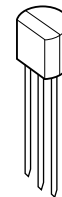


CD-ROM Transistor

Quick Reference by Package



TO-92

■ TO-92 Type Transistor

V_{CE0} (V) I_C (A)	~15	~30	~50	~70	~100	~150	~200	~250	~400
~20 m		2SC1674							
~50 m	2SA1206**					2SA988 2SA992 2SC1841 2SC1845			
~100 m			2SA733 2SA990 2SC945 2SC1842 2SC1843 AA1[] AN1[]		2SA675 ¹⁾		2SA1376 2SA1376A 2SC3478 2SC3478A	2SA1544	
~200 m	2SC2901**		2SC3622* (150 mA) 2SC3622A* (150 mA)						
~500 m			2SC3615* (300 mA)	2SA953 2SC2002	2SA954 2SC2003				2SA1625
~1.0		2SA952 2SC2001 2SC3616* (25 V/ 700 mA) AB1[] (25 V/ 700 mA) AP1[] (25 V/ 700 mA)	2SB1116 2SD1616	AD1[] AD2[]*** AR1[] 2SB1116A (60 V) 2SD1616A (60 V)*** 2SD1701 (60 V)	2SD1698 (80 V)				
~2.0		2SD1513 (16 V/2.0 A) 2SB1068 (16 V/2.0 A) AQ1[] (20 V/2.0 A)							
~3.0		2SB1300 (16 V/3 A)							

1) V_{CES} [] : Darlington transistor, *: High h_{FE} transistor, **: High speed switching, ***: Contains internal zener diode

Quick Reference by Package



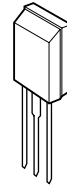
SST

■ SST Type Transistor

V_{CE0} (V) I_C (A)	~15	~20	~30	~50	~120
~20 m	2SC2786		2SC2787		
~50 m	2SA1459**				2SC2784
~100 m				2SA1175 2SC2785 2SC3623* BA1[] BN1[]	
~200 m	2SC3732**			2SA1458** (40 V) 2SC3623A* (150 mA) 2SC3731** (40 V)	
~700 m		2SB810 2SD1020	BB1[] (25 V) BP1[] (25 V)		

*: High h_{FE} transistor, **: High speed switching

Quick Reference by Package



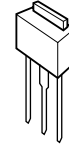
SP-8

■ SP-8 Type Transistor

V_{CEO} (V) I_c (A)	~16	~25	~50	~80	~140	~160	~300	~400	~600
~50 m					2SA915 2SC1940	2SA916 2SC1941			
~200 m							2SC3209 2SC4000 (250 V/ 100 mA)		
~500 m					2SA1221 2SC2958	2SA1222 2SC2959			
~700 m			2SB605 2SD571 2SC2721						
~1.0		2SB564 2SD471	2SA1460** 2SB734 2SC3733** 2SD774 2SD1582*	2SB984 2SB1093 2SD1312 2SD1579 2SD1697 (800 mA) 2SD1700*** (60 V/ 800 mA) 2SD1843*** (60 V)					2SA1627
~2.0	2SB733 2SD773	2SD1581*	2SD2463	2SD1779* (60 V) 2SD1780* (60 V) CE1[]*** (60 V) CE2[]* (60 V)				2SA1626	
~3.0		2SB1117			2SB1318 (100 V)				
~5.0		2SA1897							

□: Darlington transistor, *: High h_{FE} transistor, **: High speed switching, ***: Internal zener diode

Quick Reference by Package



MP-3

■ MP-3 Type Transistor

V_{CEO} (V) $I_{C(DC)}$ (A)	~20	~40	~60	~100	~150	~300	~400	~600
~0.5							{ 2SA1400 2SC3588	
~1.0			{ 2SB963 2SD1286					{ 2SA1413 2SC3632
~2.0	2SD1583	2SD992	2SD1164		{ 2SB768 2SD1033	2SC2885 2SC2946	{ 2SA1412 2SC3631	
~3.0		2SB962 ◎	2SD1584 { 2SB1261 ◎ 2SD1899 ◎					
~5.0			{ 2SA1385 ◎ 2SC3518 ◎ 2SA1648 ◎	{ 2SA1647 ◎ 2SC4331 ◎			2SC4346	
~10	2SA1615 ◎	2SA1649 ◎						

□ : Darlington transistor, { : Complementary pair, ○ : Single High h_{FE} , ◎ : Low $V_{CE(sat)}$

Quick Reference by Package

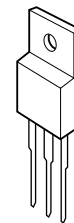
MP-5
(TO-126)

■ MP-5 (TO-126) Type Transistor

V_{CE0} (V) $I_{C(DC)}$ (A)	~45	~60	~80	~120	~160	~300	~400	~600
~1.0						{ 2SA1546 2SC4001		
~0.5						2SC2688	{ 2SA1156 2SC2752	
~1.0		2SD1630 *		2SD415				{ 2SA1486 2SC3840
~2.0	2SD1695 *	{ 2SB794 2SD985	{ 2SB795 2SD986	2SC2690	2SC2690A			
~3.0	{ 2SD794 2SB772 ◎ 2SD882 ◎	{ 2SD794A 2SB1150 * 2SD1693 * 2SD1694 ○ 2SB1217 ◎ 2SD1818 ◎		{ 2SB1149 2SD1692 2SC4342				
~5.0		{ 2SB1151 ◎ 2SD1691 ◎						

□ : Darlington transistor, { : Complementary pair, *: Internal zener diode between C-B, ◎ : Low $V_{CE(sat)}$,
○ : Single High h_{FE}

Quick Reference by Package

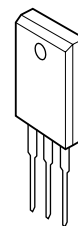
MP-25
(TO-220)

■ MP-25 (TO-220) Type Transistor

V_{CE0} (V) $I_{C(DC)}$ (A)	~40	~60	~80	~100	~150	~300	~400
~0.5						2SC1505	
~2.0				{ 2SA1008 2SC2331	{ 2SB546A 2SD401A	2SA1009	2SA1009A 2SC2333
~5.0		2SA1069	2SA1069A	{ 2SB601 2SD560 2SC2517			2SC2518
~7.0	2SA1129	2SB707	2SB708	{ 2SA1010 2SC2334 2SA1645 ◎			2SC2335
~7.0				2SA1646 ◎			

□ : Darlington transistor, { : Complementary pair, *: Internal zener diode between C-B, ◎ : Low $V_{CE(sat)}$

Quick Reference by Package



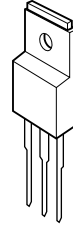
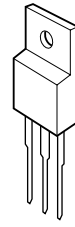
MP-40

■ MP-40 Type Transistor

V_{CE0} (V) $I_{C(DC)}$ (A)	~60	~100	~400
~5.0	2SD1392*	2SD1308	
~7.0	2SC4305		2SC3158
~8.0		2SD1309	
~10		2SA1261 2SC3157 2SC4350	2SC3159

□ : Darlington transistor, (: Complementary pair, *: Internal zener diode between C-B

Quick Reference by Package

MP-45
(MP-25 Insulated type)MP-45F
(MP-25 Insulated type)

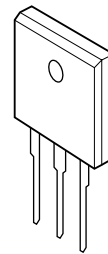
■ MP-45, MP-45F (TO-220 Insulated Type) Transistor

V _{CEO} (V) I _{C(DC)} (A) Package	~60		~100		~300	~400
	MP-45	MP-45F	MP-45	MP-45F	MP-45	MP-45
~2.0			{ 2SA1395 2SC3567			2SC3569
~3.0	{ 2SB1094 2SD1585 2SD1593 ○	2SB1453 2SD2164 ○				
~5.0	{ 2SA1394 2SA1441 ◎ 2SC3691 ◎ 2SC4351 *	{ 2SA1741 ◎ 2SC4549 ◎	{ 2SB1098 2SD1589 2SA1650 ◎	{ 2SB1430 2SD2161	2SD1592	2SC3570
~6.0			2SD1594 ○	2SD2165 ○		
~7.0	{ 2SB1097 2SD1588 2SA1442 ◎ 2SC3692 ◎	{ 2SA1742 ◎ 2SC4550 ◎	2SC4062 ○	2SC4553 ○		2SC3571
~8.0			{ 2SB1099 2SD1590	{ 2SB1431 2SD2162		
~10	{ 2SA1443 ◎ 2SC3693 ◎	{ 2SA1743 ◎ 2SC4551 ◎	{ 2SA1396 2SC3568 2SA1652 ◎ 2SC4336 ◎ 2SA1720 2SB1100 2SD1591	{ 2SB1432 2SD2163		2SC3572
~15	{ 2SA1444 ◎ 2SC3694	{ 2SA1744 ◎ 2SC4552 ◎	2SC4063 ○	2SC4554 ○		

□ : Darlington transistor, { : Complementary pair, * : Internal zener diode between C-B, ◎ : Low V_{CE(sat)},○ : Single High h_{FE}

Quick Reference by Package

■ MP-80 Type Transistor

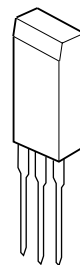


MP-80

V_{CE0} (V) $I_{C(DC)}$ (A)	~100	~400
~5.0	2SC2908	
~1.0	2SB897 2SD1210	2SC2749
~15	2SC2750 2SD1296	2SC2751

□: Darlington transistor, *: MP-88

Quick Reference by Package



MP-10

■ MP-10 Type Transistor

V_{CE0} (V) $I_{C(DC)}$ (A)	~60	~100
2.5		2SC4814 ○
~5	{ 2SA1843 ◎ 2SC4815 ◎	{ 2SA1840 2SC4810 2SA1845 ◎
~7		2SC4813 ○
~8		{ 2SA1841 2SC4811
~10		2SA1847 ◎

□: Darlington transistor, { : Complementary pair, ○: Low $V_{CE(sat)}$ High h_{FE} , ◎: Low $V_{CE(sat)}$

Quick Reference by Package

Mini mold
SC-59

■ Mini-Mold Transistor

V_{CE0} (V) I_c (mA)	~15	~20	~30	~40	~50	~60	~80	~120	~200	~300
~20		2SC2223								2SD2383
~30				2SA1226						
~50	2SA1462		2SC1009A					2SA811A 2SA1247 2SC1622A 2SC3115	2SC1653 (130 V) 2SC1654 (160 V)	
~100					2SA812 2SC1623 FA1[] FN1[]				2SA1330 2SC3360	
~150					2SC3624 2SC3624A					
~200	2SC3735	2SC1621		2SA1461 2SC3734						
~300						2SB736 2SD780	2SB736A 2SD780A			
~500				2SA1464 2SC3739						
~700			2SB624 (-25 V) 2SD596 (25 V) FB1[] (25 V) FP1[] (-25 V)							

Quick Reference by Package

Power mini mold
SC-62

■ Power Mini-Mold Transistor

V_{CE0} (V) I_c (A)	~20	~25	~50	~60	~80	~100	~120	~140	~300
~50 m								2SA1173 2SC2780	
~200 m									2SC3554
~300 m			2SC3617		2SB800 2SD1001				
~0.7		2SC3618	2SB799 2SD1000			2SB805 2SD1006	2SB806 2SD1007		
~1.0		2SB798 2SD999	2SA1463 2SB1115 2SC3736 2SD1615 <u>2SD1702</u>	2SB1115A 2SD1615A HD1[] HD2[] HR1[]	2SB804 2SD1005 <u>2SD1699</u>				
~2.0	2SB1114 2SD1614 HQ1[]	2SD1950							
~3.0	2SB1628			2SB1572 2SD2403					
~5.0			2SB1571 2SD2402						

 : Darlington connection

Quick Reference by Package

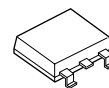


MP-2
SC-84

■ MP-2 Type Transistor

V_{CE0} (V) I_C (A)	~60	~600
~1.0		2SA1871 2SC4942
~5.0	2SB1578 2SD2425	

Quick Reference by Package



MP-3

■ MP-3 Type (SC-63) Transistor

V_{CE0} (V) I_c (A)	~20	~30	~45	~60	~200	~400	~600
~0.5						2SA1400-Z 2SC3588-Z	
~1.0				2SB963-Z 2SD1286-Z			2SA1413-Z 2SC3632-Z
~2.0	2SD1583-Z			2SD1164-Z (1.5 A)	2SB768 (150 V) 2SD1033 (150 V) 2SC2946(1)	2SA1412-Z 2SC3631-Z	
~3.0		2SB962-Z		2SB1261-Z 2SD1584-Z 2SD1899-Z			
~5.0				2SA1385-Z 2SC3518-Z			
~10	2SA1615-Z						

 : Darlington connection

Quick Reference by Package



Small mini mold
SC-70

■ Small Mini-Mold Transistor

V_{CE0} (V) I_C (mA)	~15	~20	~30	~40	~50	~120
~20		2SC4178				
~50	2SA1610		2SC4179			2SA1612 2SC4180
~100					2SA1611 2SC4177 GA1[] GN1[]	
~150					2SC4181	
~200	2SC4176	2SC4175				
~500			2SB1475 (-25 V) 2SD2228 (25 V)	2SA1608 2SC4173		

Quick Reference by Package**■ Ultra Small Mini-Mold Transistor**

V_{CE0} (V)	
I_C (mA)	~50
~100	2SA1836 2SC4783



Ultra small mini mold

Quick Reference Table by Function/Application

Small Signal Transistor

■ Small Signal Transistor (1/4)



	TO-92	SP-8	SST	SMALL MINI MOLD	MINI MOLD	POWER MINI
FM/FM RF RF/MIX/CON	2SC1674		2SC2786	2SC4178	2SC2223	
FM AM/FM/AM MIX/OSC/IF			2SC2787	2SC4179	2SC1009A	
Audio Frequency Amplification	2SA733		2SA1175	2SA1611	2SA812	
					(2SA812)	
	2SA988			2SA1612	2SA811A	
	2SC945		2SC2785	2SC4177	2SC1623	
					(2SC1623)	
	2SC1841				2SC1622A	
	2SC3622/A		2SC3623/A	2SC4181	2SC3624/A	
Low Noise Amplification	2SA992		2SA1174		2SA1247	
	2SC1845		2SC2784		2SC3115	

Quick Reference Table by Function/Application

Small Signal Transistor

■ Small Signal Transistor (2/4)



	TO-92	SP-8	SST	SMALL MINI MOLD	MINI MOLD	POWER MINI
Driver Output (1/2)	2SA952		2SB810		2SB624	
	2SA953				2SB736	
	2SA954				2SB736A	2SB800
	2SA1376				2SA1330	
		2SB564	2SB811			2SB798
		2SB605				2SB799
	2SB1068					2SB1114
	2SB1116					2SB1115
	2SB1116A					2SB1115A
	2SC2001		2SD1020		2SD596	
	2SC2002				2SD780	
	2SC2003				2SD780A	2SD1001
	2SC3478				2SC3360	

Quick Reference Table by Function/Application

Small Signal Transistor

■ Small Signal Transistor (3/4)



	TO-92	SP-8	SST	SMALL MINI MOLD	MINI MOLD	POWER MINI
Driver Output (2/2)		2SC1940			2SC1653	2SC2780
		2SC1941			2SC1654	
		2SC3209				2SC3554
	2SC3615					2SC3617
	2SC3616					2SC3618
		2SD471				2SD999
		2SD571				2SD1000
	2SD1513					2SD1614
	2SD1616					2SD1615
	2SD1616A					2SD1615A
	2SD1698	2SD1697				2SD1699
	2SD1701	2SD1700				2SD1702
		2SD1581				2SD1950

