INTERIM ISSUE
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DISCRETE DEVICES

AMS-174

DISCRETE TRANSISTORS, DIODES, and ARRAYS

Sanken discrete devices are available from Allegro MicroSystems.
Contact local local sales office,
or call (1-508) Allegro [1-508-255-3476] for additional information.

SanKen®

Allegro™ MicroSystems, Inc.

Product Identification and Index by Type Number Prefixes

* Contact sales office for further information
† LEDS are available only in Europe

Allegro™ MicroSystems, Inc.
115 Northeast Cutoff, Box 15036
Worcester, Massachusetts 01615-0036 (508) 853-5000

Product Identification and Index by Type Number Prefixes (cont.)

* Contact sales office for further information
† LEDS are available only in Europe

NPN TRANSISTORS

NPN POWER TRANSISTORS

Type No.	Absolute Maximum Ratings						Electrical Characteristics at T_A = 25°C														
	P_C (W)	V_{CBO} (V)	V_{CEO} (V)	V_{EBO} (V)	I_C (A)	I_B (A)	I_{CBO} Max @ V_{CB} (mA)	(V)	I_{EBO} Max @ V_{EB} (mA)	(V)	$V_{(BR)CEO}$ Min @ I_C (V)	(mA)	h_{FE} Min @ I_C @ V_{CE}	(A)	(V)	$V_{CE\ (sat)}$ Max. @ I_C @ I_B (V)	(A)	(mA)	f_T Typ. @ I_E @ V_{CE} (MHz)	(A)	(V)
2SC2023	40	300	300	6	2	0.2	1	300	1	6	300	25	30	0.5	4	1	1	200	10	-0.2	12
2SC2837	100	150	150	5	10	2	0.1	150	0.1	5	150	25	30	3	4	2	5	500	70	-1	12
2SC2921	150	160	160	5	15	4	0.1	160	0.1	5	160	25	50	5	4	2	5	500	60	-2	12
2SC2922	200	180	180	5	17	5	0.1	180	0.1	5	180	25	30	8	4	2	8	800	50	-2	12
2SC3179	30	80	60	6	4	1	0.1	80	0.1	6	60	25	40	1	4	0.6	2	200	15	-0.2	12
2SC3263	130	230	230	5	15	4	0.1	230	0.1	5	230	25	40	5	4	2	5	500	60	-2	12
2SC3264	200	230	230	5	17	5	0.1	230	0.1	5	230	25	40	5	4	2	5	500	60	-2	12
2SC3284	125	150	150	5	14	3	0.1	150	0.1	5	150	25	50	5	4	2	5	500	60	-2	12
2SC3519	130	160	160	5	15	4	0.1	160	0.1	5	160	25	50	5	4	2	5	500	50	-2	12
2SC3519A		180	180					180			180										
2SC3678	80	900	800	7	3	1.5	0.1	800	0.1	7	800	10	10	1	4	0.5	1	200	6	-0.3	12
