Darlington	5
2SD2560	150	150	15	130	TO-3P	Darlington	1
2SD2561	150	150	17	200	MT-200 (2-screw mount)	Darlington	2
2SD2562	150	150	15	85	TO-3PF	Darlington	5
2SD2589	110	110	6	50	TO-220	Darlington	3
2SD2641	110	110	6	60	TO-3P	Darlington	1
2SD2642	110	110	6	30	TO-220F	Darlington	4
2SD2643	110	110	6	60	TO-3PF	Darlington	5

External Dimensions

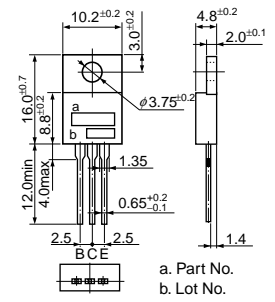
• No. 1 (TO-3P)



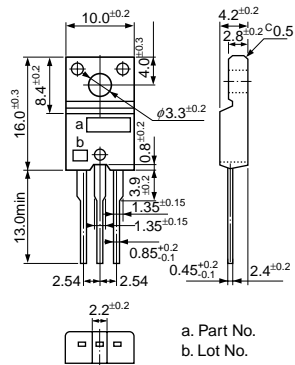
• No. 2 (MT-200)



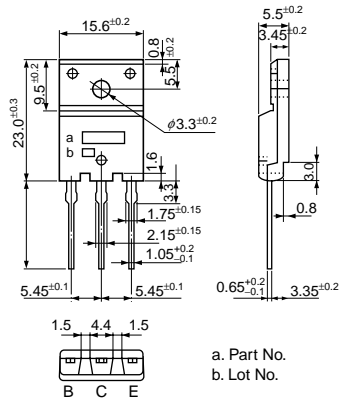
• No. 3 (TO-220)



• No. 4 (TO-220F)



• No. 5 (TO-3PF)

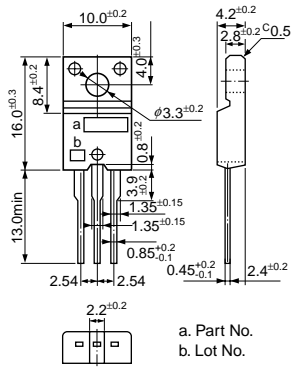


(unit: mm)

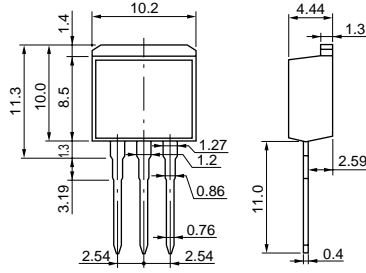
Part No.	V _{DSS} (V)	R _{DS(ON)} (max) (Ω)	I _D (A)	Package	Remarks	Fig. No.	
FKV460	40	9mΩ	60	TO-220F	Under development, For Automotive	1	
FKV460S			60	TO-220S	For Automotive	2	
FKV560	50	11mΩ	60	TO-220F	For Automotive	1	
FKV560S			60	TO-220S	Under development, For Automotive	2	
FKV550T	60	13mΩ	50	TO-220F		1	
MVK670		6.5mΩ	70	TO-3P	For Automotive	4	
2SK1188		0.2	10	TO-220F		1	
2SK1189		0.1	15	TO-220F			
2SK1712			15	TO-220F	Logic Drive		
2SK1190		50mΩ	22	TO-220F			
2SK2419		37mΩ	25	TO-220F			
2SK1191		28mΩ	30	TO-220F			
2SK2420			30	TO-220F			
2SK1192			40	TO-3PF			3
2SK2421		20mΩ	40	TO-220F			1
FKV660		14mΩ	50	TO-220F	Under development, For Automotive		1
FKV660S			60	TO-220S	For Automotive	2	
2SK1185		100	0.54	5	TO-220F		1
2SK1186	0.27		9	TO-220F			
2SK1187	0.16		12	TO-220F			
2SK2778	0.175		12	TO-220F	Under development, Logic Drive		
2SK2779	80mΩ		20	TO-220F	Logic Drive		
2SK3332	150	0.2	12	TO-220F	Logic Drive		
2SK3460		95mΩ	18	TO-220F			
2SK1183	200	1.5	3	TO-220F			
2SK1184		0.8	5	TO-220F			
2SK3002		0.35	8	TO-220F	Under development		
2SK3003		0.175	18	TO-220F			
2SK3004	250	0.25	18	TO-220F		1	
2SK2803	450	2.8	3	TO-220F			
2SK2701		1.1	7	TO-220F			
2SK2702		0.8	10	TO-220F	Under development		
2SK2703			10	TO-3PF	Under development		3
2SK2704		0.57	13	TO-220F			1
2SK2705			13	TO-3PF	Under development		
2SK2805		0.38	15	TO-3PF	Under development		3
2SK2706		0.3	18	TO-3PF	Under development		
2SK1177		500	3	2.5	TO-220F		UL approved type available
2SK1178			1.5	4	TO-220F	UL approved type available	
2SK3199	5			TO-220F			
2SK1179	0.85		8.5	TO-3PF	UL approved type available	3	
2SK1180	0.6		10	TO-3PF	UL approved type available		
2SK3200	1.1		10	TO-220F		1	
2SK1181	0.4		13	TO-3PF	UL approved type available	3	
2SK2848	600	3.8	2	TO-220F		1	
2SK2707		1.85	4.5	TO-220F	Under development		
2SK2708		1.1	7	TO-220F			
2SK2709		0.85	8.5	TO-3PF	Under development	3	
2SK2710		0.55	12	TO-3PF	Under development		
2SK2943		900	5	3	TO-220F		1
2SK2945	3		5	TO-220F			
2SJ424	-60	0.5	5	TO-220F	Under development	1	
2SJ425		0.28	8	TO-220F			

External Dimensions

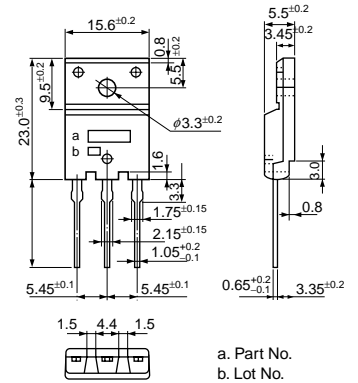
• No. 1 (TO-220F)



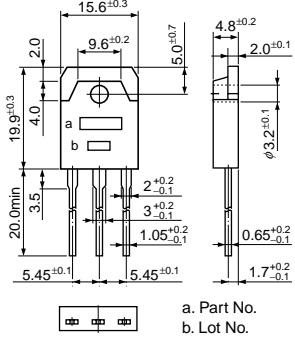
• No. 2 (TO-220S)