Quick Reference Table by Function/Application
Small Signal Transistor
■ Small Signal Transistor (4/4)


	TO-92	SP-8	SST	SMALL MINI MOLD	MINI MOLD	POWER MINI
Switching	2SA1206		2SA1459	2SA1610	2SA1462	
				2SA1608	2SA1464	
		2SA1460				2SA1463
			2SA1458		2SA1461	
				2SC4173	2SC3739	
	2SC2901		2SC3732	2SC4176	2SC3735	
		2SC3733				2SC3736
			2SC3731		2SC3734	

Quick Reference Table by Function/Application

Power Transistor

■ Low $V_{CE(sat)}$ Transistor

Charac- teristics V_{CE0} , $I_{C(DC)}$	SP-8	MP-2	MP-3	MP-5 (TO-126)	MP-25	MP-10	MP-45	MP-45F
16 V, 3 A		2SB1581						
20 V, 10 A	2SA1897 (5A)		2SA1615					
25 V, 3 A	2SB1117							
30 V, 3 A			2SB962	2SB772 2SD882				
30 V, 10 A			2SA1649					
60 V, 3 A			2SB1261 2SD1899	2SB1217 2SD1818				
60 V, 5 A		2SB1578 2SD2425	2SA1385 2SC3518	2SB1151 2SD1691		2SA1843 2SC4815		
			2SA1648				2SA1441 2SC3691	2SA1741 2SC4549
60 V, 7 A							2SA1442 2SC3692	2SA1742 2SC4550
60 V, 10 A							2SA1443 2SC3693	2SA1743 2SC4551
60 V, 15 A							2SA1444 2SC3694	2SA1744 2SC4552
100 V, 5 A			2SA1647 2SC4331			2SA1845	2SA1650	
100 V, 7 A					2SA1645			
100 V, 10 A						2SA1847	2SA1652 2SC4336	

Quick Reference Table by Function/Application

Power Transistor

■ High h_{FE} Transistor

Charac- teristics V_{CEO} , $I_{C(DC)}$	SP-8	MP-3	MP-5 (TO-126)	MP-10	MP-45	MP-45F
20 V, 2 A		2SD1583				
25 V, 2 A	2SD1581					
50 V, 1 A	2SD1582					
60 V, 3 A		2SD1584	2SD1694		2SD1593	2SD2164
100 V, 2.5 A				2SC4814*		
100 V, 6 A					2SD1594	2SD2165
100 V, 7.5 A				2SC4813*	2SC4062	2SC4553*
100 V, 15 A					2SC4063	2SC4554*

*: Low $V_{CE(sat)}$ & High h_{FE}

Quick Reference Table by Function/Application

Power Transistor

■ Low Voltage, High Speed Switching Transistor

Characteristics V _{CEO} , I _C (DC)	SP-8	MP-25	MP-45	MP-80
45 V, 1 A	(2SA1460 2SC3733			
60 V, 5 A		2SA1069	2SA1394	
100 V, 2 A		(2SA1008 2SC2331	(2SA1395 2SC3567	
100 V, 5 A		2SC2517		
100 V, 7 A		(2SA1010 2SC2334		
100 V, 10			(2SA1396 2SC3568	
100 V, 15 A				2SC2750

Quick Reference Table by Function/Application

Power Transistor

■ High Voltage, High Speed Switching Transistor

Characteristics V _{CEO} , I _{C(DC)}	MP-3	MP-5 (TO-126)	MP-25 (TO-220)	MP-40	MP-45	MP-80
200 V, 2 A	2SC2885 2SC2946 2SC2946(1)					
350 V, 2 A			2SA1009			
400 V, 0.5 A	(2SA1400 2SC3588	(2SA1156 2SC2752				
400 V, 2 A	2SC3631		2SA1009A 2SC2333		2SC3569	
400 V, 5 A	2SC4346		2SC2518		2SC3570	
400 V, 7 A				2SC3158	2SC3571	
400 V, 10 A				2SC3159	2SC3572	2SC2749
400 V, 15 A						2SC2751
600 V, 2 A	(2SA1413 2SC3632	(2SA1486 2SC3840				

Quick Reference Table by Function/Application

Power Transistor

■ Audio Frequency Amplification Transistor

Characteristics V _{CE0} , I _{C(DC)}	MP-3	MP-5 (TO-126)	MP-25 (TO-220)	MP-45
45 V, 3 A		2SD794		
60 V, 3 A		2SD794A		{ 2SB1094 2SD1585
60 V, 7 A			2SB707	{ 2SB1097 2SD1588
80 V, 0.8 A		2SD414		
80 V, 7 A			2SB708	
100 V, 0.8 A		2SD415		
150 V, 2 A	{ 2SB768 2SD1033		{ 2SB546A 2SD401A	

Quick Reference Table by Function/Application
Power Transistor
■ High Frequency Amplification Transistor

Characteristics V _{CEO} , I _{C(DC)}	SP-8	MP-5 (TO-126)	MP-25 (TO-220)
40 V, 7 A			2SA1129
120 V, 1.2 A		2SC2690	
160 V, 1.2 A		2SC2690A	
250 V, 0.1 A	2SC4000	{ 2SA1546 2SC4001	
300 V, 0.2 A	2SC2802	2SC2688	2SC1505

Quick Reference Table by Function/Application

Power Transistor

■ Darlington Transistor

Charac- teristics V_{CE0} , $I_{C(DC)}$	SP-8	MP-3	MP-5 (TO-126)	MP-25 (TO-220)	MP-10	MP-40	MP-45	MP-45F	MP-80
31 V, 2 A	2SD2463*		2SD1695*						
60 V, 0.8 A	2SD1700*								
60 V, 1 A	2SD1843	{ 2SB963 2SD1286	2SD1630*						
60 V, 1.5 A		2SD1164	{ 2SB794 2SD985						
60 V, 3 A			{ 2SB1150* 2SD1693*						
60 V, 5 A						2SD1392*	2SC4351◎		
80 V, 0.8 A	2SD1697								
80 V, 1.5 A	{ 2SB1093 2SD1579		{ 2SB795 2SD986						
100 V, 3 A			{ 2SB1149 2SD1692 2SC4342◎						
100 V, 5 A				{ 2SB601 2SD560	{ 2SA1840 2SC4810	2SD1308	{ 2SB1098◎ 2SD1589◎	{ 2SB1430 2SD2161	
100 V, 8 A					{ 2SA1841 2SC4811	2SD1309	{ 2SB1099 2SD1590	{ 2SB1431 2SD2162	
100 V, 10 A							{ 2SA1720◎ 2SB1100 2SD1591	{ 2SB1432 2SD2163	{ 2SB897 2SD1210
100 V, 15 A									2SD1296
100 V, 25 A									2SD1297
300 V, 5 A							2SD1592		

◎: High speed darlington transistor, *: Internal zener diode between C-B

Field Effect Transistor

Small Signal FET

■ 2SK type (MOS type) (1/3)



Part number	Package	Absolute maximum rating (T _A = 25 °C)				Electrical characteristics (T _A = 25 °C)							Applications
		V _{DSS} (V)	I _D		P _T (W)	y _{fs} (S)			R _{DS(on)} (Ω)				
			DC (A)	Pulse (A)		V _{DS} (V)	I _D (A)	MIN.	V _{GS} (V)	I _D (A)	TYP.	MAX.	
2SK679A	TO-92	30	±0.5	±1.5	0.75	10	0.5	0.4	4	0.5	0.6	1.0	Switching
2SK680A	SC-62	30	±1.0	±2.0	1.0	10	0.5	0.4	4	0.5	0.6	1.0	
2SK681A	SP-8	30	±1.0	±2.0	1.0	10	0.5	0.4	4	0.5	0.6	1.0	
2SK1132	SST	50	0.1	0.2	0.25	5	0.02	0.03	4	0.02	30	50	
2SK1133	SC-59	50	0.1	0.2	0.2	5	0.02	0.03	4	0.02	30	50	
2SK1272	TO-92	60	±1.0	±2.0	0.75	10	0.5	0.4	4	0.5	—	1.0	
2SK1273	SC-62	60	±2.0	±4.0	2.0	10	0.5	0.4	4	0.5	—	1.0	
2SK1274	SP-8	60	±1.5	±3.0	1.0	10	0.5	0.4	4	0.5	—	1.0	
2SK1398	SST	50	0.1	0.2	0.25	3	0.01	0.02	2.5	0.005	20	40	
2SK1399	SC-59	50	0.1	0.2	0.2	3	0.01	0.02	2.5	0.005	20	40	
2SK1482	TO-92	30	±1.5	±3.0	0.75	10	0.5	0.4	4	0.5	0.19	0.8	
2SK1483	SC-62	30	±2.0	±4.0	2.0	10	0.5	0.4	4	0.5	0.19	0.8	
2SK1484	TO-92	100	±0.5	±1.0	0.75	10	0.5	0.4	4	0.5	0.62	1.2	
2SK1485	SC-62	100	±1.0	±2.0	2.0	10	0.5	0.4	4	0.5	0.62	1.2	

Field Effect Transistor

Small Signal FET

■ 2SK type (MOS type) (2/3)



Part number	Package	Absolute maximum rating (T _A = 25 °C)				Electrical characteristics (T _A = 25 °C)							Applications
		V _{DSS} (V)	I _D		P _T (W)	y _f s (S)			R _{DS(on)} (Ω)				
			DC (A)	Pulse (A)		V _{DS} (V)	I _D (A)	MIN.	V _{GS} (V)	I _D (A)	TYP.	MAX.	
2SK1580	SC-70	16	0.1	0.2	0.15	3	0.01	0.02	2.5	0.001	9	15	Switching
2SK1581	SC-59	16	0.2	0.4	0.2	3	0.01	0.02	2.5	0.001	3.2	5	
2SK1582	SC-59	30	0.2	0.4	0.2	5	0.01	0.02	4	0.01	2.2	5	
2SK1583	SC-62	16	±0.5	±1.0	2.0	5	0.3	0.4	2.5	0.3	1.2	2.0	
2SK1584	SC-62	30	±0.5	±1.0	2.0	5	0.3	0.4	2.5	0.3	1.2	2.0	
2SK1585	SC-62	16	±1.0	±2.0	2.0	5	0.5	0.4	2.5	0.5	0.8	1.2	
2SK1586	SC-62	30	±1.0	±2.0	2.0	5	0.5	0.4	4	0.5	—	1.0	
2SK1587	SC-62	16	±2.0	±4.0	2.0	5	1.0	0.4	2.5	1.0	0.55	0.8	
2SK1588	SC-62	16	±3.0	±6.0	2.0	3	1.0	0.4	2.5	1.0	0.34	0.5	
2SK1589	SC-59	100	0.1	0.2	0.2	5	0.01	0.02	4	0.01	19	30	
2SK1590	SC-59	60	0.2	0.4	0.2	5	0.01	0.02	4	0.01	3.2	6	
2SK1591	SC-59	100	0.2	0.4	0.2	5	0.01	0.02	4	0.01	5.8	8	
2SK1592	SC-62	60	±0.5	±1.0	2.0	10	0.5	0.4	4	0.5	1.6	2.5	
2SK1593	SC-62	100	±0.5	±1.0	2.0	10	0.5	0.4	4	0.5	4.0	6.0	
2SK1656	SST	30	0.1	0.2	0.25	3	0.01	0.02	2.5	0.01	25	45	
2SK1657	SC-59	30	0.1	0.2	0.2	3	0.01	0.02	2.5	0.01	25	45	
2SK1658	SC-70	30	0.1	0.2	0.15	3	0.01	0.02	2.5	0.01	25	45	
2SK1824	3-pin ultra super mini	30	0.1	0.2	0.2	3	0.01	0.02	2.5	0.001	7	13	
2SK1958	SC-70	16	0.1	0.2	0.15	3	0.01	0.02	1.5	0.001	30	50	
2SK1959	SC-62	16	±2.0	±4.0	2.0	3	1.0	1.0	1.5	0.05	0.08	0.8	
2SK1960	SC-62	16	±3.0	±6.0	2.0	3	1.5	2.0	1.5	0.1	0.35	0.8	

Field Effect Transistor

Small Signal FET

■ 2SK type (MOS type) (3/3)



Part number	Package	Absolute maximum rating (T _A = 25 °C)				Electrical characteristics (T _A = 25 °C)							Applications
		V _{DSS} (V)	I _D		P _T (W)	y _f s (S)			R _{DS(on)} (Ω)				
			DC (A)	Pulse (A)		V _{DS} (V)	I _D (A)	MIN.	V _{GS} (V)	I _D (A)			
											TYP.	MAX.	
2SK2053	MP-2	16	±5	±10	2.0	3	2.5	0.4	1.5	0.5	0.2	0.4	Switching
2SK2054	MP-2	60	±3	±6	2.0	10	1.5	2.0	4	1.5	0.18	0.25	
2SK2055	MP-2	100	±2	±4	2.0	10	1.0	2.0	4	1.0	0.28	0.45	
2SK2070	SP-8	100	±1	±2	2.0	10	1.0	2.0	4	1.0	0.28	0.45	
2SK2090	SC-70	50	±0.1	±0.2	0.15	3	0.01	0.02	2.5	0.01	20	40	
2SK2109	SC-62	60	±0.5	±1.0	2.0	10	0.3	0.4	4	0.3	0.55	1.5	
2SK2110	SC-62	100	±0.5	±1.0	2.0	10	0.3	0.4	4	0.3	0.90	2.0	
2SK2111	SC-62	60	±1.0	±2.0	2.0	10	0.5	0.4	4	0.5	0.35	1.0	
2SK2112	SC-62	100	±1.0	±2.0	2.0	10	0.5	0.4	4	0.5	0.67	1.5	
2SK2157	MP-2	30	±5	±10	2.0	10	2.5	2.0	4	2.5	0.08	0.15	
2SK2158	SC-59	50	0.1	0.2	0.2	3	0.01	0.02	1.5	0.001	21	50	
2SK2159	SC-62	60	±2	±4	2.0	10	1.0	0.4	1.5	0.1	0.26	0.7	
2SK2541	SST	50	±0.1	±0.2	0.2	3	0.01	0.02	1.5	0.001	21	50	
2SK2857*	SC-62	60	±4	±16	2.0	10	1	1	4	1.5	0.15	0.22	
2SK2858*	SC-70	30	±0.1	±0.4	0.15	3	0.01	0.02	2.5	0.001	10	15	

*: Under development

Field Effect Transistor

Small Signal FET

■ 2SJ type (MOS type) (1/2)