2SC3679	100	900	800	7	5	2.5	0.1	800	0.1	7	800	10	10	2	4	0.5	2	400	6	-0.5	12
2SC3680	120	900	800	7	7	3.5	0.1	800	0.1	7	800	10	10	3	4	0.5	3	600	6	-1	12
2SC3830	50	600	500	10	6	2	1	600	0.1	10	500	25	10	2	4	0.5	2	400	8	-0.5	12
2SC3831	100	600	500	10	10	4	1	600	0.1	10	500	25	10	5	4	0.5	5	1000	8	-1	12
2SC3832	50	500	400	10	7	2	0.1	500	0.1	10	400	25	10	3	4	0.5	3	600	10	-0.5	12
2SC3833	100	500	400	10	12	4	0.1	500	0.1	10	400	25	10	7	4	0.5	7	1400	10	-1	12
2SC3834	50	200	120	8	7	3	0.1	200	0.1	8	120	50	70	3	4	0.5	3	300	30	-0.5	12
2SC3835	70	200	120	8	7	3	0.1	200	0.1	8	120	50	70	3	4	0.5	3	300	30	-0.5	12
2SC3851	25	80	60	6	4	1	0.1	80	0.1	6	60	25	40	1	4	0.5	2	200	15	-0.2	12
2SC3851A		100	80					100			80										
2SC3852	25	80	60	6	3	1	0.01	80	0.1	6	60	25	500	0.5	4	0.5	2	50	15	-0.2	12
2SC3852A		100	80					100			80										
2SC3853	60	120	80	6	6	3	0.1	120	0.1	6	80	50	50	2	4	1.5	2	200	20	-0.5	12
2SC3854	80	160	120	6	8	3	0.1	160	0.1	6	120	50	50	3	4	1.5	3	300	20	-0.5	12
2SC3855	100	200	140	6	10	4	0.1	200	0.1	6	140	50	50	3	4	2.0	5	500	20	-0.5	12
2SC3856	130	200	180	6	15	4	0.1	200	0.1	6	180	50	50	3	4	2.0	5	500	20	-0.5	12
2SC3857	150	200	200	6	15	5	0.1	200	0.1	6	200	50	30	5	4	3.0	10	1000	20	-0.5	12
2SC3858	200	200	200	6	17	5	0.1	200	0.1	6	200	50	30	8	4	2.5	10	1000	20	-1	12
2SC3890	30	500	400	10	7	2	0.1	500	0.1	10	400	25	10	3	4	0.5	3	600	10	-0.5	12
2SC3909	100	900	800	7	5	2.5	0.1	800	0.1	7	800	10	10	1.5	4	1	1.5	300	4	-0.7	12
2SC3927	120	900	550	7	10 (15)	5	0.1	800	0.1	7	550	10	10	5	4	0.5	5	1000	6	-1	12
2SC4020	50	900	800	7	3	1.5	0.1	800	0.1	7	800	10	10	0.7	4	0.5	0.7	140	6	-0.3	12
2SC4024	35	100	50	15	10	3	0.01	100	0.01	15	50	24	300	1	4	0.5	5	100	24	-0.5	12
2SC4064	35	50	50	6	12	3	0.1	50	0.01	6	50	25	50	6	1	0.35	6	300	40	-0.5	12
2SC4065	35	60	60	6	±12	3	0.1	60	60	6	60	25	50	6	1	0.35	6	300	40	-0.5	12
2SC4073	30	500	400	10	5(10)	2	0.1	500	0.1	10	400	25	10	2	4	0.5	2	400	10	-0.3	12