• No. 3 (TO-3PF)



• No. 4 (TO-3P)



(unit: mm)

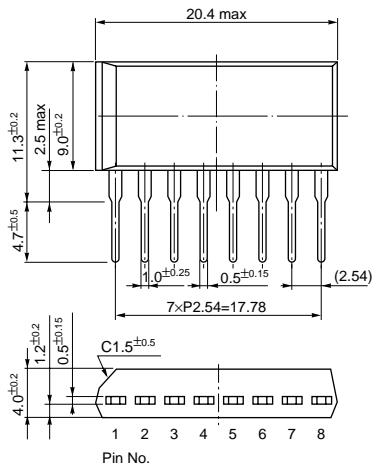
2-3-1 For Sink Drive

■ General Purpose

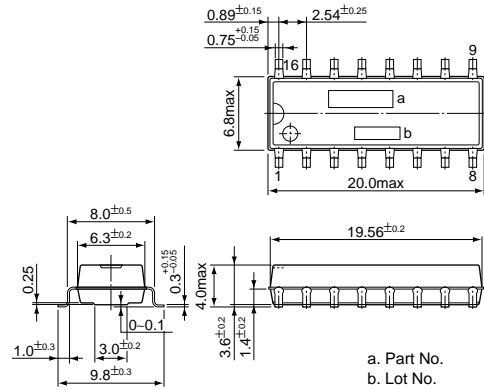
Part No.	Number of Circuits	$V_{CE0}(V)$	$I_C(A)$	Chip	h_{FE} (min)	$R_{DS(ON)}$ max(Ω)	Package	Fig. No.		
		$V_{DSS}(V)$	$I_D(A)$							
STA312A	3	60	3	Bipolar	300		SIP8Pin	1		
STA303A		100	4	Bipolar	1000		SIP8Pin			
STA351A			5	Bipolar	1000		SIP8Pin			
STA513A		250	3.5	MOS		0.9	SIP10Pin	3		
STA517A		305	3	MOS		1.8	SIP10Pin			
SDC01	4	50	2	Bipolar	1000		SMD16Pin	2		
STA412A		60	3	Bipolar	300		SIP10Pin	3		
STA504A			4	MOS		0.45	SIP10Pin			
STA501A			5	MOS		0.2	SIP10Pin			
STA473A		100	2	Bipolar	2000		SIP10Pin	5		
STA506A				MOS		0.8	SIP10Pin			
SDK04				MOS		0.8	SMD16Pin			
SMA4030			3	Bipolar	2000		SIP12Pin		4	
STA505A				MOS		0.6	SIP10Pin			
STA403A			4	4	Bipolar	1000			SIP10Pin	3
SLA4030					Bipolar	2000			SIP12Pin with fin	5
SMA5101					MOS		0.6		SIP12Pin	4
SLA5090				MOS		0.6	SIP12Pin with fin		5	
SLA5001				5	MOS		0.3			SIP12Pin with fin
SLA5037		10		MOS		0.08	SIP12Pin with fin			
SLA4060		120	5	Bipolar	2000		SIP12Pin with fin			
SLA5047		150	10	MOS		0.085	SIP12Pin with fin			
SLA5052				MOS		0.115	SIP12Pin with fin			
SLA5077				MOS		0.2	SIP12Pin with fin			
SLA5089				MOS		0.12	SIP12Pin with fin			
STA404A	4	200	3	Bipolar	1000		SIP10Pin	3		
SLA5041		10	MOS		0.175	SIP12Pin with fin				
SLA5044		10	MOS		0.25	SIP12Pin with fin				
SLA5029	5	60	4	MOS		0.45	SIP12Pin with fin	5		
SLA5011			5	MOS		0.22	SIP12Pin with fin			
SLA5085				MOS		0.22	SIP12Pin with fin			
SLA5021		100	5	MOS		0.19	SIP12Pin with fin			
SLA5042				MOS		0.185	SIP12Pin with fin			
SLA5055		150	$\pm 5/\pm 7$	MOS		0.44/0.2	SIP12Pin with fin		6	
SLA5088				MOS		0.44/0.2	SIP15Pin with fin			
SLA5058				± 7	MOS		0.2			SIP12Pin with fin
SLA5081				$\pm 7/\pm 7$	MOS		0.105/0.2			SIP15Pin with fin
SLA5046		200	7	MOS		0.35	SIP12Pin with fin		5	
SLA5094	MOS				0.35	SIP12Pin with fin				
SLA5049	250	7	MOS		0.5	SIP12Pin with fin	6			
SLA5054	150	$\pm 7/\pm 5/\pm 7$	MOS		0.105/0.44/0.2	SIP15Pin with fin				
SLA5070			$\pm 7/\pm 7$	MOS		0.105/0.2		SIP15Pin with fin		
SLA5057	200	$\pm 7/\pm 7$	MOS		0.175/0.35	SIP15Pin with fin				

External Dimensions

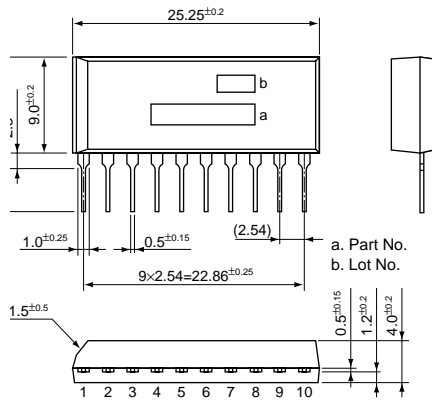
• No. 1 (STA 8 pin)



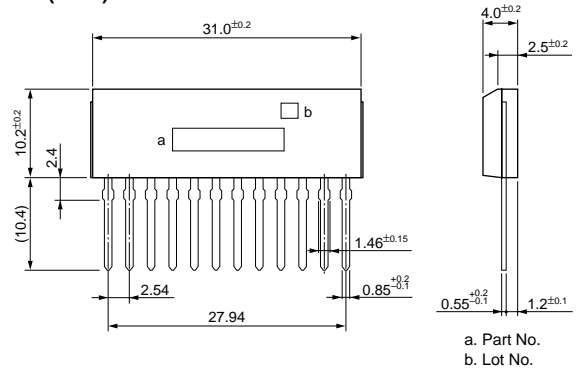
• No. 2 (SD)