Part number	Package	Absolute maximum rating (T _A = 25 °C)				Electrical characteristics (T _A = 25 °C)							Applications
		V _{DSS} (V)	I _D		P _T T _C = 25 °C (W)	y _{fs} (S)			R _{DS(on)} (Ω)				
			DC (A)	Pulse (A)		V _{DS} (V)	I _D (A)	MIN.	V _{GS} (V)	I _D (A)			
											TYP.	MAX.	
2SJ165	SST	−50	±0.1	±0.2	0.25	−5	−0.02	0.03	−4	−0.02	22	50	Switching
2SJ166	SC-59	−50	±0.1	±0.2	0.2	−5	−0.02	0.03	−4	−0.02	22	50	
2SJ178	TO-92	−30	±1.0	±2.0	0.75	−10	−0.5	0.4	−4	−0.5	—	1.5	
2SJ179	SC-62	−30	±1.5	±3.0	2.0	−10	−0.5	0.4	−4	−0.5	—	1.5	
2SJ180	SP-8	−30	±1.0	±2.0	1.0	−10	−0.5	0.4	−4	−0.5	—	1.5	
2SJ184	SST	−50	±0.1	±0.2	0.25	−5	−0.02	0.02	−2.5	−0.05	25	40	
2SJ185	SC-59	−50	±0.1	±0.2	0.2	−5	−0.02	0.02	−2.5	−0.05	25	40	
2SJ196	TO-92	−60	±1.0	±2.0	0.75	−10	−0.5	0.4	−4	−0.5	0.89	1.5	
2SJ197	SC-62	−60	±1.5	±3.0	2.0	−10	−0.5	0.4	−4	−0.5	0.89	1.5	
2SJ198	TO-92	−100	±0.5	±1.0	0.75	−10	−0.5	0.4	−4	−0.5	1.7	2.0	
2SJ199	SC-62	−100	±1.0	±2.0	2.0	−10	−0.5	0.4	−4	−0.5	1.7	2.0	
2SJ202	SC-70	−16	±0.1	±0.2	0.15	−3	−0.01	0.02	−2.5	−0.001	—	60	
2SJ203	SC-59	−16	±0.2	±0.4	0.2	−3	−0.01	0.02	−2.5	−0.001	16	20	
2SJ204	SC-59	−30	±0.2	±0.4	0.2	−3	−0.01	0.02	−2.5	−0.001	8.8	15	
2SJ205	SC-62	−16	±0.5	±1.0	2.0	−5	−0.3	0.4	−2.5	−0.3	2.2	5.0	
2SJ206	SC-62	−30	±0.5	±1.0	2.0	−5	−0.3	0.4	−2.5	−0.3	2.8	3.0	
2SJ207	SC-62	−16	±1.0	±2.0	2.0	−5	−0.5	0.4	−2.5	−0.5	1.5	2.0	
2SJ208	SC-62	−16	±2.0	±4.0	2.0	−5	−1.0	0.4	−2.5	−1.0	0.6	1.5	
2SJ209	SC-59	−100	±0.1	±0.2	0.2	−5	−0.01	0.02	−4	−0.01	60	100	

Field Effect Transistor

Small Signal FET

■ 2SJ type (MOS type) (2/2)



Part number	Package	Absolute maximum rating (T _A = 25 °C)				Electrical characteristics (T _A = 25 °C)							Applications
		V _{DSS} (V)	I _D		P _T T _C = 25 °C (W)	y _{fs} (S)			R _{DS(on)} (Ω)				
			DC (A)	Pulse (A)		V _{DS} (V)	I _D (A)	MIN.	V _{GS} (V)	I _D (A)			
											TYP.	MAX.	
2SJ210	SC-59	−60	±0.2	±0.4	0.2	−5	−0.01	0.02	−4	−0.01	10	15	Switching
2SJ211	SC-59	−100	±0.2	±0.4	0.2	−5	−0.01	0.02	−4	−0.01	18	30	
2SJ212	SC-62	−60	±0.5	±1.0	2.0	−10	−0.5	0.4	−4	−0.5	1.8	4.0	
2SJ218	SC-62	−100	±0.5	±1.0	2.0	−10	−0.5	0.4	−4	−0.5	2.7	5.0	
2SJ243	3-pin ultra super mini	−30	±0.1	±0.2	0.2	−3	−0.01	0.02	−2.5	−0.0005	55	100	
2SJ353	SP-8	−60	±1.5	±3.0	1.0	−10	−1	1.0	−4	−0.8	0.58	0.68	
2SJ355	SC-62	30	2	4	2.0	−10	−1	1.0	4.0	1.0	0.50	0.60	
2SJ356	SC-62	60	2	4	2.0	−10	−1	1.0	4.0	1.0	0.65	0.95	
2SJ357	MP-2	30	3	6	2.0	−10	−1	1.8	4.0	1.5	0.23	0.35	
2SJ358	MP-2	60	3	6	2.0	−10	−1	1.8	4.0	1.5	0.29	0.40	
2SJ411	SP-8	−30	±5	±20	1.0	−10	−2.5	3.0	−4	−2.5	0.096	0.24	
2SJ460	SST	−50	±0.1	±0.2	0.25	−3	−0.01	0.01	−2.5	−0.003	75	100	
2SJ461	SC-59	−50	±0.1	±0.2	0.2	−3	−0.01	0.01	−2.5	−0.003	75	100	
2SJ462	MP-2	−12	±2.5	±5.0	2.0	−3	−1	1.5	−2.5	−0.5	0.23	0.3	
2SJ463A	SC-70	−30	±0.1	±0.4	0.15	−3	−0.01	0.02	−2.5	−0.001	23	60	

Field Effect Transistor

Power MOS FET

■ N6-L series Product Map

DC drain current I _{D(DC)} (A)	Drain to source voltage V _{DSS} (V)		Package
	30	60	
to 20	△ 2SK2981 (27 m/40 m)*		△ : TO-251 (MP-3) ● : Isolated TO-220 (MP-45F) ○ : TO-220AB (MP-25)
to 30	△ 2SK2982 (12.5 m/16.5 m)* ○ 2SK2983 (20 m/27 m)*	● 2SK3055 (34 m/50 m)	
to 40	○ 2SK2984 (10 m/13 m)*	○ 2SK3056 (34 m/50 m)	
to 50		● 2SK2057 (17 m/27 m) ● 2SK3059 (13 m/20 m)	
to 60		○ 2SK2058 (17 m/27 m)	
to 70		○ 2SK3060 (13 m/20 m) ● 2SK3061 (8.5 m/12 m) ○ 2SK3062 (8.5 m/12 m) ○ 2SK2826 (6.5 m/10.5 m)	

(): R_{DS(on)} MAX (Ω) (@V_{GS} = 10 V/V_{GS} = 4 V)* : (@V_{GS} = 10 V/V_{GS} = 4.5 V)

Field Effect Transistor

Power MOS FET

■ N5-L series/P5-L series/N4-L series Product Map

DC drain current I _{D(DC)} (A)	Drain to source voltage V _{DSS} (V)			Package
	30	60	100	
8.0		△ 2SK2415 (0.1/0.15)		△ : TO-251 (MP-3) ● : Isolated TO-220 (MP-45F) ○ : TO-220AB (MP-25) ◎ : MP-10 □ : TO-3P (MP-88)
10		◎ 2SK2413 (70 m/95 m) △ 2SK2414 (70 m/95 m)		
15			● 2SK2462 (0.14/0.17)	
20		● 2SK2412 (70 m/95 m) ○ 2SJ492 (0.1/0.19)* ● 2SJ494 (50 m/88 m)*	● 2SK2461 (80 m/0.1)	
25		● 2SK2723 (40 m/60 m)*		
30		● 2SK2410 (40 m/60 m) ○ 2SK2411 (40 m/60 m) ● 2SJ495 (30 m/56m)*		
35	○ 2SK2941 (20 m/33 m)*	● 2SK2724 (27 m/40 m)*		
40		● 2SK2409 (27m/40 m) ● 2SK2510 (20 m/30 m)* □ 2SK2511 (27 m/40 m)*		
45		● 2SK2512 (15 m/23 m)* ○ 2SK2513 (15 m/23 m)*		
50		● 2SK2498 (9 m/14 m)* ○ 2SK2499 (9 m/14 m)* □ 2SK2514 (15 m/23 m)* □ 2SK2515 (9 m/14 m)*		

(): R_{DS(on)} MAX (Ω) (@V_{GS} = 10 V/V_{GS} = 4 V)

* : N5-L series

Field Effect Transistor

Power MOS FET

■ N3-L series/P3-L series Product Map

DC drain current $I_{D(DC)}$ (A)	Drain to source voltage V_{DS} (V)			Package
	30	60	100/[150]	
~ 4.0	△ 2SJ324 (0.25/0.52) △ 2SJ325 (0.11/0.24)	△ 2SK1282 (0.18/0.24) ◇ 2SK1283 (0.18/0.24) △ 2SJ326 (0.37/0.68) △ 2SJ327 (0.17/0.34)	△ 2SK1284 (0.32/0.40) ◇ 2SK1285 (0.32/0.40)	◇ : TO-126 (MP-5) △ : TO-251 (MP-3) ● : Isolated TO-220 (MP-45F) ○ : TO-220AB (MP-25) ◎ : MP-10 ▣ : TO-3P (MP-88)
~ 8.0		◎ 2SK1748 (0.11/0.16)		
~ 10		◎ 2SK1850 (70 m/95 m)	◎ 2SK1852 (0.15/0.20)	
~ 15		2SK1851 (45 m/60 m) ● 2SK1286 (70 m/95 m) ● 2SJ303 (0.1/0.24) ● 2SJ329 (60 m/0.11)	◎ 2SK1853 (80 m/0.10) ● 2SK1288 (0.15/0.20) [● 2SK2131 (0.12/0.20)]	
~ 20	● 2SK1594 (50 m/80 m)	○ 2SK1287 (70 m/95 m) ○ 2SJ302 (0.1/0.24) ○ 2SJ328 (60 m/0.11) ● 2SJ330 (50 m/90 m)	○ 2SK1289 (0.15/0.20) ● 2SK1292 (80 m/0.10)	
~ 25		● 2SK1290 (45 m/60 m)		
~ 30		▣ 2SJ331 (30 m/55 m)	○ 2SK1293 (80 m/0.10) ● 2SK1295 (50 m/70 m)	
~ 40	● 2SK1596 (20 m/30 m)	● 2SK1294 (27 m/50 m) ▣ 2SK1123 (27 m/50 m)	▣ 2SK1122 (50 m/70 m)	
~ 50		▣ 2SK1749 (18 m/25 m)		

(): $R_{DS(on) MAX}$ (Ω) (@ $V_{GS} = 10$ V/ $V_{GS} = 4$ V)

Field Effect Transistor

Power MOS FET

■ N6-L Series (Low Voltage N channel 6th generation Series)

Part number	Package	Absolute maximum ratings			Electrical characteristics					
		V _{DSS} (V)	I _{D(DC)} (A)	P _T @T _C = 25 °C (W)	R _{DS(on)} @V _{GS} = 10 V		R _{DS(on)} @V _{GS} = 4 V		C _{iss} (pF)	C _{rss} (pF)
					TYP. (Ω)	MAX. (Ω)	TYP. (Ω)	MAX. (Ω)		
2SK2981	TO-251	30	20	20	20 m	27 m	30 m	40 m*	860	160
2SK2982	TO-251		30	20	9.8 m	12.5 m	13.2 m	16.5 m*	2290	440
2SK2983	TO-220AB		30	50	13 m	20 m	18 m	27 m*	1200	250
2SK2984	TO-220AB		40	60	6.5 m	10 m	8.5 m	13 m*	2600	500
2SK3053	Isolated TO-220	60	25	25	29 m	45 m	46 m	70 m	790	100
2SK3055	Isolated TO-220		30	25	28 m	34 m	42 m	50 m	990	90
2SK3056	TO-220AB		32	34	28 m	34 m	42 m	50 m	990	90
2SK3057	Isolated TO-220		45	30	14 m	17 m	21 m	27 m	2040	190
2SK3058	TO-220AB		55	58	14 m	17 m	21 m	27 m	2040	190
2SK3059	Isolated TO-220		50	30	11 m	13 m	16 m	20 m	2550	250
2SK3060	TO-220AB		70	70	11 m	13 m	16 m	20 m	2550	250
2SK3061	Isolated TO-220		70	35	6.3 m	8.5 m	9.8 m	12 m	5020	460
2SK3062	TO-220AB		70	100	6.3 m	8.5 m	9.8 m	12 m	5020	460
2SK2826	TO-220AB		70	100	5.5 m	6.5 m	7 m	10.5 m	7260	660

*: V_{GS} = 4.5 V

Field Effect Transistor

Power MOS FET

■ N5-L Series (Low Voltage N channel 5th generation Series)

Part number	Package	Absolute maximum ratings			Electrical characteristics					
		V _{DSS} (V)	I _{D(DC)} (A)	P _T @T _C = 25 °C (W)	R _{DS(on)} @V _{GS} = 10 V		R _{DS(on)} @V _{GS} = 4 V		C _{iss} (pF)	C _{rss} (pF)
					TYP. (Ω)	MAX. (Ω)	TYP. (Ω)	MAX. (Ω)		
2SK2941	TO-220AB	30	35	60	14 m	20 m	22 m	33 m	1250	460
2SK2723	Isolated TO-220	60	25	25	28 m	40 m	45 m	60 m	830	185
2SK2724	Isolated TO-220		35	30	20 m	27 m	33 m	40 m	1200	270
2SK2510	Isolated TO-220		40	35	16 m	20 m	24 m	30 m	1600	350
2SK2511	TO-3P		40	80	22 m	27 m	32 m	40 m	1210	270
2SK2512	Isolated TO-220		45	35	11 m	15 m	16 m	23 m	2100	500
2SK2513	TO-220AB		45	75	11 m	15 m	16 m	23 m	2100	500
2SK2498	Isolated TO-220		50	35	7.3 m	9 m	11 m	14 m	3400	770
2SK2499	TO-220AB		50	75	7.3 m	9 m	11 m	14 m	3400	770
2SK2514	TO-3P		50	150	11 m	15 m	16 m	23 m	2100	500
2SK2515	TO-3P		50	150	7.3 m	9 m	11 m	14 m	3400	770

Field Effect Transistor

Power MOS FET

■ P5-L Series (Low Voltage P channel 5th generation Series)

Part number	Package	Absolute maximum ratings			Electrical characteristics					
		V _{DSS} (V)	I _D (DC) (A)	P _T @T _C = 25 °C (W)	R _{DS(on)} @V _{GS} = 10 V		R _{DS(on)} @V _{GS} = 4 V		C _{iss} (pF)	C _{rss} (pF)
					TYP. (Ω)	MAX. (Ω)	TYP. (Ω)	MAX. (Ω)		
2SJ492	TO-220AB	-60	-20	70	70 m	0.10	0.12	0.185	1210	180
2SJ493	Isolated TO-220		-16	30	70 m	0.10	0.12	0.185	1210	180
2SJ494	Isolated TO-220		-20	35	39 m	50 m	61 m	88 m	2360	350
2SJ495	Isolated TO-220		-30	35	24 m	30 m	38 m	56 m	4120	580

Field Effect Transistor

Power MOS FET

■ N4-L Series (Low Voltage N channel 4th generation Series)

Part number	Package	Absolute maximum ratings			Electrical characteristics					
		V _{DSS} (V)	I _{D(DC)} (A)	P _T @T _C = 25 °C (W)	R _{DS(on)} @V _{GS} = 10 V		R _{DS(on)} @V _{GS} = 4 V		C _{iss} (pF)	C _{rss} (pF)
					TYP. (Ω)	MAX. (Ω)	TYP. (Ω)	MAX. (Ω)		
2SK2409	Isolated TO-220	60	40	35	21 m	27 m	30 m	40 m	1800	350
2SK2410	Isolated TO-220		30	35	28 m	40 m	40 m	60 m	1300	250
2SK2411	TO-220AB		30	75	28 m	40 m	40 m	60 m	1300	250
2SK2412	Isolated TO-220		15	30	53 m	70 m	70 m	0.10	700	150
2SK2413	MP-10		10	1.8*	53 m	70 m	70 m	0.10	700	150
2SK2414	TO-251		10	20	53 m	70 m	70 m	0.10	700	150
2SK2415	TO-251		8.0	20	70 m	0.10	0.11	0.15	440	85
2SK2461	Isolated TO-220	100	20	35	60 m	80 m	70 m	0.10	1510	140
2SK2462	Isolated TO-220		15	30	0.10	0.14	0.12	0.17	870	80