Note: I_C inside parentheses is a pulse current.

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NPN TRANSISTORS

NPN POWER TRANSISTORS

Type No.	Absolute Maximum Ratings						Electrical Characteristics at T_A = 25°C														
	P_C (W)	V_{CBO} (V)	V_{CEO} (V)	V_{EBO} (V)	I_C (A)	I_B (A)	I_{CBO} Max @ V_{CB} (mA)	(V)	I_{EBO} Max @ V_{EB} (mA)	(V)	$V_{(BR)CEO}$ Min @ I_C (V)	(mA)	h_{FE} Min @ I_C @ V_{CE}	(A)	(V)	$V_{CE\ (sat)}$ Max. @ I_C @ I_B (V)	(A)	(mA)	f_T Typ. @ I_E @ V_{CE} (MHz)	(A)	(V)
2SC4130	30	500	400	10	7(14)	2	0.1	500	0.1	10	400	25	10	3	4	0.5	3	600	15	-0.5	12
2SC4131	60	100	50	15	15(25)	4	0.01	100	0.01	15	50	25	60	5	1	0.5	5	80	18	-1	12
2SC4138	80	500	400	10	10(20)	4	0.1	500	0.1	10	400	25	10	6	4	0.5	6	1200	10	-0.7	12
2SC4139	120	500	400	10	15(30)	5	0.1	500	0.1	10	400	25	10	8	4	0.5	8	1600	10	-1.5	12
2SC4140	130	500	400	10	18(36)	6	0.1	500	0.1	10	400	25	10	10	4	0.5	10	2000	10	-2	12
2SC4153	30	200	120	8	7(14)	3	0.1	200	0.1	8	120	50	70	3	4	0.5	3	300	30	-0.5	12
2SC4296	75	500	400	10	10(20)	4	0.1	500	0.1	10	400	25	10	6	4	0.5	6	1200	10	-0.7	12
2SC4297	75	500	400	10	12(24)	4	0.1	500	0.1	10	400	25	10	7	4	0.5	7	1400	10	-1	12
2SC4298	80	500	400	10	15(30)	5	0.1	500	0.1	10	400	25	10	8	4	0.5	8	1600	10	-1.5	12
2SC4299	70	900	800	7	3(6)	1.5	0.1	800	0.1	7	800	10	10	1	4	0.5	1	200	6	-0.3	12
2SC4300	75	900	800	7	5(10)	2.5	0.1	800	0.1	7	800	10	10	2	4	0.5	2	400	6	-0.5	12
2SC4301	80	900	800	7	7(14)	3.5	0.1	800	0.1	7	800	10	10	3	4	0.5	3	600	6	-1	12
2SC4302	75	900	800	7	5(10)	2.5	0.1	800	0.1	7	800	10	10	1.5	4	1.0	1.5	300	4	-0.7	12
2SC4304	35	900	800	7	3(6)	1.5	0.1	800	0.1	7	800	10	10	0.7	4	0.5	0.7	140	10	-0.3	12
2SC4327	25	50	35	6	7(12)	1	0.01	50	0.01	6	35	10	50	5	2	0.5	5	300	115	-1	12
2SC4381	25	150	150	6	2	1	0.01	150	0.01	6	150	25	60	0.7	10	1.0	0.7	70	15	-0.2	12
2SC4382		200	200					200			200										
2SC4385	60	120	80	6	6	3	0.01	120	0.01	6	80	50	50	2	4	1.5	2	200	20	-0.5	12
2SC4386	75	160	120	6	8	3	0.01	160	0.01	6	120	50	50	3	4	1.5	3	300	20	-0.5	12
2SC4387	80	200	140	6	10	4	0.01	200	0.01	6	140	50	50	3	4	2.0	5	500	20	-0.5	12
2SC4388	85	200	180	6	15	4	0.01	200	0.01	6	180	50	50	3	4	2.0	5	500	20	-0.5	12
2SC4418	30	500	400	10	5(10)	2	0.1	500	0.1	10	400	25	10	1.5	4	0.5	1.5	300	20	-0.3	12
2SC4434	120	500	400	10	15(30)	5	0.1	500	0.1	10	400	25	10	8	4	0.7	8	1600	10	-1.5	12
2SC4445	60	900	800	7	3(6)	1.5	0.1	800	0.1	7	800	10	10	0.7	4	0.5	0.7	140	15	-0.3	12
2SC4466	60	120	80	6	6	3	0.01	120	0.01	6	80	50	50	2	4	1.5	2	200	20	-0.5	12
2SC4467	80	160	120	6	8	3	0.01	160	0.01	6	120	50	50	3	4	1.5	3	300	20	-0.5	12
2SC4468	100	200	140	6	10	4	0.01	200	0.01	6	140	50	50	3	4	0.5	5	500	20	-0.5	12
2SC4494	25	60	40	6	3	1	0.01	60	0.01	6	40	25	500	0.5	4	0.5	1	20	40	-0.1	12
2SC4495	25	80	50	6	3	1	0.01	80	0.01	6	50	25	500	0.5	4	0.5	1	20	40	-0.1	12
2SC4503	80	100	50	15	30 (50)	5	0.01	100	0.01	15	50	25	100	15	1	0.5	15	300	20	-0.5	12
2SC4511	30	120	80	6	6	3	0.01	120	0.01	6	80	25	50	2	4	0.5	2	200	20	-0.5	12
2SC4512	50	120	80	6	6	3	0.01	120	0.01	6	80	25	50	2	4	0.5	2	200	20	-0.5	12
2SC4517	30	900	550	7	3(6)	1.5	0.1	800	0.1	7	550	10	10	1	4	0.5	1	200	6	-0.25	12
2SC4517A		1000																			
2SC4518	35	900	550	7	5(10)	2.5	0.1	800	0.1	7	550	10	10	1.8	4	0.5	1.8	360	6	-0.35	12
2SC4518A		1000																			

Note: I_C inside parentheses is a pulse current.

Continued...