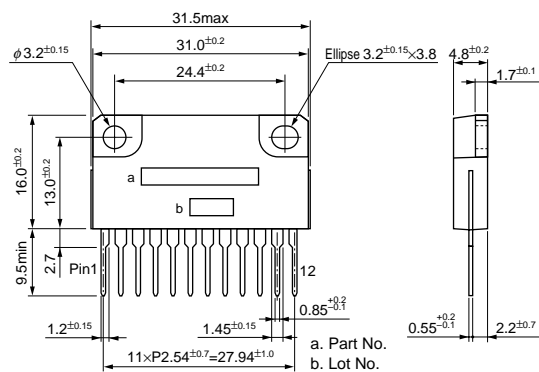
• No. 3 (STA 10 pin)



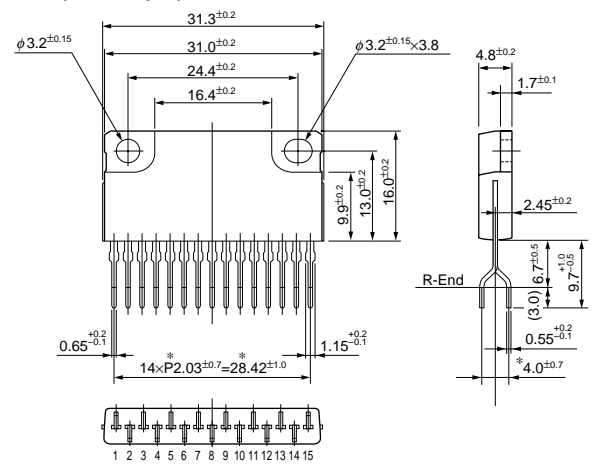
• No. 4 (SMA)



• No. 5 (SLA 12 pin)



• No. 6 (SLA 15 pin)



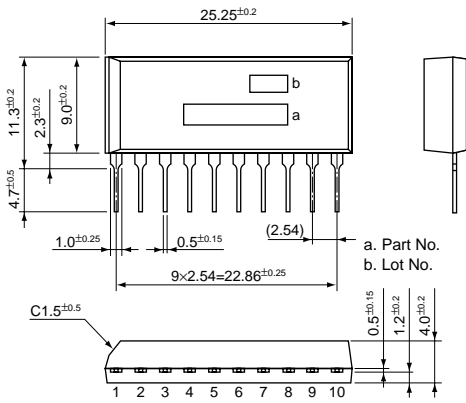
(unit: mm)

With Built-in Avalanche Diode between Collector and Base

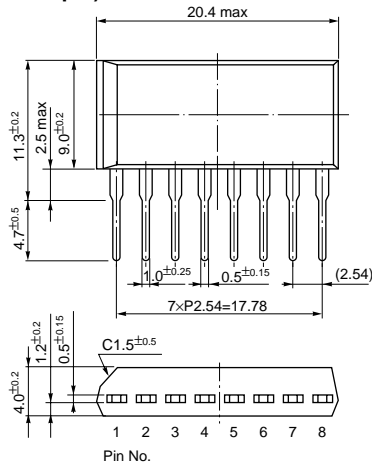
Part No.	Number of Circuits	$V_{CE0}(V)$	$I_C(A)$	Chip	h_{FE} (min)	$R_{DS(ON)}$ max(Ω)	Package	Fig. No.
		$V_{DSS}(V)$	$I_B(A)$					
STA460C	2	60±10	6	Bipolar	700		SIP10Pin	1
STA371A	3	60±10	2	Bipolar	2000		SIP8Pin	2
STA301A			4	Bipolar	1000	SIP8Pin		
SDC06	4	30~45	2	Bipolar	400		SMD16Pin	3
STA413A		35±5	3	Bipolar	500		SIP10Pin	1
STA481A		60±10	1	Bipolar	2000		SIP10Pin	
SDC03			1.5	Bipolar	2000	SMD16Pin	3	
STA471A			2	Bipolar	2000	SIP10Pin	1	
STA401A			4	Bipolar	1000	SIP10Pin		
SLA4010		60±10	4	Bipolar	2000		SIP12Pin with fin	4
STA406A				6	Bipolar	2000	SIP10Pin	
STA435A		65±15	4	Bipolar	1000		SIP10Pin	1
STA485A				1	Bipolar	2000	SIP10Pin	
SDC04	100±15	1.5	Bipolar	2000		SMD16Pin	3	
STA475A			2	Bipolar	2000	SIP10Pin	1	

External Dimensions

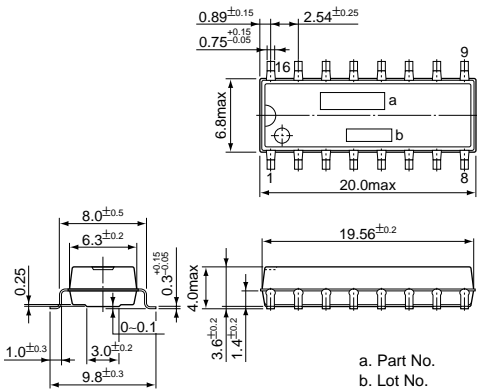
• No. 1 (STA 10 pin)



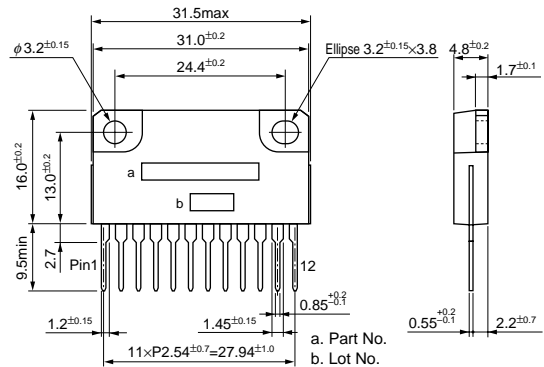
• No. 2 (STA 8 pin)



• No. 3 (SD)



• No. 4 (SLA 12 pin)



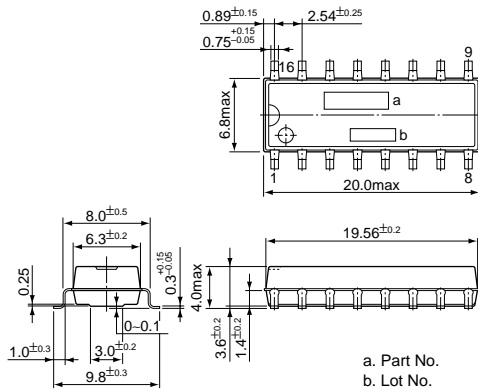
(unit: mm)