*: T_A = 25°C

Field Effect Transistor

Power MOS FET

■ P3-L Series (Low Voltage P channel 3rd generation Series)

Part number	Package	Absolute maximum ratings			Electrical characteristics					
		V _{DSS} (V)	I _{D(DC)} (A)	P _T @T _C = 25 °C (W)	R _{DS(on)} @V _{GS} = 10 V		R _{DS(on)} @V _{GS} = 4 V		C _{iss} (pF)	C _{rss} (pF)
					TYP. (Ω)	MAX. (Ω)	TYP. (Ω)	MAX. (Ω)		
2SJ324	TO-251	-30	-2.0	20	0.20	0.25	0.40	0.52	330	100
2SJ325	TO-251		-4.0	20	85 m	0.11	0.15	0.24	800	250
2SJ326	TO-251	-60	-2.0	20	0.28	0.37	0.50	0.68	320	75
2SJ327	TO-251		-4.0	20	0.13	0.17	0.22	0.34	750	165
2SJ303	Isolated TO-220		-14	35	75 m	0.1	0.17	0.24	1200	290
2SJ302	TO-220AB		-16	60	75 m	0.1	0.17	0.24	1200	290
2SJ328	TO-220AB		-20	75	48 m	60 m	85 m	0.11	2150	530
2SJ329	Isolated TO-220		-15	35	48 m	60 m	85 m	0.11	2150	530
2SJ330	Isolated TO-220		-20	35	38 m	50 m	65 m	90 m	2570	640
2SJ331	TO-3P		-30	150	25 m	30 m	40 m	55 m	4300	1110

Field Effect Transistor

Power MOS FET

■ N3-L Series (Low Voltage 3rd generation Series)

Part number	Package	Absolute maximum ratings			Electrical characteristics					
		V _{DSS} (V)	I _D (DC) (A)	P _T @T _C = 25 °C (W)	R _{DS(on)} @V _{GS} = 10 V		R _{DS(on)} @V _{GS} = 4 V		C _{iss} (pF)	C _{rss} (pF)
					TYP. (Ω)	MAX. (Ω)	TYP. (Ω)	MAX. (Ω)		
2SK1594	Isolated TO-220	30	20	30	37 m	50 m	50 m	80 m	1300	280
2SK1596	Isolated TO-220		40	35	14 m	20 m	20 m	30 m	3400	960
2SK1282	TO-251	60	3.0	20	0.15	0.18	0.18	0.24	500	40
2SK1283	TO-126		3.0	20	0.15	0.18	0.18	0.24	500	40
2SK1748	TO-251		8.0	20	80 m	0.11	0.11	0.16	850	350
2SK1850	MP-10		10	1.8*	55 m	70 m	80 m	95 m	1400	130
2SK1851	MP-10		15	1.8*	35 m	45 m	45 m	60 m	2200	180
2SK1286	Isolated TO-220		15	30	55 m	70 m	80 m	95 m	1400	130
2SK1287	TO-251		20	60	55 m	70 m	80 m	95 m	1400	130
2SK1290	Isolated TO-220		25	35	35 m	45 m	45 m	60 m	2200	180
2SK1294	Isolated TO-220		40	35	22 m	27 m	30 m	50 m	3250	380
2SK1123	TO-3P		40	100	22 m	27 m	30 m	50 m	3250	380
2SK1749	TO-3P		50	150	16 m	18 m	22 m	25 m	5400	620
2SK1284	TO-251	100	3.0	20	0.26	0.32	0.32	0.40	500	20
2SK1285	TO-126		3.0	20	0.26	0.32	0.32	0.40	500	20
2SK1852	MP-10		10	1.8*	0.12	0.15	0.15	0.20	1400	50
2SK1853	MP-10		15	1.8*	70 m	80 m	80 m	0.10	2200	90
2SK1288	Isolated TO-220		15	30	0.12	0.15	0.15	0.20	1400	50
2SK1289	TO-220AB		20	60	0.12	0.15	0.15	0.20	1400	50
2SK1292	Isolated TO-220		20	35	70 m	80 m	80 m	0.10	2200	90
2SK1293	TO-220AB		30	75	70 m	80 m	80 m	0.10	2200	90
2SK1295	Isolated TO-220		30	35	42 m	50 m	50 m	70 m	3300	200
2SK1122	TO-3P		40	100	42 m	50 m	50 m	70 m	3300	200
2SK2131	Isolated TO-220	150	15	35	0.10	0.12	0.13	0.20	2300	140

*: T_A = 25°C

Field Effect Transistor

Power MOS FET

■ N5-H series Product Map

(): $R_{DS(on) MAX} (\Omega)$ (@ $V_{GS} = 10 V$)

DC drain current $I_{D(DC)}$ (A)	Drain to source voltage V_{DS} (V)				Package
	200/250 V	400/500 V	600 V	900 V	
2			△ 2SK3113 (4.4) ● 2SK3221 (4.4)		△ : TO-251 (MP-3) ● : Isolated TO-220 (MP-45F) ○ : TO-220AB (MP-25) □ : TO-3P (MP-88)
4			● 2SK3114 (2.2)		
5		● 2SK3306 (1.5)* ○ 2SK3305 (1.5)*	● 2SK3297 (1.6)*		
6			● 2SK3115 (1.2)	□ 2SK3304 (2.0)*	
7					
7.5			○ 2SK3116 (1.2) ● 2SK3298 (0.75)*		
8	● 2SK3108 (0.4)				
10	○ 2SK3109 (0.4)		○ 2SK3299 (0.75)*		
14	● 2SK3110 (0.18)				
20	○ 2SK3111 (0.18) ○ 2SK3294 (0.12)* ^{*1}		□ 2SK3300 (0.4)*		
25	○ 2SK3112 (0.11)*				

*1: 250 V *2: 450 V

*: Under development

Field Effect Transistor

Power MOS FET

■ N4-H series/P4-H series Product Map

DC drain current I _D (DC) (A)	Drain to source voltage V _{DS} (V)						Package
	[180]/200	250	450	500	600	[800]/900	
2.0					● 2SK1953 (5.0) △ 2SK2040 (5.0)	● 2SK2478 (7.5)	△ : TO-251 (MP-3) ● : Isolated TO-220 (MP-45F) ○ : TO-220AB (MP-25) ◎ : MP-10 □ : TO-3P (MP-88)
3.0						[● 2SK2476 (5.0)] ○ 2SK2479 (7.5) ● 2SK2480 (4.0)	
4.0	[△ 2SK1954 (0.65)] [◎ 2SK2132 (0.65)]	● 2SJ448 (2.0)			● 2SK2137 (2.4)	○ 2SK2481 (4.0) ● 2SK2483 (2.8) (3.5 A)	
4.5			● 2SK2353 (1.4)	● 2SK2354 (1.5)			
5.0			○ 2SK2355 (1.4)	○ 2SK2356 (1.5)	○ 2SK2138 (2.4) ● 2SK2139 (1.5)	□ 2SK2482 (4.0) ○ 2SK2484 (2.8)	
6.0		● 2SJ449 (0.8)	● 2SK2357 (0.9)	● 2SK2358 (1.0)	● 2SK2141 (1.1)	□ 2SK2485 (2.8)	
7.0			○ 2SK2359 (0.9)	○ 2SK2360 (1.0)	○ 2SK2140 (1.5)	□ 2SK2486 (2.0)	
8.0			● 2SK2363 (0.5)	● 2SK2364 (0.6)		□ 2SK2487 (1.6)	
10			□ 2SK2361 (0.9) ○ 2SK2365 (0.5)	□ 2SK2362 (1.0) ○ 2SK2366 (0.6)		[□ 2SK2477 (1.0)] □ 2SK2488 (1.2)	
11		● 2SK2341 (0.26)					
13	○ 2SK2134 (0.4)						
14	● 2SK2135 (0.18)						
15			□ 2SK2367 (0.5)	□ 2SK2368 (0.6)			
16		○ 2SK2133 (0.26)					
20	○ 2SK2136 (0.18)		□ 2SK2369 (0.35)	□ 2SK2370 (0.4)			
25			□ 2SK2371 (0.25)	□ 2SK2372 (0.27)			

(): R_{DS(on)} MAX (Ω) (@V_{GS} = 10 V)

Field Effect Transistor

Power MOS FET

■ N3-H series Product Map

DC drain current I _{D(DC)} (A)	Drain to source voltage V _{DSS} (V)					Package
	250	450	500	600	900	
2.0				● 2SK1758 (4.2)	● 2SK1994 (7.5)	△: TO-251 (MP-3) ●: Isolated TO-220 (MP-45F) ○: TO-220AB (MP-25) □: TO-3P (MP-88)
2.5		● 2SK1988 (2.8)	● 2SK1989 (3.0)			
3.0		○ 2SK1493 (2.8)	○ 2SK1494 (3.0)		○ 2SK1793 (7.5) ● 2SK1995 (4.0)	
3.5					● 2SK2275 (2.8)	
4.0					○ 2SK1501 (4.0)	
4.5		● 2SK1990 (1.4)	● 2SK1991 (1.5)			
5.0		○ 2SK1750 (1.4)	○ 2SK1751 (1.5)		□ 2SK1760 (4.0)	
6.0		● 2SK1992 (0.9)	● 2SK1993 (1.0)		□ 2SK1794 (2.8)	
7.0		○ 2SK1495 (0.9)	○ 2SK1496 (1.0)		□ 2SK1502 (2.0)	
8.0			● 2SK2234 (0.6)		□ 2SK1795 (1.6)	
10		□ 2SK1752 (0.9)	□ 2SK1753 (1.0)		□ 2SK1796 (1.2)	
12		□ 2SK1784 (0.6)	□ 2SK1785 (0.7)			
15		□ 2SK1756 (0.5)	□ 2SK1757 (0.6)			
20		□ 2SK1497 (0.35)	□ 2SK1498 (0.4)			
25	□ 2SK1491 (0.15)	□ 2SK1499 (0.25)	□ 2SK1500 (0.27)			
35	□ 2SK1492 (0.10)					

(): R_{DS(on)} MAX (Ω) (@V_{GS} = 10 V)

Field Effect Transistor

Power MOS FET

■ N5-H Series (High Voltage N channel 5th generation Series)

Part number	Package	Absolute maximum ratings			Electrical characteristics			
		V _{DSS} (V)	I _D (DC) (A)	P _T (W)	R _{DS(on)} @V _{GS} = 10 V		C _{iss} (pF)	Q _g (nC)
					TYP. (Ω)	MAX. (Ω)		
2SK3108	Isolated TO-220	200	8	25	0.33	0.4	400	15
2SK3109	TO-220AB	200	10	50	0.33	0.4	400	15
2SK3110	Isolated TO-220	200	14	35	0.13	0.18	1000	40
2SK3111	TO-220AB	200	20	65	0.13	0.18	1000	40
2SK3112	TO-220AB	200	25	70	0.08	0.11	1600	65
2SK3294*	TO-220AB	250	20	70	0.12	0.16	1600	65
2SK3305*	TO-220AB	500	5	50	1.35	1.5	570	20
2SK3306*	Isolated TO-220	500	5	30	1.35	1.5	570	20
2SK3113	TO-251	600	2	20	3.3	4.4	290	9
2SK3221	Isolated TO-220	600	2	25	3.3	4.4	290	9
2SK3114	Isolated TO-220	600	4	30	1.6	2.2	550	15
2SK3297*	Isolated TO-220	600	5	35	1.28	1.6	690	24
2SK3115	Isolated TO-220	600	6	35	0.9	1.2	1100	26
2SK3116	TO-220AB	600	7.5	70	0.9	1.2	1100	26
2SK3298*	TO-220AB	600	7.5	40	0.6	0.75	1500	51
2SK3299*	TO-220AB	600	10	70	0.6	0.75	1500	51
2SK3300*	TO-3P	600	20	150	0.32	0.4	3300	80
2SK3304*	TO-3P	900	7	120	1.6	2.0	1500	50

*: Under development

Field Effect Transistor

Power MOS FET

■ N4-H Series (High Voltage N channel 4th generation Series) (1/3)

Part number	Package	Absolute maximum ratings			Electrical characteristics			
		V _{DSS} (V)	I _D (DC) (A)	P _T (W)	R _{DS(on)} @V _{GS} = 10 V		C _{iss} (pF)	Q _g (nC)
					TYP. (Ω)	MAX. (Ω)		
2SK1954	TO-251	180	4.0	20	0.52	0.65	300	10
2SK2132	MP-10		4.0	1.8*	0.52	0.65	300	10
2SK2134	TO-220AB	200	13	70	0.32	0.40	540	15
2SK2135	Isolated TO-220		14	35	0.14	0.18	1100	30
2SK2136	TO-220AB		20	75	0.14	0.18	1100	30
2SK2341	Isolated TO-220	250	11	35	0.21	0.26	1090	33
2SK2133	TO-220AB		16	75	0.21	0.26	1090	25
2SK2353	Isolated TO-220	450	4.5	30	1.0	1.4	670	20
2SK2355	TO-220AB		5.0	50	1.0	1.4	670	20
2SK2357	Isolated TO-220		6.0	35	0.7	0.9	1050	27
2SK2359	TO-220AB		7.0	75	0.7	0.9	1050	27
2SK2361	TO-3P		10	100	0.7	0.9	1050	26
2SK2363	Isolated TO-220		8.0	35	0.4	0.5	1600	42
2SK2365	TO-220AB		10	75	0.4	0.5	1600	42
2SK2367	TO-3P		15	120	0.4	0.5	1600	43
2SK2369	TO-3P		20	120	0.28	0.40	2400	65
2SK2371	TO-3P		25	160	0.20	0.25	3600	95

*: T_A = 25°C

Field Effect Transistor

Power MOS FET

■ N4-H Series (High Voltage N channel 4th generation Series) (2/3)



Part number	Package	Absolute maximum ratings			Electrical characteristics			
		V _{DSS} (V)	I _D (DC) (A)	P _T (W)	R _{DS(on)} @V _{GS} = 10 V		C _{iss} (pF)	Q _g (nC)
					TYP. (Ω)	MAX. (Ω)		
2SK2354	Isolated TO-220	500	4.5	30	1.1	1.5	670	20
2SK2356	TO-220AB		5.0	50	1.1	1.5	670	20
2SK2358	Isolated TO-220		6.0	35	0.8	1.0	1050	27
2SK2360	TO-220AB		7.0	75	0.8	1.0	1050	27
2SK2362	TO-3P		10	100	0.8	1.0	1050	26
2SK2364	Isolated TO-220		8.0	35	0.5	0.6	1600	42
2SK2366	TO-220AB		10	75	0.5	0.6	1600	42
2SK2368	TO-3P		15	120	0.5	0.6	1600	43
2SK2370	TO-3P		20	120	0.32	0.40	2400	65
2SK2372	TO-3P		25	160	0.22	0.27	3600	95
2SK1953	Isolated TO-220	600	2.0	25	4.2	5.0	275	12
2SK2040	TO-251		2.0	20	4.2	5.0	275	12
2SK2137	Isolated TO-220		4.0	30	2.0	2.4	550	20
2SK2138	TO-220AB		5.0	70	2.0	2.4	550	20
2SK2139	Isolated TO-220		5.0	35	1.25	1.5	930	30
2SK2141	Isolated TO-220		6.0	40	0.9	1.1	1150	40
2SK2140	TO-220AB		7.0	75	1.25	1.5	930	30