NPN TRANSISTORS

NPN POWER TRANSISTORS

Type No.	Absolute Maximum Ratings						Electrical Characteristics at T_A = 25°C														
	P_C (W)	V_{CBO} (V)	V_{CEO} (V)	V_{EBO} (V)	I_C (A)	I_B (A)	I_{CBO} Max @ V_{CB} (mA)	(V)	I_{EBO} Max @ V_{EB} (mA)	(V)	$V_{(BR)CEO}$ Min @ I_C (V)	(mA)	h_{FE} Min @ I_C @ V_{CE} (A)	(V)		$V_{CE\ (sat)}$ Max. @ I_C @ I_B (V)	(A)	(mA)	f_T Typ. @ I_E @ V_{CE} (MHz)	(A)	(V)
2SC4546	30	600	400	7	7(14)	2	0.1	600	0.1	7	400	25	10	3	4	0.7	3	600	10	-0.5	12
2SC4557	80	900	550	7	10(20)	5	0.1	800	0.1	7	550	10	10	5	4	0.5	5	1000	-	-	-
2SC4558	30	100	80	6	6(10)	3	0.01	100	0.01	6	80	25	300	3	4	0.4	3	60	30	-0.5	12
2SC4662	30	500	400	10	5 (10)	2	0.1	500	0.1	10	400	25	10	1.5	4	0.5	1.5	300	20	-0.3	12
2SC4706	130	900	600	7	14 (28)	7	0.1	800	0.1	7	600	10	10	7	4	0.5	7	1400	6	-1.5	12
2SC4883	20	150	150	6	2	1	0.01	150	0.01	6	150	10	60	0.7	10	1.0	0.7	70	120	-0.7	12
2SC4883A		180	180					180			180										
2SC4886	80	150	150	5	14	3	0.1	150	0.1	5	150	25	50	5	4	2.0	5	500	60	-2	12
2SC4907	30	600	500	10	6 (12)	2	1	600	0.1	10	500	25	10	2	4	0.5	2	400	8	-0.5	12
2SC4908	35	900	800	7	3 (6)	1.5	0.1	800	0.1	7	800	10	10	0.7	4	0.5	0.7	140	6	-0.3	12

Note: I_C inside parentheses is a pulse current.

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NPN TRANSISTORS

NPN DARLINGTON POWER TRANSISTORS

Type No.	Absolute Maximum Ratings						Electrical Characteristics at T_A = 25°C														
	P_C (W)	V_{CBO} (V)	V_{CEO} (V)	V_{EBO} (V)	I_C (A)	I_B (A)	I_{CBO} Max @ V_{CB} (mA)	(V)	I_{EBO} Max @ V_{EB} (mA)	(V)	$V_{(BR)CEO}$ Min @ I_C (V)	(mA)	h_{FE} Min @ I_C @ V_{CE}	(A)	(V)	$V_{CE\ (sat)}$ Max. @ I_C @ I_B (V)	(A)	(mA)	f_T Typ. @ I_E @ V_{CE} (MHz)	(A)	(V)
2SD1769	50	120	120	6	6	1	0.1	120	20	6	120	10	2000	3	2	1.5	3	3	100	-0.2	12
2SD1785	30	120	120	6	6	1	0.01	120	10	6	120	10	2000	3	2	1.5	3	3	100	-0.2	12
2SD1796	25	60±10	60±10	6	4	0.5	0.01	50	10	6	60±10	10	2000	3	4	1.5	3	10	60	-0.2	12
2SD2014	25	120	80	6	4	0.5	0.01	120	10	6	80	10	2000	3	2	1.5	3	3	75	-0.1	12
2SD2015	25	150	120	6	4	0.5	0.01	150	10	6	120	10	2000	2	2	1.5	2	2	40	-0.1	12
2SD2016	25	250	200	6	3	0.5	0.01	250	10	6	200	10	1000	1	2	1.5	1	1	90	-0.1	12
2SD2017	35	3200	250	20	6	1	0.1	300	10	20	250	25	2000	2	2	1.5	2	2	-	-	-
2SD2045	50	120	120	6	6(10)	1	0.01	120	10	6	120	10	2000	3	2	1.5	3	3	50	-1	12
2SD2081	30	120	120	6	10(15)	1	0.01	120	10	6	120	10	2000	5	4	1.5	5	5	-	-	-
2SD2082	75	120	120	6	16(26)	1	0.01	120	10	6	120	10	2000	8	4	1.5	8	16	-	-	-
2SD2083	120	120	120	6	25(40)	2	0.01	120	10	6	120	25	2000	12	4	1.8	12	24	-	-	-
2SD2141	35	380 ±50	380 ±50	6	6(10)	1	0.01	330	20	6	330	25	1500	3	2	1.5	4	20	20	-0.5	12
2SD2231	60	120	120	6	6(10)	1	0.01	120	10	6	120	10	2000	5	4	2.0	5	10	-	-	-
2SD2389	80	160	150	5	8	1	0.1	160	0.1	5	150	30	5000	6	4	2.5	6	6	80	-1	12
2SD2390	100	160	150	5	10	1	0.1	160	0.1	5	150	30	5000	7	4	2.5	7	7	55	-2	12
2SD2401	150	160	150	5	12	1	0.1	160	0.1	5	150	30	5000	7	4	2.5	7	7	55	-2	12