■ With Built-in Flywheel Diode

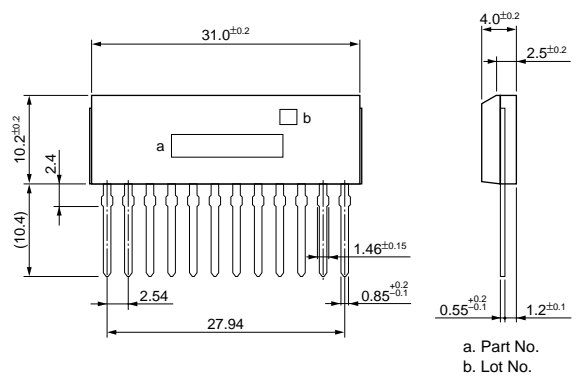
Part No.	Number of Circuits	V _{CEO} (V) V _{DSS} (V)	I _c (A) I _D (A)	Chip	h _{FE} (min)	R _{DS(ON)} max(Ω)	Package	Fig. No.	
SDK02	4	60	2	MOS		0.24	SMD16Pin	1	
SMA5114			3	MOS		0.25	SIP12Pin	2	
SLA5031			5	MOS		0.3	SIP12Pin with fin	3	
SDH02			1.5	Bipolar	2000			SMD16Pin	1
SMA4033		2	Bipolar	2000			SIP12Pin	2	
SMA4032		3	Bipolar	2000			SIP12Pin		
SLA5040		100	4		MOS		0.6	SIP12Pin with fin	3
SMA5102					MOS		0.6	SIP12Pin	2
SMA5106					MOS		0.55	SIP12Pin	
SLA5002					MOS		0.3	SIP12Pin with fin	3
SMA5105		5	MOS		0.3	SIP12Pin	2		
SLA4031		120	4		Bipolar	2000		SIP12Pin with fin	3
SLA4061					Bipolar	2000		SIP12Pin with fin	
SLA4041		200	3		Bipolar	1000		SIP12Pin with fin	3
SLA5003				MOS		0.9	SIP12Pin with fin		
SMA4036	6	120	2	Bipolar	2000		SIP15Pin	4	

External Dimensions

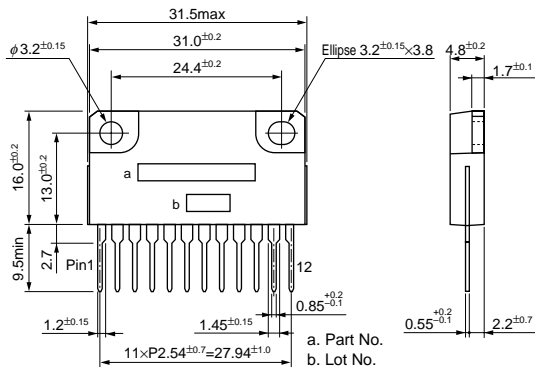
• No. 1 (SD)



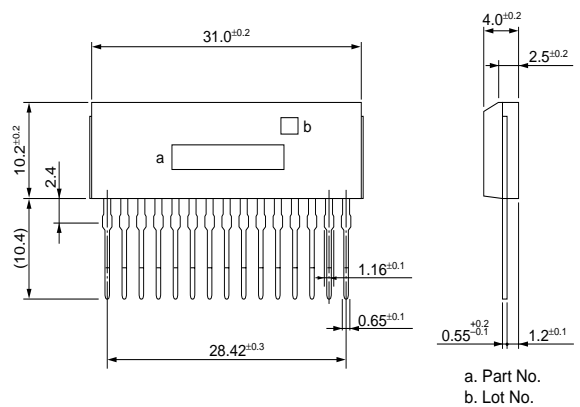
• No. 2 (SMA)



• No. 3 (SLA 12 pin)



• No. 4 (SMA 15 pin)



(unit: mm)

2-3-2 For Source Drive

■ General Purpose

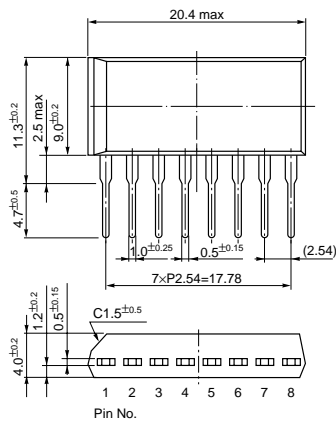
Part No.	Number of Circuits	$V_{CE0}(V)$		Chip	h_{FE} (min)	$R_{DS(ON)}$ max(Ω)	Package	Fig. No.	
		$V_{DSS}(V)$	$I_C(A)$ $I_D(A)$						
STA322A	3	-50	-3	Bipolar	100		SIP8Pin	1	
STA302A			-4	Bipolar	1000	SIP8Pin			
STA352A			-5	Bipolar	1000	SIP8Pin			
STA308A			-4	Bipolar	2000	SIP8Pin			
STA309A			-2.5	Bipolar	1000	SIP8Pin			
STA402A	4	-60	-4	Bipolar	1000		SIP10Pin	2	
SDA01			-1.5	Bipolar	2000	SMD16Pin	3		
STA472A			-2	Bipolar	2000	SIP10Pin	2		
STA421A			-3	Bipolar	40	SIP10Pin			
SMA4020					Bipolar	2000	SIP12Pin	4	
SLA5024					MOS		0.55	SIP12Pin with fin	5
SLA5004					MOS		0.3	SIP12Pin with fin	
SLA4070					Bipolar	1000		SIP12Pin with fin	
SLA5005					MOS		0.7	SIP12Pin with fin	
STA408A			5	-100	-4	Bipolar	2000		SIP10Pin
SLA5015	-4	MOS				0.55	SIP12Pin with fin	5	
SLA5012	-5	MOS				0.3	SIP12Pin with fin		
SLA5086	-5	MOS				0.22	SIP12Pin with fin		

■ With Built-in Flywheel Diode

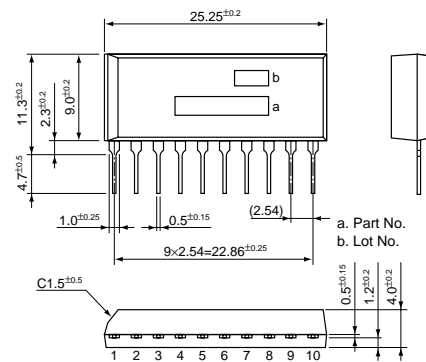
Part No.	Number of Circuits	$V_{CE0}(V)$		Chip	h_{FE} (min)	$R_{DS(ON)}$ max(Ω)	Package	Fig. No.
		$V_{DSS}(V)$	$I_C(A)$ $I_D(A)$					
SMA4021	4	-60	-3	Bipolar	2000		SIP12Pin	4
SLA4071			-5	Bipolar	2000		SIP12Pin with fin	5
SLA5006				MOS		0.7	SIP12Pin with fin	