Field Effect Transistor

Power MOS FET

■ N4-H Series (High Voltage N channel 4th generation Series) (3/3)



Part number	Package	Absolute maximum ratings			Electrical characteristics			
		V _{DSS} (V)	I _D (DC) (A)	P _T (W)	R _{DS(on)} @V _{GS} = 10 V		C _{iss} (pF)	Q _g (nC)
					TYP. (Ω)	MAX. (Ω)		
2SK2476	Isolated TO-220	800	3.0	40	3.4	5.0	590	20
2SK2477	TO-3P		10	150	0.65	1.0	2950	90
2SK2478	Isolated TO-220	900	2.0	30	5.0	7.5	485	17
2SK2479	TO-220AB		3.0	70	5.6	7.5	485	17
2SK2480	Isolated TO-220		3.0	35	3.2	4.0	900	30
2SK2481	TO-220AB		4.0	75	3.2	4.0	900	30
2SK2482	TO-3P		5.0	100	3.2	4.0	900	30
2SK2483	Isolated TO-220		3.5	40	2.2	2.8	1200	40
2SK2484	TO-220AB		5.0	75	2.2	2.8	1200	40
2SK2485	TO-3P		6.0	100	2.2	2.8	1200	40
2SK2486	TO-3P		7.0	120	1.4	2.0	1830	55
2SK2487	TO-3P		8.0	140	1.1	1.6	2100	65
2SK2488	TO-3P		10	160	1.0	1.2	2900	90

Field Effect Transistor

Power MOS FET

■ P4-H Series (High Voltage P channel 4th generation Series)

Part number	Package	Absolute maximum ratings			Electrical characteristics			
		V _{DSS} (V)	I _D (DC) (A)	P _T (W)	R _{DS(on)} @V _{GS} = 10 V		C _{iss} (pF)	Q _g (nC)
					TYP. (Ω)	MAX. (Ω)		
2SJ448	Isolated TO-220	−250	±4.0	30	1.5	2.0	470	15
2SJ449	Isolated TO-220	−250	±6.0	35	0.55	0.8	1040	23.4

Field Effect Transistor

Power MOS FET

■ N3-H Series (High Voltage N channel 3rd generation Series) (1/2)



Part number	Package	Absolute maximum ratings			Electrical characteristics			
		V _{DSS} (V)	I _{D(DC)} (A)	P _T (W)	R _{DS(on)} @V _{GS} = 10 V		C _{iss} (pF)	Q _g (nC)
					TYP. (Ω)	MAX. (Ω)		
2SK1491	TO-3P	250	25	120	0.12	0.15	1950	55
2SK1492	TO-3P	250	35	140	0.08	0.1	3000	80
2SK1988	Isolated TO-220	450	2.5	30	2.2	2.8	350	12
2SK1493	TO-220AB	450	3	50	2.2	2.8	350	12
2SK1990	Isolated TO-220	450	4.5	30	1.1	1.4	610	22
2SK1750	TO-220AB	450	5	50	1.1	1.4	610	22
2SK1992	Isolated TO-220	450	6	35	0.7	0.9	1060	36
2SK1495	TO-220AB	450	7	70	0.7	0.9	1060	36
2SK1752	TO-3P	450	10	100	0.7	0.9	1060	36
2SK1784	TO-3P	450	12	100	0.5	0.6	1330	46
2SK1756	TO-3P	450	15	120	0.4	0.5	1500	50
2SK1497	TO-3P	450	20	120	0.28	0.35	2460	85
2SK1499	TO-3P	450	25	160	0.2	0.25	3300	115
2SK1989	Isolated TO-220	500	2.5	30	2.4	3	350	12
2SK1494	TO-220AB	500	3	50	2.4	3	350	12
2SK1991	Isolated TO-220	500	4.5	30	1.2	1.5	610	22
2SK1751	TO-220AB	500	5	50	1.2	1.5	610	22
2SK1993	Isolated TO-220	500	6	35	0.8	1	1060	36
2SK1496	TO-220AB	500	7	70	0.8	1	1500	57
2SK2234	Isolated TO-220	500	8	40	0.5	0.6	1060	36

Field Effect Transistor

Power MOS FET

■ N3-H Series (High Voltage N channel 3rd generation Series) (2/2) ◀

Part number	Package	Absolute maximum ratings			Electrical characteristics			
		V _{DSS} (V)	I _{D(DC)} (A)	P _T (W)	R _{DS(on)} @V _{GS} = 10 V		C _{iss} (pF)	Q _g (nC)
					TYP. (Ω)	MAX. (Ω)		
2SK1753	TO-3P	500	10	100	0.8	1	1060	36
2SK1785	TO-3P	500	12	100	0.6	0.7	1330	46
2SK1757	TO-3P	500	15	120	0.5	0.6	1500	50
2SK1498	TO-3P	500	20	120	0.32	0.4	2460	85
2SK1500	TO-3P	500	25	160	0.22	0.27	3300	115
2SK1758	Isolated TO-220	600	2	30	2.8	4.2	360	17
2SK1994	Isolated TO-220	900	2	30	5.5	7.5	430	15.5
2SK1793	TO-220AB	900	3	75	5.5	7.5	430	19
2SK1995	Isolated TO-220	900	3	35	3	4	790	28
2SK2275	Isolated TO-220	900	3.5	35	2.2	2.8	1000	42
2SK1501	TO-220AB	900	4	70	2.8	4	790	33
2SK1760	TO-3P	900	5	100	3.1	4	790	34
2SK1794	TO-3P	900	6	100	2.4	2.8	1000	42
2SK1502	TO-3P	900	7	120	1.7	2	1550	80
2SK1795	TO-3P	900	8	140	1.3	1.6	1740	66
2SK1796	TO-3P	900	10	150	1	1.2	2500	90
2SK1271*	TO-3P	1400	5	240	3.5	4	1800	125

*: 2nd Generation

Field Effect Transistor

Power MOS FET

■ 8-pin SOP Type Power MOS FET

On-Resistance R _{DS(on)} (mΩ) (TYP.) @V _{GS} = 10 V	Drain to source voltage V _{DSS} (V)		
	20	30	60
up to 600			μPA1790 (Nch + Pch)
up to 150			μPA1759 (Nch Dual)
up to 90		μPA1750 (P-ch Dual)	
up to 70		μPA1710 (P-ch Single) μPA1710A (P-ch Single) μPA1754 (N-ch Dual)	
up to 50		μPA1713 (P-ch Single)	
up to 40	μPA1752 (N-ch Dual)* ¹	μPA1711 (P-ch Single)	
up to 30	μPA1753 (N-ch Dual)* ¹ μPA1756 (N-ch Dual)* ¹	μPA1751 (N-ch Dual) μPA1714 (P-ch Single) μPA1755 (N-ch Dual) μPA1758 (N-ch Dual)* ¹	
up to 20	μPA1701 (N-ch Single)* ¹ μPA1701A (N-ch Single) μPA1757 (N-ch Dual)* ¹	μPA1700 (N-ch Single) μPA1700A (N-ch Single) μPA1712 (P-ch Single) μPA1716 (P-ch Single) μPA1705 (N-ch Single)* ²	
up to 10		μPA1702 (N-ch Single) μPA1703 (N-ch Single) μPA1704 (N-ch Single) μPA1706 (N-ch Single) μPA1707 (N-ch Single) μPA1715 (P-ch Single)	

*1: 2.5 V drive is possible. Otherwise 4 V drive is possible. *2: 4.5 V drive

Field Effect Transistor

Power MOS FET

■ Power SOP8 series

Part number	Configuration	Absolute maximum rating (T _A = 25 °C)				Electrical characteristics (T _A = 25 °C)				Applications
		V _{DSS} (V)	I _D		P _T T _C = 25 °C (W)	R _{DS(on)} (Ω)				
			DC (A)	Pulse (A)		V _{GS} (V)	I _D (A)	TYP.	MAX.	
μPA1700	N-ch Single	30	±7	±28	2.0* ¹	4	3.5	0.040	0.050	Switching
μPA1700A	N-ch Single	30	±7	±28	2.0* ¹	4	3.5	0.028	0.05	
μPA1701	N-ch Single	20	±7	±28	2.0* ¹	2.5	3.5	0.03	0.04	
μPA1701A	N-ch Single	20	±7	±28	2.0* ¹	2.5	3.5	0.026	0.04	
μPA1702	N-ch Single	30	±8	±32	2.0* ¹	4	4	0.018	0.025	
μPA1703	N-ch Single	30	±10	±40	2.0* ¹	4	5.0	0.012	0.017	
μPA1704	N-ch Single	30	±10	±40	2.0* ¹	2.5	5.0	0.0125	0.016	
μPA1705	N-ch Single	30	±7	±28	2.0* ¹	4.5	3.5	0.031	0.04	
μPA1706	N-ch Single	30	±13	±52	2.0* ¹	4	7.0	0.008	0.012	
μPA1707	N-ch Single	30	±10	±40	2.0* ¹	4	5.0	0.014	0.021	
μPA1710	P-ch Single	−30	±5	±20	2.0* ¹	−4	−2.5	0.11	0.16	
μPA1710A	P-ch Single	−30	±5	±20	2.0* ¹	−4	−2.0	0.091	0.16	
μPA1711	P-ch Single	−30	±7	±28	2.0* ¹	−4	−3.5	0.049	0.07	
μPA1712	P-ch Single	−30	±8	±32	2.0* ¹	−4	−4.0	0.027	0.048	
μPA1713	P-ch Single	30	±5	±20	2.0* ¹	−4	2.5	0.10	0.16	
μPA1714	P-ch Single	−30	±7	±28	2.0* ¹	−4	3.5	0.049	0.07	
μPA1715	P-ch Single	−30	±11	±44	2.0* ¹	−4.5	−6.0	0.011	0.016	
μPA1716	P-ch Single	−30	±8	±32	2.0* ¹	−4.5	−4	0.017	0.023	
μPA1750	P-ch Dual	−30	±3.5	±14	2.0* ²	−4	−1.8	0.125	0.18	
μPA1751	N-ch Dual	30	±5	±20	2.0* ²	4	2.5	0.044	0.064	
μPA1752	N-ch Dual	20	±5	±20	2.0* ²	2.5	2.5	0.042	0.061	
μPA1753	N-ch Dual	20	±6	±24	2.0* ²	2.5	3.0	0.028	0.04	
μPA1754	N-ch Dual	30	±7	±28	2.0* ²	4	3.5	0.029	0.053	
μPA1755	N-ch Dual	−30	±7	±28	2.0* ²	4.5	3.5	0.028	0.045	
μPA1756	N-ch Dual	30	±6	±24	2.0* ²	2.5	3.0	0.028	0.04	
μPA1757	N-ch Dual	20	±7	±28	2.0* ²	2.5	3.5	0.022	0.032	
μPA1758	N-ch Dual	30	±6	±24	2.0* ²	2.5	3.0	0.026	0.04	
μPA1759	N-ch Dual	60	±5	±20	2.0* ²	10	2.5	0.11	0.15	
μPA1790	N-ch + P-ch	60/−60	±1.0/±0.7	±4.0/±2.8	1.0* ²	10	0.5/0.35	0.12/0.44	0.26/0.6	

*1: T_A = 25°C, Mounted on ceramic substrate of 1200 mm² × 0.7 mm*2: T_A = 25°C, 2 circuits, Mounted on ceramic substrate of 2000 mm² × 1.1 mm

Field Effect Transistor

Power MOS FET

■ 8-pin TSSOP Type Power MOS FET

On-Resistance R _{DS(on)} (mΩ) (MAX.) @V _{GS} = 4.5 V	Drain to source voltage V _{DSS} (V)		
	12	20	30
~210		μPA1851 (P-ch Dual)	
~190			μPA1853 (P-ch Dual)
~115	μPA1850 (P-ch Dual)		
~75		μPA1811 (P-ch Single)	μPA1812 (P-ch Single)
~60	μPA1854 (P-ch Dual) μPA1810 (P-ch Single)		
~40		μPA1852 (N-ch Dual)	μPA1800 (N-ch Single)
~30			μPA1814 (P-ch Single)★
~25	μPA1813 (P-ch Single)	μPA1801 (N-ch Single) μPA1855 (N-ch Dual)★ μPA1802 (N-ch Single) μPA1815 (P-ch Single)★	μPA1803 (N-ch Single)★

★: Under development

Field Effect Transistor

Power MOS FET

■ 8-pin TSSOP Type Power MOS FET

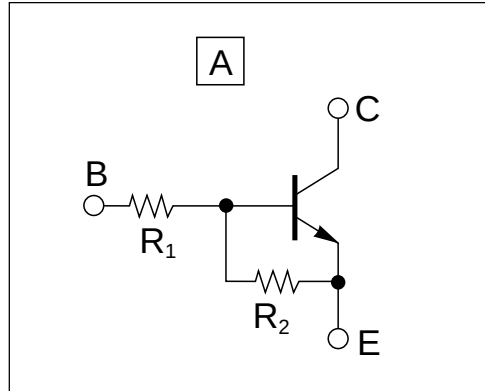
Part number	Configuration	Absolute maximum rating (T _A = 25 °C)				Electrical characteristics (T _A = 25 °C)				Applications
		V _{DSS} (V)	V _{GSS} (V)	I _D (DC) (A)	P _T * (W)	R _{DS(on)} (mΩ) MAX.				
						V _{GS} = 2.5 V	V _{GS} = 4 V	V _{GS} = 4.5 V	V _{GS} = 10 V	
μPA1800	N-ch Single	30	±20	±5	2	—	45	39	27	Switching
μPA1801	N-ch Single	20	±8	±6	2	34	25	24	—	
μPA1802	N-ch Single	20	±12	±7	2	32	25	23	—	
μPA1803*	N-ch Single	30	±20	±7	2	—	—	16	21	
μPA1810	P-ch Single	−12	−10/+5	±4	2	100	60	55	—	
μPA1811	P-ch Single	−20	−12/+5	±4	2	120	80	75	—	
μPA1812	P-ch Single	−30	−20/+5	±5	2	—	90	70	40	
μPA1813	P-ch Single	−12	−10/+5	±5	2	40	30	25	—	
μPA1814*	P-ch Single	−30	−20/+5	±7	2	—	—	30	19	
μPA1815*	P-ch Single	−20	−12/+3	±7	2	30	23	22	—	
μPA1850	P-ch Dual	−12	−10/+5	±2.5	2	200	130	115	—	
μPA1851	P-ch Dual	−20	−20/+5	±2.5	2	—	250	210	105	
μPA1852	N-ch Dual	20	±12	±5	2	60	45	40	—	
μPA1853	P-ch Dual	−30	−20/+5	±2.5	2	—	220	190	85	
μPA1854	P-ch Dual	−12	−10/+5	±2.5	2	105	70	60	—	
μPA1855*	N-ch Dual	20	±12	±6	2	29	24	23	—	