Note: I_C inside parentheses is a pulse current.

PNP TRANSISTORS

PNP POWER TRANSISTORS

Type No.	Absolute Maximum Ratings						Electrical Characteristics at T_A = 25°C														
	P_C (W)	V_{CBO} (V)	V_{CEO} (V)	V_{EBO} (V)	I_C (A)	I_B (A)	I_{CBO} Max @ V_{CB} (mA)	(V)	I_{EBO} Max @ V_{EB} (mA)	(V)	$V_{(BR)CEO}$ Min @ I_C (V)	(mA)	h_{FE} Min @ I_C @ V_{CE} (A)	(V)		$V_{CE\ (sat)}$ Max. @ I_C @ I_B (V)	(A)	(mA)	f_T Typ. @ I_E @ V_{CE} (MHz)	(A)	(V)
2SA1186	100	-150	-150	-5	-10	-2	-0.1	-150	-0.1	-5	-150	-25	30	-3	-4	-2	-5	-500	60	1	-12
2SA1215	150	-160	-160	-5	-15	-4	-0.1	-160	-0.1	-5	-160	-25	50	-5	-4	-2	-5	-500	50	2	-12
2SA1216	200	-180	-180	-5	-17	-5	-0.1	-180	-0.1	-5	-180	-25	30	-8	-4	-2	-8	-800	40	2	-12
2SA1262	30	-60	-60	-6	-4	-1	-0.1	-60	-0.1	-6	-60	-25	40	-1	-4	-0.6	-2	-200	15	0.2	-12
2SA1294	130	-230	-230	-5	-15	-4	-0.1	-230	-0.1	-5	-230	-25	40	-5	-4	-2	-5	-500	35	2	-12
2SA1295	200	-230	-230	-5	-17	-5	-0.1	-230	-0.1	-5	-230	-25	40	-5	-4	-2	-5	-500	35	2	-12
2SA1303	125	-150	-150	-5	-14	-3	-0.1	-150	-0.1	-5	-150	-25	50	-5	-4	-2	-5	-500	50	2	-12
2SA1386	130	-160	-160	-5	-15	-4	-0.1	-160	-0.1	-5	-160	-25	50	-5	-4	-2	-5	-500	40	2	-12
2SA1386A		-180	-180					-180			-180										
2SA1488	25	-60	-60	-6	-4	-1	-0.1	-60	-0.1	-6	-60	-25	40	-1	-4	-0.5	-2	-200	15	0.2	-12
2SA1488A		-80	-80					-80			-80										
2SA1489	60	-80	-80	-6	-6	-3	-0.1	-80	-0.1	-6	-80	-50	50	-2	-4	-1.5	-3	-200	20	0.5	-12
2SA1490	80	-120	-120	-6	-8	-3	-0.1	-120	-0.1	-6	-120	-50	50	-3	-4	-1.5	-3	-300	20	0.5	-12
2SA1491	100	-140	-140	-6	-10	-4	-0.1	-140	-0.1	-6	-140	-50	50	-3	-4	-2.0	-5	-500	20	0.5	-12
2SA1492	130	-180	-180	-6	-15	-4	-0.1	-180	-0.1	-6	-180	-50	50	-3	-4	-2.0	-5	-500	20	0.5	-12
2SA1493	150	-200	-200	-6	-15	-5	-0.1	-200	-0.1	-6	-200	-50	30	-5	-4	-3.0	-10	-1000	20	0.5	-12
2SA1494	200	-200	-200	-6	-17	-5	-0.1	-200	-0.1	-6	-200	-50	30	-8	-4	-2.5	-10	-1000	20	1	-12
2SA1567	35	-50	-50	-6	-12	-3	-0.1	-50	-0.01	-6	-50	-25	50	-6	-1	-0.35	-6	300	40	0.5	-12
2SA1568	35	-60	-60	-6	±12	-3	-0.1	-60	-0.06	-6	-60	-25	50	-6	-1	-0.35	-6	-300	40	0.5	-12