External Dimensions

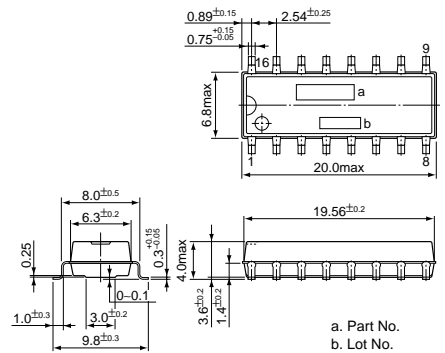
• No. 1 (STA 8 pin)



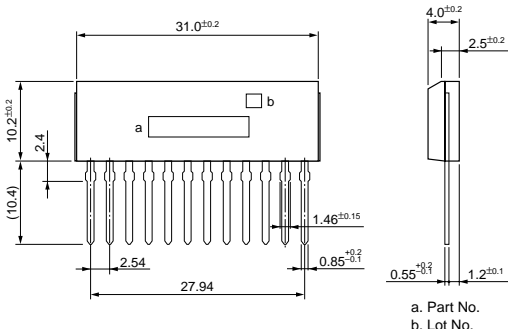
• No. 2 (STA 10 pin)



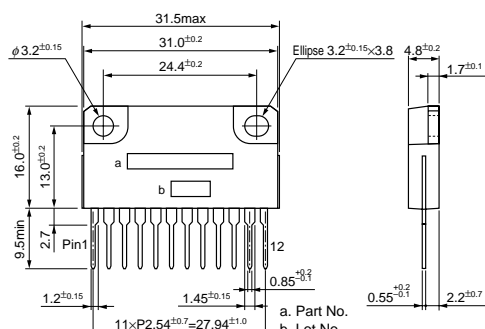
• No. 3 (SD)



• No. 4 (SMA)



• No. 5 (SLA 12 pin)



(unit: mm)

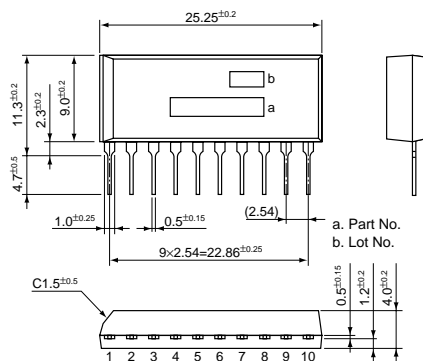
2-3-3 For Motor Drive

■H-Bridge

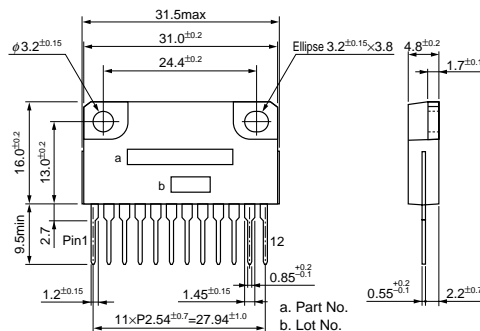
Part No.	Number of Circuits	$V_{CE0}(V)$ / $V_{DSS}(V)$		$I_c(A)$ / $I_D(A)$		Chip	hFE (min)	$R_{DS(ON)}$ max(Ω)	Package	Fig. No.
STA458C	4	± 30		± 5		Bipolar	40		SIP10Pin	1
STA474A		± 60		± 2		Bipolar	2000		SIP10Pin	
STA431A				± 3		Bipolar	40		SIP10Pin	
STA434A						Bipolar	1000		SIP10Pin	
STA457C						Bipolar	2000		SIP10Pin	
SLA4310				± 4		Bipolar	80		SIP12Pin with fin	2
SLA4340						Bipolar	2000		SIP12Pin with fin	
SLA5007						MOS		0.22/0.55	SIP12Pin with fin	
SLA5018						MOS		0.22/0.55	SIP12Pin with fin	
SMA5103						MOS		0.22/0.55	SIP12Pin	
SLA8001				± 12		Bipolar	50		SIP12Pin with fin	2
SDH03		$+100/-60$		± 1.5		Bipolar	2000		SMD16Pin	4
SLA5008						MOS		0.6/1.3	SIP12Pin with fin	2
SLA4390						Bipolar	2000		SIP12Pin with fin	
SLA4391						Bipolar	1000		SIP12Pin with fin	
SLA5013				± 5				0.3/0.7	SIP12Pin with fin	

External Dimensions

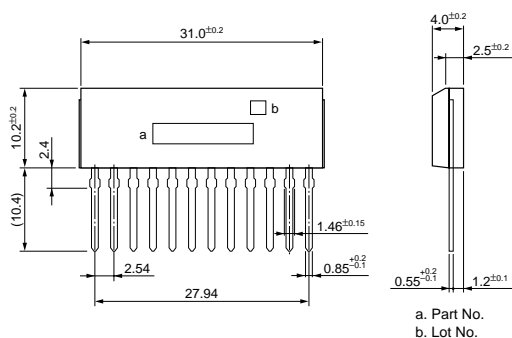
• No. 1 (STA 10 pin)



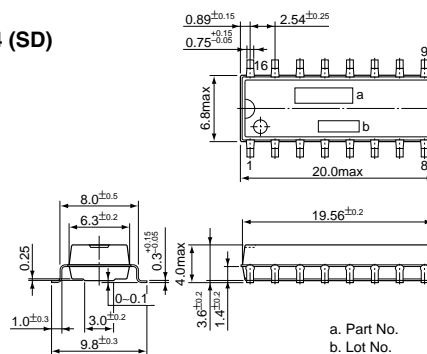
• No. 2 (SLA 12 pin)



• No. 3 (SMA)



• No. 4 (SD)



(unit: mm)