*: Mounted on ceramic substrate of 50 cm² × 1.1 mm

*: Under development

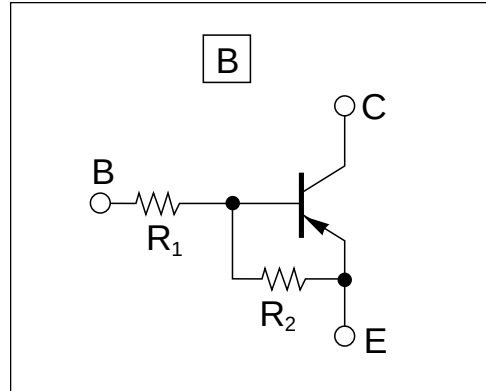
Transistor with Internal Resistor

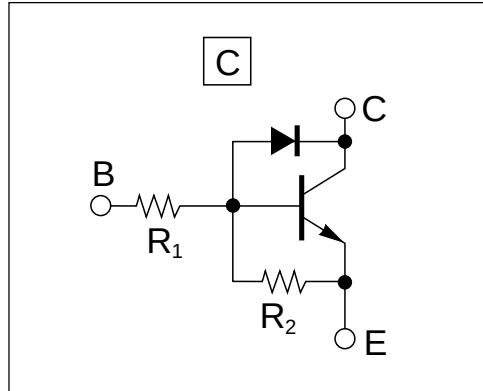
■ Equivalent circuit



Transistor with Internal Resistor

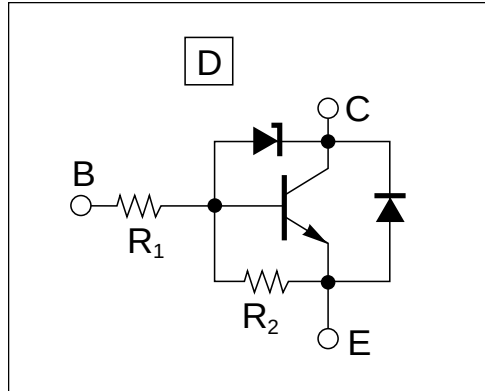
■ Equivalent circuit



Transistor with Internal Resistor**■ Equivalent circuit**

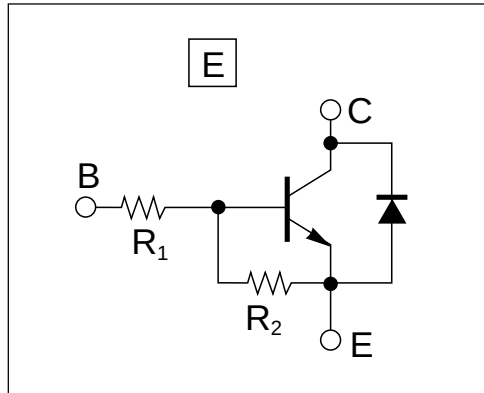
Transistor with Internal Resistor

■ Equivalent circuit



Transistor with Internal Resistor

■ Equivalent circuit



Transistor with Internal Resistor

■ AA1[], AN1[], BA1[], BN1[] series (TO-92, SST)

Part number		Equivalent circuit and applications	Absolute maximum ratings (T _A = 25 °C)						Electrical characteristics (T _A = 25 °C)						
			V _{CBO} (V)	V _{CEO} (V)	V _{EB0} (V)	I _C (mA)	P _T (mW)	T _J (°C)	R ₁ (kΩ)	R ₂ (kΩ)	hFE	V _{CE} (V)	I _C (mA)	Remarks	
TO-92	SST														
AA1A4M	BA1A4M	Refer to equivalent circuit A	60	50	10	100	250	150	10	10	35 to 100	5.0	5.0		
AA1A4P	BA1A4P		60	50	5	100	250	150	10	47	35 to 340	5.0	5.0		
AA1F4M	BA1F4M		60	50	10	100	250	150	22	22	60 to 195	5.0	5.0		
AA1F4N	BA1F4N		60	50	5	100	250	150	22	47	85 to 340	5.0	5.0		
AA1L4M	BA1L4M		60	50	10	100	250	150	47	47	85 to 340	5.0	5.0		
AA1L4L	BA1L4L		60	50	15	100	250	150	47	22	60 to 195	5.0	5.0		
AA1L3Z	BA1L3Z		60	50	5	100	250	150	4.7	–	135 to 600	5.0	5.0		
AA1A4Z	BA1A4Z		Switching	60	50	5	100	250	150	10	–	135 to 600	5.0	5.0	
AA1F4Z	BA1F4Z			60	50	5	100	250	150	22	–	135 to 600	5.0	5.0	
AA1L4Z	BA1L4Z			60	50	5	100	250	150	47	–	135 to 600	5.0	5.0	
AA1L3M	BA1L3M			60	50	10	100	250	150	4.7	4.7	20 to 80	5.0	5.0	
AA1L3N	BA1L3N			60	50	5	100	250	150	4.7	10	35 to 100	5.0	5.0	
AA1A3Q	BA1A3Q			60	50	5	100	250	150	1.0	10	35 to 100	5.0	5.0	
AN1A4M	BN1A4M	Refer to equivalent circuit B	–60	–50	–10	–100	250	150	10	10	35 to 100	–5.0	–5.0		
AN1A4P	BN1A4P		–60	–50	–5	–100	250	150	10	47	85 to 340	–5.0	–5.0		
AN1F4M	BN1F4M		–60	–50	–10	–100	250	150	22	22	60 to 195	–5.0	–5.0		
AN1F4N	BN1F4N		–60	–50	–5	–100	250	150	22	47	85 to 340	–5.0	–5.0		
AN1L4M	BN1L4M		–60	–50	–10	–100	250	150	47	47	85 to 340	–5.0	–5.0		
AN1L4L	BN1L4L		–60	–50	–15	–100	250	150	47	22	60 to 195	–5.0	–5.0		
AN1L3Z	BN1L3Z		–60	–50	–5	–100	250	150	4.7	–	135 to 600	–5.0	–5.0		
AN1A4Z	BN1A4Z		–60	–50	–5	–100	250	150	10	–	135 to 600	–5.0	–5.0		
AN1F4Z	BN1F4Z		–60	–50	–5	–100	250	150	22	–	135 to 600	–5.0	–5.0		
AN1L4Z	BN1L4Z		–60	–50	–5	–100	250	150	47	–	135 to 600	–5.0	–5.0		
AN1L3M	BN1L3M		–60	–50	–10	–100	250	150	4.7	4.7	20 to 80	–5.0	–5.0		
AN1L3N	BN1L3N		–60	–50	–5	–100	250	150	4.7	10	35 to 100	–5.0	–5.0		
AN1A3Q	BN1A3Q		–60	–50	–5	–100	250	150	1.0	10	35 to 100	–5.0	–5.0		

Transistor with Internal Resistor

■ AB1[], AP1[], BB1[], BP1[] series (TO-92, SST)

Part number		Equivalent circuit and applications	Absolute maximum ratings (T _A = 25 °C)							Electrical characteristics (T _A = 25 °C)					
			V _{CB0} (V)	V _{CE0} (V)	V _{EB0} (V)	I _C (A)	P _T (mW)		T _J (°C)	R ₁ (kΩ)	R ₂ (kΩ)	h _{FE}	V _{CE} (V)	I _C (A)	Re- marks
TO-92	SST						TO-92	SST							
AB1A4A	BB1A4A	Refer to equivalent circuit A	30	25	10	0.7	750	250	150	—	10	300 ~	2.0	0.5	
AB1L2Q	BB1L2Q		30	25	10	0.7	750	250	150	0.47	4.7	300 ~	2.0	0.5	
AB1A3M	BB1A3M		30	25	10	0.7	750	250	150	1.0	1.0	100 ~	2.0	0.5	
AB1F3P	BB1F3P		30	25	10	0.7	750	250	150	2.2	10	300 ~	2.0	0.5	
AB1J3P	BB1J3P		30	25	10	0.7	750	250	150	3.3	10	300 ~	2.0	0.5	
AB1L3N	BB1L3N		30	25	10	0.7	750	250	150	4.7	10	300 ~	2.0	0.5	
AB1A4M	BB1A4M		30	25	10	0.7	750	250	150	10	10	300 ~	2.0	0.5	
AP1A4A	BP1A4A	Refer to equivalent circuit B	−25	−25	−10	−0.7	750	250	150	—	10	100 ~	−2.0	−0.5	
AP1L2Q	BP1L2Q		−25	−25	−10	−0.7	750	250	150	0.47	4.7	100 ~	−2.0	−0.5	
AP1A3M	BP1A3M		−25	−25	−10	−0.7	750	250	150	1.0	1.0	100 ~	−2.0	−0.5	
AP1F3P	BP1F3P		−25	−25	−10	−0.7	750	250	150	2.2	10	100 ~	−2.0	−0.5	
AP1J3P	BP1J3P		−25	−25	−10	−0.7	750	250	150	3.3	10	100 ~	−2.0	−0.5	
AP1L3N	BP1L3N		−25	−25	−10	−0.7	750	250	150	4.7	10	100 ~	−2.0	−0.5	
AP1A4M	BP1A4M		−25	−25	−10	−0.7	750	250	150	10	10	100 ~	−2.0	−0.5	

Transistor with Internal Resistor

■ AQ1[] series (TO-92)

Part number	Equivalent circuit and applications	Absolute maximum ratings (T _A = 25 °C)						Electrical characteristics (T _A = 25 °C)					
		V _{CB0} (V)	V _{CE0} (V)	V _{EB0} (V)	I _C (A)	P _T (mW)	T _j (°C)	R ₁ (kΩ)	R ₂ (kΩ)	h _{FE}	V _{CE} (V)	I _C (A)	Remarks
TO-92													
AQ1A4A	Refer to equivalent circuit B	-20	-20	-10	-2.0	750	150	—	10	150 ~	-2.0	-1.0	
AQ1F2Q		-20	-20	-10	-2.0	750	150	0.22	2.2	150 ~	-2.0	-1.0	
AQ1L2N		-20	-20	-10	-2.0	750	150	0.47	1.0	150 ~	-2.0	-1.0	
AQ1L2Q		-20	-20	-20	-10	750	150	0.47	4.7	150 ~	-2.0	-1.0	
AQ1A3M	Switching	-20	-20	-10	-2.0	750	150	1.0	1.0	150 ~	-2.0	-1.0	
AQ1F3M		-20	-20	-10	-2.0	750	150	2.2	2.2	150 ~	-2.0	-1.0	
AQ1F3P		-20	-20	-10	-2.0	750	150	4.7	10	150 ~	-2.0	-1.0	

Transistor with Internal Resistor

■ AD1[], AD2[], AR1[] series (TO-92)

Part number	Equivalent circuit and applications	Absolute maximum ratings (T _A = 25 °C)						Electrical characteristics (T _A = 25 °C)					
		V _{CB0} (V)	V _{CE0} (V)	V _{EB0} (V)	I _C (A)	P _T (mW)	T _J (°C)	R ₁ (kΩ)	R ₂ (kΩ)	h _{FE}	V _{CE} (V)	I _C (A)	Remarks
TO-92													
AD1A3M	Refer to equivalent circuit [A] Switching	80	60	10	1.0	750	150	1.0	1.0	200 ~	2.0	0.5	
AD1F3P		80	60	10	1.0	750	150	2.2	10	300 ~	2.0	0.5	
AD1L3N		80	60	10	1.0	750	150	4.7	10	300 ~	2.0	0.5	
AD1A4M		80	60	10	1.0	750	150	10	10	300 ~	2.0	0.5	
AD1L2Q		80	60	10	1.0	750	150	0.47	4.7	300 ~	2.0	0.5	
AD1F2Q		80	60	10	1.0	750	150	0.22	2.2	300 ~	2.0	0.5	
AD1A4A		80	60	10	1.0	750	150	–	10	300 ~	2.0	0.5	
AD2A3M	Refer to equivalent circuit [C] Switching	60 ±10	60 ±10	10	1.0	750	150	1.0	1.0	200 ~	2.0	0.5	
AD2F3P		60 ±10	60 ±10	10	1.0	750	150	2.2	10	300 ~	2.0	0.5	
AD2L3N		60 ±10	60 ±10	10	1.0	750	150	4.7	10	300 ~	2.0	0.5	
AD2A4M		60 ±10	60 ±10	10	1.0	750	150	10	10	300 ~	2.0	0.5	
AD2L2Q		60 ±10	60 ±10	10	1.0	750	150	0.47	4.7	300 ~	2.0	0.5	
AD2F2Q		60 ±10	60 ±10	10	1.0	750	150	0.22	2.2	300 ~	2.0	0.5	
AD2A4A		60 ±10	60 ±10	10	1.0	750	150	–	10	300 ~	2.0	0.5	
AR1A3M	Refer to equivalent circuit [B] Switching	–60	–60	–10	–1.0	750	150	1.0	1.0	100 ~	–2.0	–0.5	
AR1F3P		–60	–60	–10	–1.0	750	150	2.2	10	100 ~	–2.0	–0.5	
AR1L3N		–60	–60	–10	–1.0	750	150	4.7	10	100 ~	–2.0	–0.5	
AR1A4M		–60	–60	–10	–1.0	750	150	10	10	100 ~	–2.0	–0.5	
AR1L2Q		–60	–60	–10	–1.0	750	150	0.47	4.7	100 ~	–2.0	–0.5	
AR1F2Q		–60	–60	–10	–1.0	750	150	0.22	2.2	100 ~	–2.0	–0.5	
AR1A4A		–60	–60	–10	–1.0	750	150	–	10	100 ~	–2.0	–0.5	

Transistor with Internal Resistor

■ CE1[], CE2[] series (SP-8)

Part number	Equivalent circuit and applications	Absolute maximum ratings (T _A = 25 °C)						Electrical characteristics (T _A = 25 °C)				
		V _{CB0} (V)	V _{CE0} (V)	V _{EB0} (V)	I _C (A)	P _T (W)	T _J (°C)	R ₁ (kΩ)	R ₂ (kΩ)	h _{FE}	V _{CE} (V)	I _C (A)
SP-8												
CE1A3Q	Refer to D	60 ±10	60 ±10	15	±2.0	1.0	150	1.0	10	1000 to 3000	5.0	1.0
CE1F3P		60 ±10	60 ±10	15	±2.0	1.0	150	2.2	10	1000 to 3000	5.0	1.0
CE1N2R		60 ±10	60 ±10	15	±2.0	1.0	150	0.68	10	1000 to 3000	5.0	1.0
CE2A3Q	Refer to E	60	60	15	±2.0	1.0	150	1.0	10	1000 to 3000	5.0	1.0
CE2F3P		60	60	15	±2.0	1.0	150	1.0	10	1000 to 3000	5.0	1.0

Transistor with Internal Resistor

■ FA1[], FN1[], GA1[], GN1[] series (SC-59, SC-70)