■ For 3-Phase Motor Drive

Part No.	Number of Circuits	$V_{CE0}(V)$		Chip	h_{FE} (min)	$R_{DS(ON)}$ max(Ω)	Package	Fig. No.		
		$V_{DSS}(V)$	$I_C(A)$ $I_D(A)$							
SDC07	3	60	4	Bipolar	2000	0.14	SMD16Pin	1		
SLA5080			10	MOS			SIP12Pin with fin	2		
STA303A		100	4	Bipolar	1000		SIP8Pin	3		
STA351A			5	Bipolar	1000		SIP8Pin			
STA513A		250	3.5	MOS		0.9	SIP10Pin	4		
STA517A			305	3	MOS		1.8		SIP10Pin	
STA304A		550	1	Bipolar	200		SIP8Pin	3		
STA302A			-50	-4	Bipolar	1000			SIP8Pin	
SDA05		-60	-4	Bipolar	2000		SMD16Pin	1		
SLA5079			-10	MOS		0.14	SIP12Pin with fin	2		
STA352A		-100	-5	Bipolar	1000		SIP8Pin	3		
STA309A		-250	-2.5	Bipolar	1000		SIP8Pin			
STA305A		-550	-1	Bipolar	200		SIP8Pin			
SMA6014		6	± 60	± 2	Bipolar	1500/2000		SIP12Pin	5	
SMA6080	± 2			Bipolar	2000		SIP12Pin			
SLA5059	± 4			MOS		0.55	SIP12Pin with fin	2		
SMA6010				Bipolar	2000		SIP12Pin	5		
SLA6012				Bipolar	2000		SIP12Pin with fin	2		
SMA5127				MOS		0.55	SIP12Pin	5		
SLA5009	$+5/-4$			MOS		0.22/0.55	SIP12Pin with fin	2		
SLA5017				MOS		0.22/0.55	SIP12Pin with fin			
SMA5104				MOS		0.22/0.55	SIP12Pin		4	
SLA5060	± 6			MOS		0.22	SIP12Pin with fin	2		
SLA5022				Bipolar	2000	0.22	SIP12Pin with fin			
SLA6023	± 8			Bipolar	2000		SIP12Pin with fin	2		
SLA6024				MOS		0.14	SIP12Pin with fin			
SLA5061				MOS		0.14	SIP12Pin with fin			
SLA5064				Bipolar	2000		SIP12Pin with fin			
SLA6026	± 10			MOS		0.14	SIP12Pin	5		
SMA5125				MOS		0.14	SIP12Pin			
SLA6022	6			± 80	± 5	Bipolar	2000		SIP12Pin with fin	2
SLA5010					$+4/-3$	MOS		0.6/1.3	SIP12Pin with fin	
SLA6020				± 100	± 5	Bipolar	2000		SIP12Pin with fin	
SLA5023		± 6	Bipolar		2000	0.55	SIP12Pin with fin			
SLA5072		250	7	MOS		0.5	SIP15Pin with fin	6		
SMA5112				MOS		0.5	SIP12Pin	5		
SMA5117				MOS		0.25	SIP12Pin			
SLA5075		500	± 5	MOS		1.4	SIP15Pin with fin	6		
SMA5118	MOS				1.4	SIP12Pin	5			

■ For 5-Phase Motor Drive

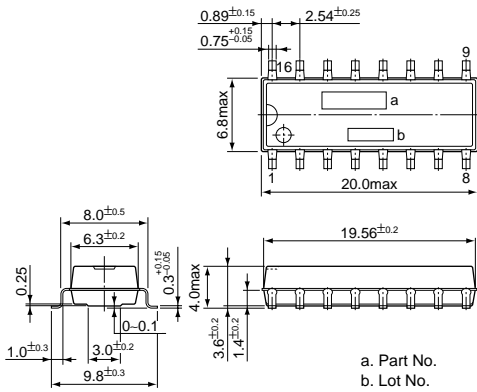
Part No.	Number of Circuits	$V_{CE0}(V)$		Chip	h_{FE} (min)	$R_{DS(ON)}$ max(Ω)	Package	Fig. No.
		$V_{DSS}(V)$	$I_C(A)$ $I_D(A)$					
SLA5074	4	60	5	MOS		0.3	SIP15Pin with fin	5
SLA5065			7	MOS		0.1	SIP15Pin with fin	
SLA5073	6	60	5	MOS		0.3	SIP15Pin with fin	
SLA5068			7	MOS		0.1	SIP15Pin with fin	

■ For Stepper Motor Dual Power Supply Drive

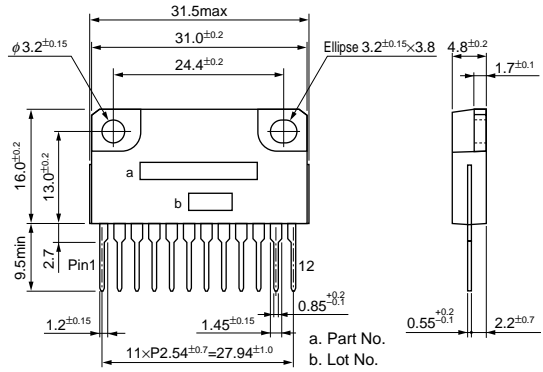
Part No.	Number of Circuits	$V_{CE0}(V)$		Chip	h_{FE} (min)	$R_{DS(ON)}$ max(Ω)	Package	Fig. No.
		$V_{DSS}(V)$	$I_C(A)$ $I_D(A)$					
SMA6512	5	$60 \pm 10/-60$	$1.5/-3$	Bipolar	2000		SIP12Pin	4
SMA6511				$100 \pm 15/-60$	$1.5/-3$	Bipolar	2000	

External Dimensions

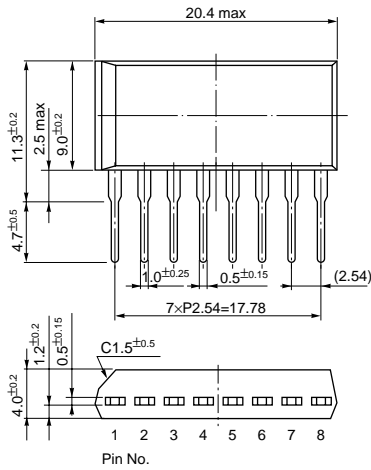
• No. 1 (SD)



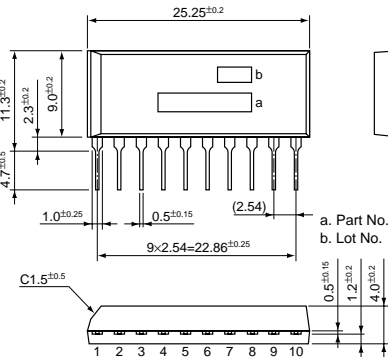
• No. 2 (SLA 12 pin)



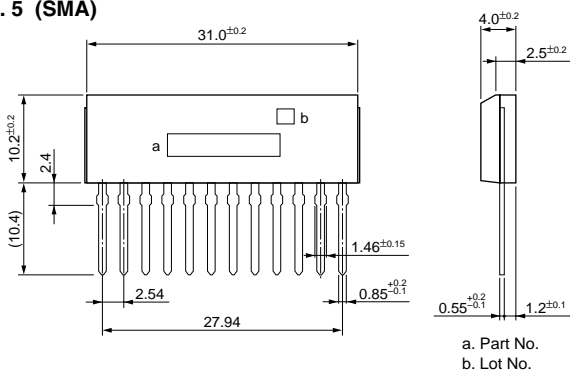
• No. 3 (STA 8 pin)



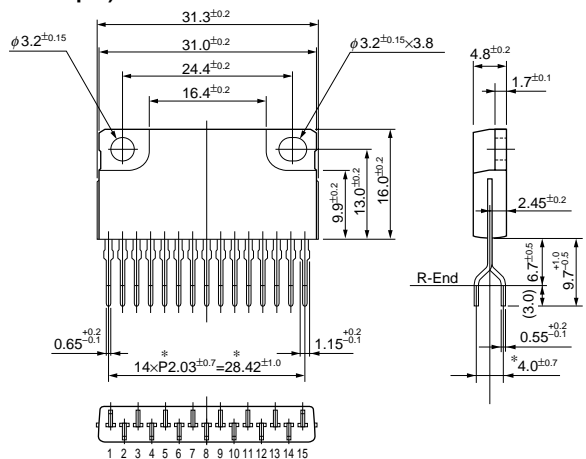
• No. 4 (STA 10 pin)



• No. 5 (SMA)



• No. 6 (SLA 15 pin)



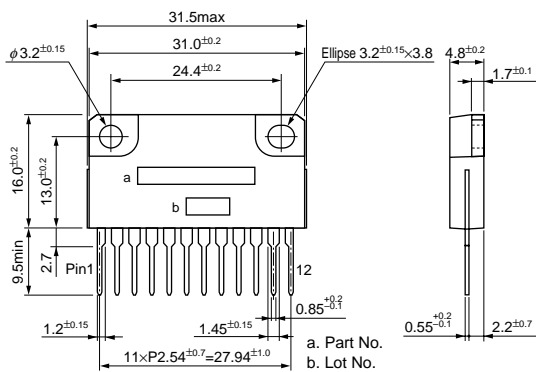
(unit: mm)

2-3-4 MOS Array for "S" shape Correction Switch of CRT Display

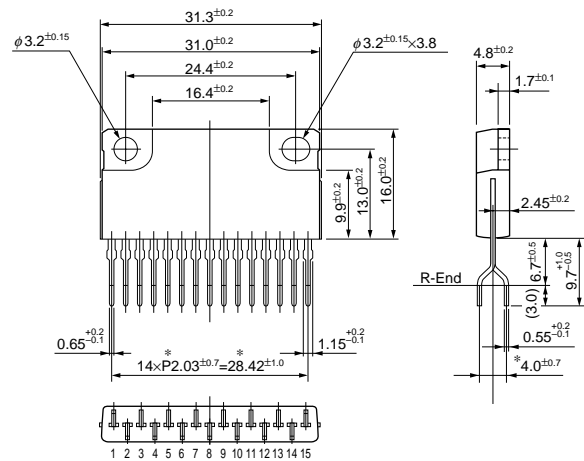
Part No.	Number of Circuits	V _{DS} (V)	I _D (A)	Chip	R _{DS(ON)} max(mΩ)	Package	Fig. No.	
SLA5037	4	100	10	MOS	80	SIP12Pin with fin	1	
SLA5047			10	MOS	85	SIP12Pin with fin		
SLA5052			150	10	MOS	115		SIP12Pin with fin
SLA5077				10	MOS	200		SIP12Pin with fin
SLA5041		200	10	MOS	175	SIP12Pin with fin		
SLA5089			10	MOS	120	SIP12Pin with fin		
SLA5044	5	250	10	MOS	250	SIP12Pin with fin		
SLA5042			5	MOS	185	SIP12Pin with fin		
SLA5021	5	100	5	MOS	190	SIP12Pin with fin		
SLA5058			7	MOS	200	SIP12Pin with fin		
SLA5081		150	7	MOS	105/200	SIP15Pin with fin		2
SLA5055			5/7	MOS	200/440	SIP12Pin with fin		1
SLA5088		200	5/7	MOS	200/440	SIP15Pin with fin	2	
SLA5046			7	MOS	350	SIP12Pin with fin		
SLA5094	250	7	MOS	350	SIP12Pin with fin	1		
SLA5049		7	MOS	500	SIP12Pin with fin			
SLA5070	6	150	7	MOS	105/200	SIP15Pin with fin	2	
SLA5054			7/5/7	MOS	105/200/440	SIP15Pin with fin		
SLA5057		200	7	MOS	175/350	SIP15Pin with fin		

External Dimensions

• No. 1 (SLA 12 pin)



• No. 2 (SLA 15 pin)



(unit: mm)

Thyristors

3

3-1 Thyristors	34
3-1-1 Thyristors	34
3-1-2 3-Terminal Thyristor with built-in Reverse Diode for HID Lamp Ignition	35
3-1-3 Thyristors with Built-in Avalanche Diode	35
3-2 Triacs	36
3-3 PNP Switches	38

3-1-1 Thyristors

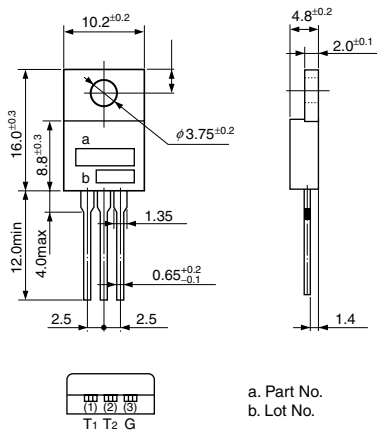
Part No.	V _{DRM} (V)	I _T (A) (A)	I _{GT} (max) (mA)	Package	Fig. No.
TF321M-A	200	3	0.1	TO-220	1
TF321M			10	TO-220	
TF321S			15	TO-220F	
TF521M	200	5	15	TO-220	1
TF521S			15	TO-220F	2
TF821M			8	15	TO-220
TF821S	TO-220F	2			
TF341S	15				TO-220F
TF341M-A	400	3	0.1	TO-220	1
TF341M			10	TO-220	
TF541S-A			0.2	TO-220F	
TF541M	5	15	TO-220	1	
* TF541S			TO-220F	2	
TF841M			TO-220	1	
* TF841S	8	15	TO-220F	2	

Part No.	V _{DRM} (V)	I _T (A) (A)	I _{GT} (max) (mA)	Package	Fig. No.
TF361M-A	600	3	0.1	TO-220	1
TF361M			10	TO-220	
TF361S			15	TO-220F	
TF561S-A	600	5	0.2	TO-220F	2
TF561M			15	TO-220	
* TF561S			15	TO-220F	
SLA0201	600	5x4 circuits	10	SIP12Pin	3
TF861M		8	15	TO-220	1
* TF861S				TO-220F	2

* UL recognized products are available.