Part number		Equivalent circuit and applications	Absolute maximum ratings (T _A = 25 °C)					Electrical characteristics (T _A = 25 °C)						Remarks
			V _{CB0} (V)	V _{CE0} (V)	V _{EB0} (V)	I _C (mA)	P _T (mW)	T _J (°C)	R ₁ (kΩ)	R ₂ (kΩ)	h _{FE}	V _{CE} (V)	I _C (mA)	
SC-59	SC-70													
FA1A4M	GA1A4M	Refer to equivalent circuit A Switching	60	50	10	100	200 (SC-59)	150	10	10	35 to 100	5.0	5.0	
FA1A4P	GA1A4P		60	50	5	100		150	10	47	35 to 340	5.0	5.0	
FA1F4M	GA1F4M		60	50	10	100		150	22	22	60 to 195	5.0	5.0	
FA1F4N	GA1F4N		60	50	5	100		150	22	47	85 to 340	5.0	5.0	
FA1L4M	GA1L4M		60	50	10	100		150	47	47	85 to 340	5.0	5.0	
FA1L4L	GA1L4L		60	50	15	100		150	47	22	60 to 195	5.0	5.0	
FA1L3Z	GA1L3Z		60	50	5	100	150 (SC-70)	150	4.7	—	135 to 600	5.0	5.0	
FA1A4Z	GA1A4Z		60	50	5	100		150	10	—	135 to 600	5.0	5.0	
FA1F4Z	GA1F4Z		60	50	5	100		150	22	—	135 to 600	5.0	5.0	
FA1L4Z	GA1L4Z		60	50	5	100		150	47	—	135 to 600	5.0	5.0	
FA1L3M	GA1L3M		60	50	10	100		150	4.7	4.7	20 to 80	5.0	5.0	
FA1L3N	GA1L3N		60	50	5	100		150	4.7	10	35 to 100	5.0	5.0	
FA1A3Q	GA1A3Q		60	50	5	100		150	1.0	10	35 to 100	5.0	5.0	
FN1A4M	GN1A4M	Refer to equivalent circuit B Switching	−60	−50	−10	−100	200 (SC-59)	150	10	10	35 to 100	−5.0	−5.0	
FN1A4P	GN1A4P		−60	−50	−5	−100		150	10	47	85 to 340	−5.0	−5.0	
FN1F4M	GN1F4M		−60	−50	−10	−100		150	22	22	60 to 195	−5.0	−5.0	
FN1F4N	GN1F4N		−60	−50	−5	−100		150	22	47	85 to 340	−5.0	−5.0	
FN1L4M	GN1L4M		−60	−50	−10	−100		150	47	47	85 to 340	−5.0	−5.0	
FN1L4L	GN1L4L		−60	−50	−15	−100		150	47	22	60 to 195	−5.0	−5.0	
FN1L3Z	GN1L3Z		−60	−50	−5	−100	150 (SC-70)	150	4.7	—	135 to 600	−5.0	−5.0	
FN1A4Z	GN1A4Z		−60	−50	−5	−100		150	10	—	135 to 600	−5.0	−5.0	
FN1F4Z	GN1F4Z		−60	−50	−5	−100		150	22	—	135 to 600	−5.0	−5.0	
FN1L4Z	GN1L4Z		−60	−50	−5	−100		150	47	—	135 to 600	−5.0	−5.0	
FN1L3M	GN1L3M		−60	−50	−10	−100		150	4.7	4.7	20 to 80	−5.0	−5.0	
FN1L3N	GN1L3N		−60	−50	−5	−100		150	4.7	10	35 to 100	−5.0	−5.0	
FN1A3Q	GN1A3Q		−60	−50	−5	−100		150	1.0	10	35 to 100	−5.0	−5.0	

Transistor with Internal Resistor

■ FB1[] series (SC-59)

Part number	Equivalent circuit and applications	Absolute maximum ratings (T _A = 25 °C)						Electrical characteristics (T _A = 25 °C)					
		V _{CB0} (V)	V _{CE0} (V)	V _{EB0} (V)	I _C (A)	P _T (mW)	T _J (°C)	R ₁ (kΩ)	R ₂ (kΩ)	h _{FE}	V _{CE} (V)	I _C (A)	Remarks
FB1A4A	Refer to equivalent circuit [A] Switching	30	25	10	0.7	200	150	—	10	300	2.0	0.5	
FB1L2Q		30	25	10	0.7		150	0.47	4.7	300	2.0	0.5	
FB1A3M		30	25	10	0.7		150	1.0	1.0	100	2.0	0.5	
FB1F3P		30	25	10	0.7		150	2.2	10	300	2.0	0.5	
FB1J3P		30	25	10	0.7		150	3.3	10	300	2.0	0.5	
FB1L3N		30	25	10	0.7		150	4.7	10	300	2.0	0.5	
FB1A4M	Refer to equivalent circuit [B] Switching	30	25	10	0.7	200	150	10	10	300	2.0	0.5	
FP1A4A		-25	-25	-10	-0.7		150		10	100	-2.0	-0.5	
FP1L2Q		-25	-25	-10	-0.7		150	0.47	4.7	100	-2.0	-0.5	
FP1A3M		-25	-25	-10	-0.7		150	1.0	1.0	100	-2.0	-0.5	
FP1F3P		-25	-25	-10	-0.7		150	2.2	10	100	-2.0	-0.5	
FP1J3P		-25	-25	-10	-0.7		150	3.3	10	100	-2.0	-0.5	
FP1L3N		-25	-25	-10	-0.7		150	4.7	10	100	-2.0	-0.5	
FP1A4M		-25	-25	-10	-0.7		150	10	10	100	-2.0	-0.5	

Transistor with Internal Resistor

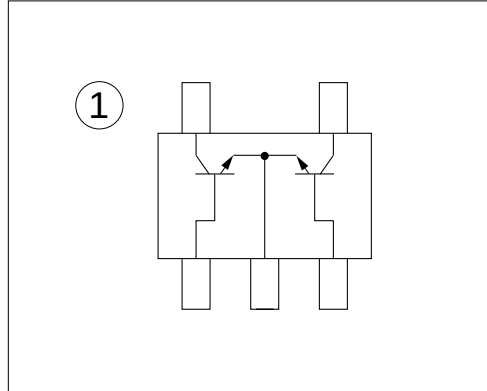
■ HD1[], HD2[], HR1[] series (SOT-89)

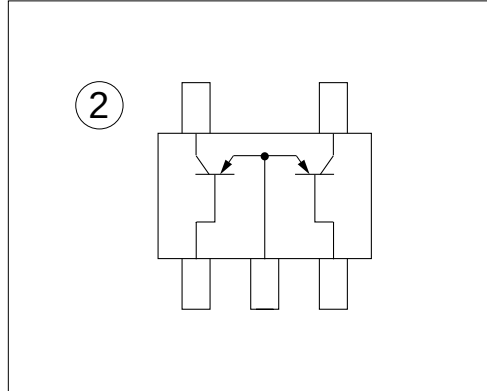
Part number	Equivalent circuit and applications	Absolute maximum ratings (T _A = 25 °C)					Electrical characteristics (T _A = 25 °C)						
		V _{CB0} (V)	V _{CE0} (V)	V _{EB0} (V)	I _C (A)	P _T (mW)	T _J (°C)	R ₁ (kΩ)	R ₂ (kΩ)	h _{FE}	V _{CE} (V)	I _C (A)	Remarks
HD1A3M	Refer to equivalent circuit A Switching	80	60	10	1.0	2.0	150	1.0	1.0	200	2.0	0.5	
HD1F3P		80	60	10	1.0		150	2.2	10	300	2.0	0.5	
HD1L3N		80	60	10	1.0		150	4.7	10	300	2.0	0.5	
HD1A4M		80	60	10	1.0		150	10	10	300	2.0	0.5	
HD1L2Q		80	60	10	1.0		150	0.47	4.7	300	2.0	0.5	
HD1F2Q		80	60	10	1.0		150	0.22	2.2	300	2.0	5.0	
HD1A4A		80	60	10	1.0		150	–	10	300	2.0	0.5	
HD2A3M		Refer to equivalent circuit C Switching	60±10	60±10	10		1.0	2.0	150	1.0	1.0	200	2.0
HD2F3P	60±10		60±10	10	1.0	150	2.2		10	300	2.0	0.5	
HD2L3N	60±10		60±10	10	1.0	150	4.7		10	300	2.0	0.5	
HD2A4M	60±10		60±10	10	1.0	150	10		10	300	2.0	0.5	
HD2L2Q	60±10		60±10	10	1.0	150	0.47		4.7	300	2.0	0.5	
HD2F2Q	60±10		60±10	10	1.0	150	0.2		2.2	300	2.0	0.5	
HD2A4A	60±10		60±10	10	1.0	150	–		10	300	2.0	0.5	
HR1A3M	Refer to equivalent circuit B Switching		–60	–60	–10	–1.0	2.0		150	1.0	1.0	100	–2.0
HR1F3P		–60	–60	–10	–1.0	150		2.2	10	100	–2.0	–0.5	
HR1L3N		–60	–60	–10	–1.0	150		4.7	10	100	–2.0	–0.5	
HR1A4M		–60	–60	–10	–1.0	150		10	10	100	–2.0	–0.5	
HR1L2Q		–60	–60	–10	–1.0	150		0.47	4.7	100	–2.0	–0.5	
HR1F2Q		–60	–60	–10	–1.0	150		0.22	2.2	100	–2.0	–0.5	
HR1A4A		–60	–60	–10	–1.0	150		–	10	100	–2.0	–0.5	

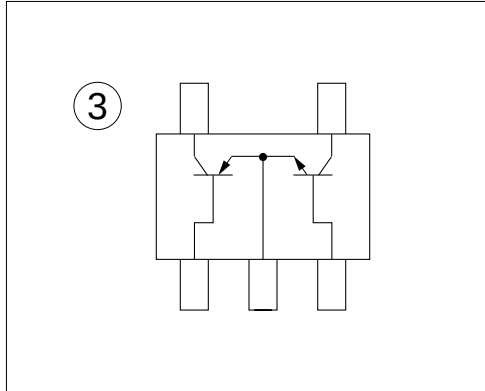
Transistor with Internal Resistor

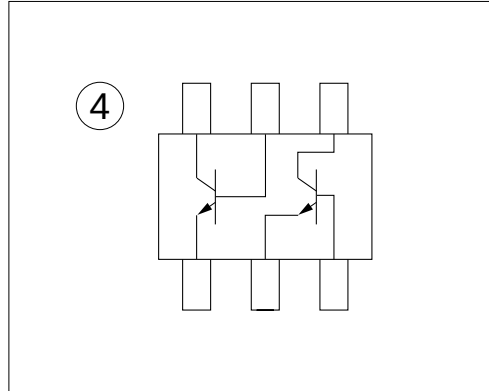
■ HQ1[] series (SOT-89)

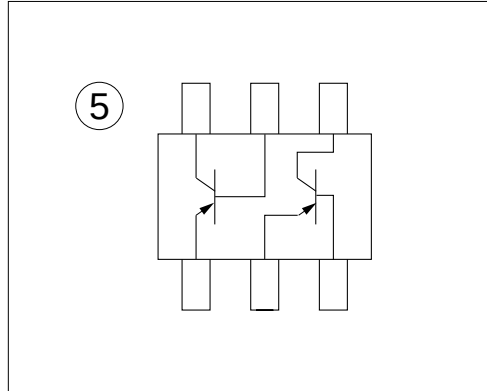
Part number	Equivalent circuit and applications	Absolute maximum ratings (T _A = 25 °C)						Electrical characteristics (T _A = 25 °C)					
		V _{CB0} (V)	V _{CE0} (V)	V _{EB0} (V)	I _C (A)	P _T (mW)	T _J (°C)	R ₁ (kΩ)	R ₂ (kΩ)	h _{FE}	V _{CE} (V)	I _C (A)	Remarks
HQ1A4A	Refer to equivalent circuit B	-20	-20	-10	-2.0	2.0	150	—	10	150	-2.0	-1.0	
HQ1F2Q		-20	-20	-10	-2.0		150	0.22	2.2	150	-2.0	-1.0	
HQ1L2N		-20	-20	-10	-2.0		150	0.47	1.0	150	-2.0	-1.0	
HQ1L2Q		-20	-20	-20	-10		150	0.47	4.7	150	-2.0	-1.0	
HQ1A3M	Switching	-20	-20	-10	-2.0		150	1.0	1.0	150	-2.0	-1.0	
HQ1F3M		-20	-20	-10	-2.0		150	2.2	2.2	150	-2.0	-1.0	
HQ1F3P		-20	-20	-10	-2.0		150	4.7	10	150	-2.0	-1.0	

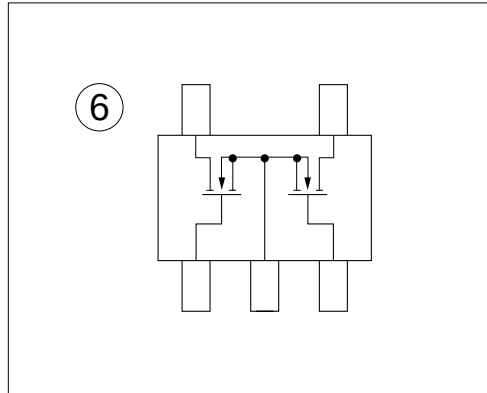
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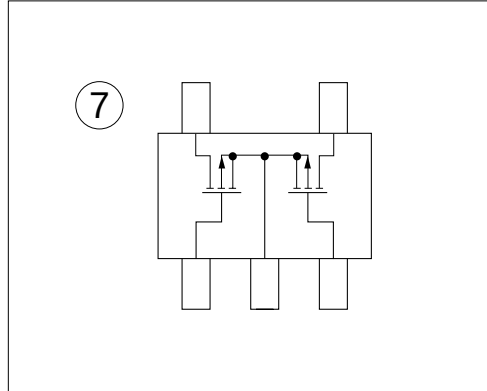
Transistor for Array**Equivalent Circuit**

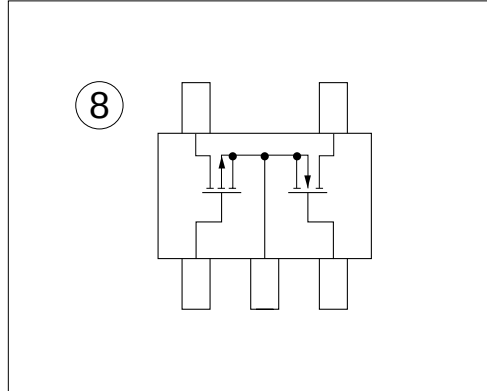
Transistor for Array**Equivalent Circuit**

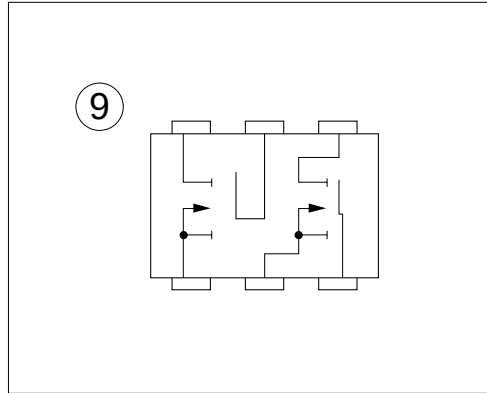
Transistor for Array**Equivalent Circuit**

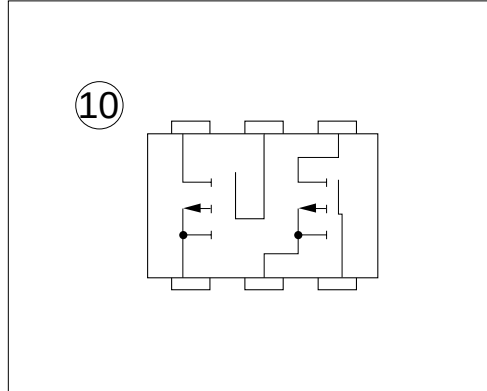
Transistor for Array**Equivalent Circuit**