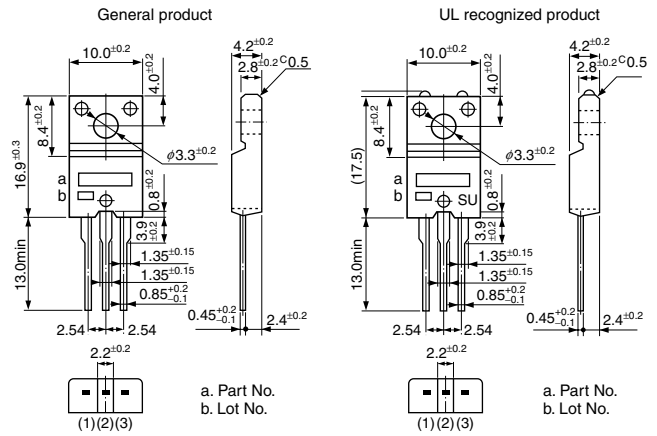
External Dimensions

• No. 1



a. Part No.
b. Lot No.

• No. 2

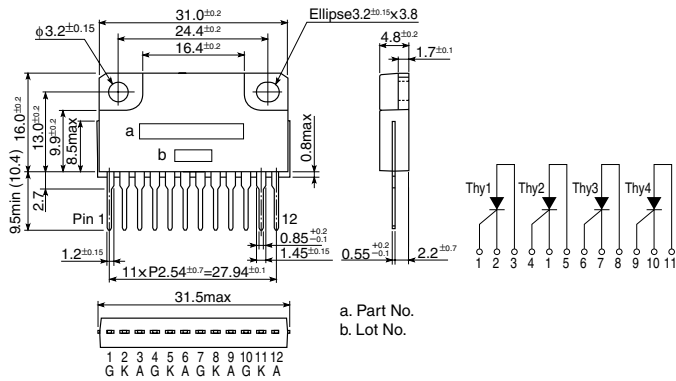


a. Part No.
b. Lot No.

a. Part No.
b. Lot No.

Terminal No.	
(1)	Cathode (K)
(2)	Anode (A)
(3)	Gate (G)

• No. 3



a. Part No.
b. Lot No.

(unit: mm)

3-1-2 3-Terminal Thyristor with built-in Reverse Diode for HID Lamp Ignition

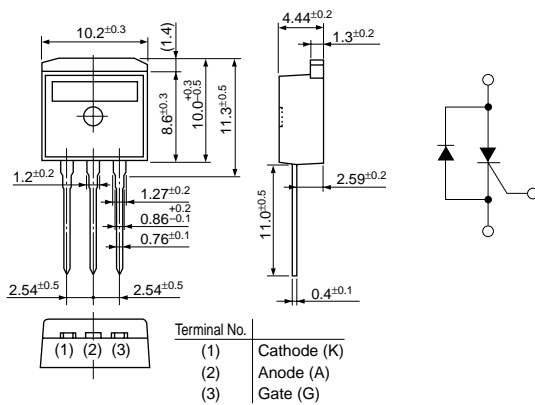
Part No.	V _{DRM} (V)	I _{TRM} (A)	di/dt (A/μs)	Package	Fig. No.
TFC561D	600	430	1200	TO-220S	1

3-1-3 Thyristors with Built-in Avalanche Diode

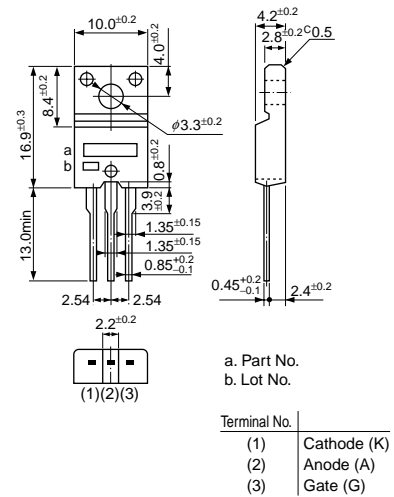
Part No.	V _{BO} (V)	V _{DRM} (V)	I _{T(AV)} (A)	Package	Fig. No.
TFD312S-C	30±3	20	3	TO-220F	2
TFD312S-F	55±5	35			
TFD312S-G	65±5	45			
TFD312S-J	100±10	80			
TFD312S-K	125±10	100			
TFD312S-L	150±10	120			
TFD312S-M	175±12	145			
TFD312S-N	200±15	170			
TFD312S-O	225±15	190			

External Dimensions

• No. 1



• No. 2



(unit: mm)

Part No.	V _{DRM} (V)	I _{T(AV)} (A)	I _{GT(max)} (mA)	Package	Remarks	Fig. No.	
STA221A	400	1.0 × 4 circuits	3	SIP10Pin	Array	1	
STA203A		1.2 × 3 circuits	3	SIP8Pin	Array	2	
* TM341S-R		3	3	12	TO-220F	For R load	3
TM341M-L				20	TO-220	For L load	4
* TM341S-L		5	3	12	TO-220F	For L load	3
* TM541S-R					TO-220F	For R load	
TM541M-L		8	5	20	TO-220	For L load	4
* TM541S-L					TO-220F	For L load	3
TM841M-L		10	8	30	TO-220	For L load	4
* TM841S-L					TO-220F	For L load	
* TM1041S-R		12	10	7	TO-220F	For R load	3
* TM1041S-L					TO-220F	For L load	
* TM1241S-R		16	12	8	TO-220F	For R load	3
* TM1241S-L					TO-220F	For L load	
* TM1641S-L		25	16	30	TO-220F	For L load	5
TM1641P-L(L)					TO-3P	For L load	
* TM1641B-L		3	25	30	TO-3PF	For L load	6
* TM2541B-L					TO-3PF	For L load	
* TM361S-R		600	3	12	TO-220F	For R load	3
TM361M-L				20	TO-220	For L load	4
* TM361S-L	5		3	12	TO-220F	For L load	3
* TM561S-R					TO-220F	For R load	
TM561M-L	8		5	20	TO-220	For L load	4
* TM561S-L					TO-220F	For L load	3
TM861M-L	10		8	30	TO-220	For L load	4
* TM861S-L					TO-220F	For L load	
* TM1061S-R	12		10	7	TO-220F	For R load	3
* TM1061S-L					TO-220F	For L load	
* TM1261S-R	16		12	8	TO-220F	For R load	3
* TM1261S-L					TO-220F	For L load	
* TM1661S-L	25		16	30	TO-220F	For L load	5
TM1661P-L(L)					TO-3P	For L load	
* TM1661B-L	3		25	30	TO-3PF	For L load	6
* TM2561B-L					TO-3PF	For L load	
TM583S-L	800		5	20	TO-220F	For L load	3
TM883S-L			8	30	TO-220F	For L load	

*UL recognized products are available.