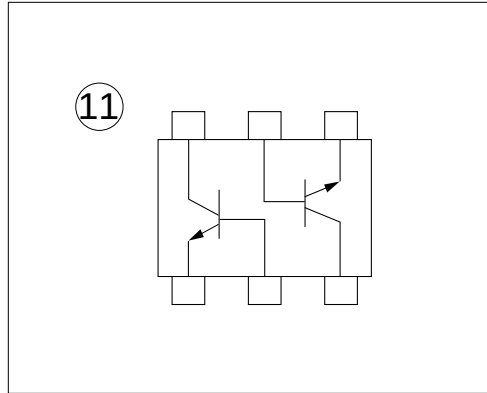
Transistor for Array**Equivalent Circuit**

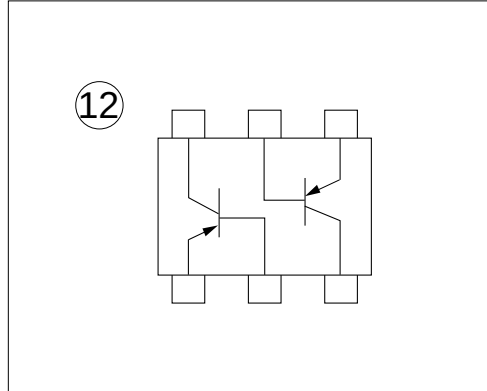
Transistor for Array**Equivalent Circuit**

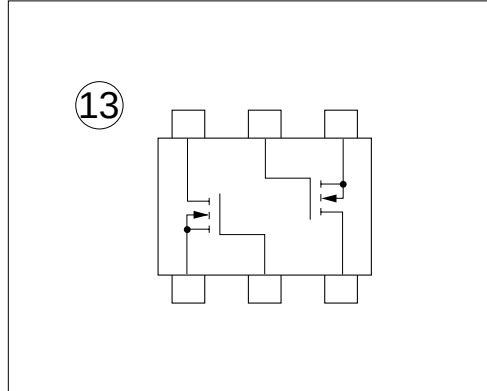
Transistor for Array**Equivalent Circuit**

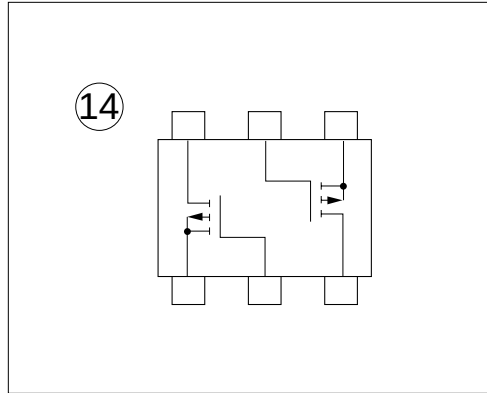
Transistor for Array**Equivalent Circuit**

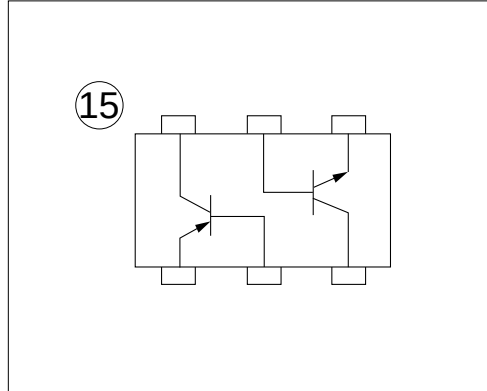
Transistor for Array**Equivalent Circuit**

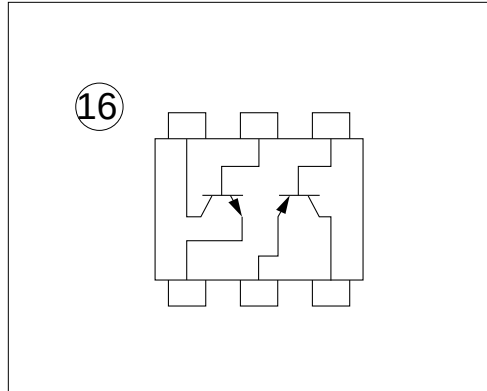
Transistor for Array**Equivalent Circuit**

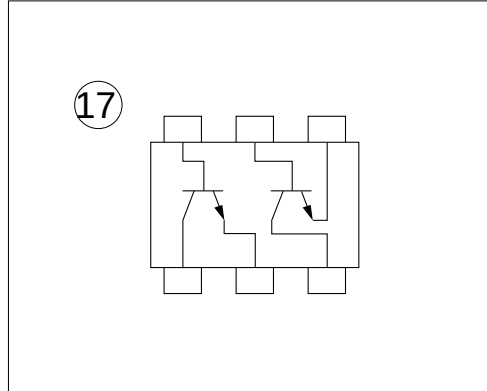
Transistor for Array**Equivalent Circuit**

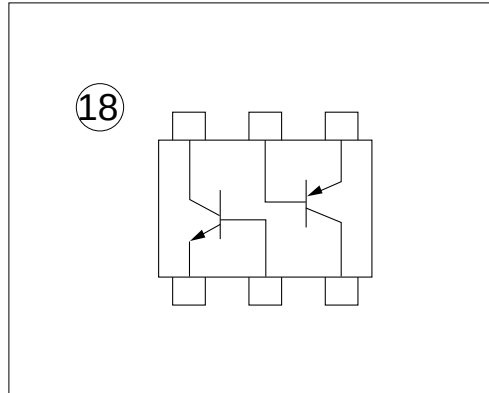
Transistor for Array**Equivalent Circuit**

Transistor for Array**Equivalent Circuit**

Transistor for Array**Equivalent Circuit**

Transistor for Array**Equivalent Circuit**

Transistor for Array**Equivalent Circuit**

Transistor for Array**Equivalent Circuit**

Transistor for Array

■ Bipolar Transistor

Part number	Equivalent circuit	V _{CEO} (V)	I _{C(DC)} (mA)	P _T * (mW)	h _{FE}			Package
						V _{CE} (V)	I _C (mA)	
μPA570T	①	50	100	200	90 to 600	6	1	• 5-pin Super Mini-Mold SC-88A
μPA571T	②	−50	−100	200		−6	−1	
μPA574T	③	50/−50	100/−100	300		6/−6	1/−1	
μPA670T	⑪	50	100	200		6	1	• 6-pin Super Mini-Mold SC-88
μPA671T	⑫	−50	−100	200		−6	−1	
μPA500T	①	50	100	300		6	1	• 5-pin Mini-Mold SC-74A
μPA501T	②	−50	−100	300		−6	−1	
μPA504T	③	50/−50	100/−100	300		6/−6	1/−1	
μPA600T	④	50	100	300		6	1	• 6-pin Mini-Mold SC-74
μPA601T	⑤	−50	−100	300		−6	−1	
μPA604T	⑪	50	100	300		6	1	
μPA605T	⑫	−50	−100	300		−6	−1	
μPA608T	⑮	50	100	300	90 to 600	6	1	
		−16	−500		110 to 400	−1	−100	
μPA609T	⑯	40	500	300	75 to 300	1	150	
		−40	−500		75 to 300	−1	−150	
μPA673T	⑰	15	200	200	82 to 180	6	1	• 6-pin Super Mini-Mold SC-88
μPA674T	⑱	15 −15	200 −50	200	40 to 200 50 to 150	1 −1	10 −10	

*: Total

Transistor for Array

■ MOS FET

Part number	Equivalent circuit	V _{DS} (V)	I _D (DC) (mA)	P _T * (mW)	R _{DS (on)} (Ω) MAX			Package
						V _{GS} (V)	I _D (mA)	
μPA572T	⑥	30	100	200	13	2.5	10	• 5-pin Super Mini-Mold SC-88A
μPA573T	⑦	-30	-100	200	60	-2.5	-10	
μPA502T	⑥	50	100	300	30	4	10	
μPA503T	⑦	-50	-100	300	100	-4	-10	• 5-pin Mini-Mold SC-74A
μPA505T	⑧	50/-50	100/-100	300	30/100	4/-4	10/-10	
μPA602T	⑨	50	100	300	30	4	10	• 6-pin Mini-Mold SC-74
μPA603T	⑩	-50	-100	300	100	-4	-10	
μPA606T	⑬	50	100	300	30	4	10	
μPA607T	⑭	-50	-100	300	100	-4	-10	
μPA610TA	⑩	-30	-100	300	60	-2.5	-1	
μPA611TA	⑨	30	100	300	15	2.5	1	
μPA672T	⑬	50	100	200	40	2.5	10	• 6-pin Super Mini-Mold SC-88

*: Total

Transistor Array

■ Signal transistor array (Monolithic)

Part number	Number of circuits				Output voltage V _O (V)	Output current I _O (mA/Unit)	Surge absorb- er diode	Input imped- ance	Active level		Input/output relationship		Output current relationship		Remarks	Number of pins
	5	6	7	8					"H"	"L"	Inverter type	Non-inverter type	Source type	Sink type		
μPA80C, GR			○		60	50	—	20 kΩ		○	○		○		Darlington	16
μPA81C			○		45	400*2	—	20 kΩ	○		○			○	FIP driver	18
μPA2001C, GR			○		60	500	○	—	○		○			○	Darlington	16
μPA2002C, GR			○		60	500	○	7VZDi +10.5 kΩ	○		○			○	Darlington	16
μPA2003C, GR			○		60	500	○	2.7 kΩ	○		○			○	Darlington	16
μPA2004C, GR			○		60	500	○	10.5 kΩ	○		○			○	Darlington	16
μPA2981C			○		50	500	○	3 kΩ	○			○	○		Darlington output stage	18
μPA2982C			○		50	500	○	8.5 kΩ	○			○	○		Darlington output stage	18
μPA2987C			○		50	500	○	3 kΩ	○			○	○		Darlington output stage	16

*1: PW ≤ 30 ms, duty cycle ≤ 10% (7 circuits operation)

*2: PW ≤ 10 ms, duty cycle ≤ 10% (7 circuits operation)

Transistor Array**■ Signal transistor array Product Map (Monolithic)**

I_o (mA) V_o (V)	500
50	μ PA2981 μ PA2982 μ PA2987
60	μ PA2001 μ PA2002 μ PA2003 μ PA2004

Transistor Array

■ Power transistor array (Multi-chip, 4 circuits)

Part number	Number of circuits	Collector-emitter voltage V _{CE} (V)	Collector current I _C (A)	Surge absorber diode	Input impedance	Output current relationship		Remarks	Number of pins
						Source type	Sink type		
μPA1428AH	4	60 ±10	±2.0	○	—		○	Darlington	10
μPA1434H	4	60	3.0	—	—		○	High beta	10
μPA1436AH	4	100	±3.0	—	—		○	Darlington	10
μPA1437H	4	—100	±3.0	—	—	○		Darlington	10
μPA1453H	4	—60	5.0	—	—	○		Low V _{CE(sat)}	10
μPA1454H	4	100	5.0	—	—		○	High beta	10
μPA1456H	4	100	±5.0	—	—		○	Darlington	10
μPA1458H	4	60 ±10	±5.0	○	—		○	Darlington	10
μPA1476H	4	100 ±15	±2.0	○	—		○	Darlington	10
μPA1478H	4	31 ±4	±2.0	○	—		○	Darlington	10

Transistor Array

■ Power transistor array Product Map (Multi-chip, 4 circuits)

V _{CEO} (V)	I _C (DC) (A)	2.0	3.0	5.0
	Polarity			
30	NPN	μPA1478H ○		
	PNP			
60	NPN	μPA1428AH ○	μPA1434H ●	μPA1458H ○
	PNP			μPA1453H ☆
100	NPN	μPA1476H ○	μPA1436AH	μPA1454H ● μPA1456H
	PNP		μPA1437H	

○ : with Zenner Diode ☆ : Low V_{CE} (sat) ● : Single High h_{FE}

Transistor Array

■ Power MOS FET array (Multi-chip, 4 circuits)

Part number	Number of circuits			V _{DS} (V)	I _D (A/Unit)	Surge absorber diode	4 V driving	Active level		Input/output relationship		Output current relationship		Number of pins
	4	7	8					"H"	"L"	Inverter type	Non-inverter type	Source type	Sink type	
μPA1500BH	○			60	±3	○	○	○		○			○	12
μPA1501H	○			120	±3	○	○	○		○			○	12
μPA1520BH	○			30	±2	—	○	○		○			○	10
μPA1522H	○			60	±2	—	○	○		○			○	10
μPA1523BH	○			−60	±2	—	○		○		○	○		10
μPA1524H	○			80	±2	—	○	○		○			○	10
μPA1526H	○			100	±2	—	○	○		○			○	10
μPA1527H	○			−100	±2	—	○		○		○	○		10
μPA1550H	○			30	±5	—	○	○		○			○	10
μPA1552BH	○			60	±5	—	○	○		○			○	10
μPA1556AH	○			100	±5	—	○	○		○			○	10
μPA1572BH	○			60	±2	—	○	○		○			○	10
μPA1576H	○			100	±2	—	○	○		○			○	10
μPA1560H	○			120	±3		○	○		○			○	10

Transistor Array

■ Power MOS FET array Product Map (Multi-chip, 4 circuits)

I_D (DC) (A) V_{DS} (V)	2.0	3.0	5.0
30	• μ PA1520BH (0.25)		• μ PA1550H (0.15)
60	• μ PA1522H (0.35) • μ PA1572BH (0.8) • <u>μPA1523BH</u> (1.3)	• μ PA1500BH (0.24)	• μ PA1552BH (0.24)
80	• μ PA1524H (1.0)		
100	• μ PA1526H (0.6) • μ PA1576H (1.5) • <u>μPA1527H</u> (1.5)		• μ PA1556AH (0.33)
120		• μ PA1501H (0.53) • μ PA1560H (0.165)	

(): $R_{DS(on)}$ (@ $V_{GS} = 4$ V) [Ω MAX.] Underlined: P-channel

Transistor Array

■ Power MOS FET array (Monolithic)

Part number	Number of circuits			V _{DS} (V)	I _D (A/Unit)	Surge absorber diode	4 V driving	Active level		Input/output relationship		Output current relationship		Number of pins
	4	7	8					"H"	"L"	Inverter type	Non-inverter type	Source type	Sink type	
μPA1600CX/GS			○	30	0.5	—	○	○		○			○	20
μPA1601CX/GS		○		30	0.43	—	○	○		○			○	16
μPA1602CX/GS		○		30	0.43	—	○		○		○		○	16
μPA1603CX	○			30	0.87	○	○	○		○			○	16
μPA1604CX	○			30	0.87	○	○		○		○		○	16

Transistor Array

■ Power MOS FET array Product Map (Monolithic)

I_D (DC) (A) V_{DS} (V)	0.43	0.5	0.87
30	• μPA1601 (5.3 Ω, 7_{CH}) (DIP, SOP) • μPA1602 (5.3 Ω, 7_{CH}) (DIP, SOP)	• μPA1600 (4.0 Ω, 8_{CH}) (DIP, SOP)	• μPA1603 (1.3 Ω, 4_{CH}) (DIP, SOP)