2SA1643	25	-50	-35	-6	-7 (-12)	-1	-0.01	-50	-0.01	-6	-35	-10	50	-5	-2	-0.5	-5	-300	75	1	-12
2SA1667	25	-150	-150	-6	-2	-1	-0.01	-150	-0.01	-6	-150	-25	60	-0.7	-10	-1.0	-0.7	-70	20	0.2	-12
2SA1668		-200	-200					-200			-200										
2SA1670	60	-80	-80	-6	-6	-3	-0.01	-80	-0.01	-6	-80	-50	50	-2	-4	-1.5	-2	-200	20	0.5	-12
2SA1671	75	-120	-120	-6	-8	-3	-0.01	-120	-0.01	-6	-120	-50	50	-3	-4	-1.5	-3	-300	20	0.5	-12
2SA1672	80	-140	-140	-6	-10	-4	-0.01	-140	-0.01	-6	-140	-50	50	-3	-4	-2.0	-5	-500	20	0.5	-12
2SA1673	85	-180	-180	-6	-15	-4	-0.01	-180	-0.01	-6	-180	-50	50	-3	-4	-2.0	-5	-500	20	0.5	-12
2SA1693	60	-80	-80	-6	-6	-3	-0.01	-80	-0.01	-6	-80	-50	50	-2	-4	-1.5	-2	-200	20	0.5	-12
2SA1694	80	-120	-120	-6	-8	-3	-0.01	-120	-0.01	-6	-120	-50	50	-3	-4	-1.5	-3	-300	20	0.5	-12
2SA1695	100	-140	-140	-6	-10	-4	-0.01	-140	-0.01	-6	-140	-50	50	-3	-4	-0.5	-5	-500	20	0.5	-12
2SA1725	30	-80	-80	-6	-6	-3	-0.01	-80	-0.01	-6	-80	-25	50	-2	-4	-0.5	-2	-200	20	0.5	-12
2SA1726	50	-80	-80	-6	-6	-3	-0.01	-80	-0.01	-6	-80	-25	50	-2	-4	-0.5	-2	-200	20	0.5	-12
2SA1746	60	-70	-50	-6	-12 (-20)	-4	-0.01	-70	-0.01	-6	-50	-25	50	-5	-1	-0.5	-5	-80	25	1	-12
2SA1859	20	-150	-150	-6	-2	-1	-0.01	-150	-0.01	-6	-150	-10	60	-0.7	-10	-1.0	-0.7	-70	60	0.7	-12
2SA1859A		-180	-180					-180			-180										
2SA1860	80	-150	-150	-5	-14	-3	-0.1	-150	-0.1	-5	-150	-25	50	-5	-4	-2.0	-5	-500	50	2	-12

Note: I_C inside parentheses is a pulse current.

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PNP TRANSISTORS

PNP DARLINGTON POWER TRANSISTORS

Type No.	Absolute Maximum Ratings						Electrical Characteristics at T_A = 25°C														
	P_C (W)	V_{CBO} (V)	V_{CEO} (V)	V_{EBO} (V)	I_C (A)	I_B (A)	I_{CBO} Max @ V_{CB} (mA)	(V)	I_{EBO} Max @ V_{EB} (mA)	(V)	$V_{(BR)CEO}$ Min @ I_C (V)	(mA)	h_{FE} Min @ I_C @ V_{CE}	(A)	(V)	$V_{CE\ (sat)}$ Max. @ I_C @ I_B (V)	(A)	(mA)	f_T Typ. @ I_E @ V_{CE} (MHz)	(A)	(V)
2SB1257	25	-60	-60	-6	-4	-1	-0.01	-60	-10	-6	-60	-10	2000	-3	-4	-1.5	-3	-6	200	0.2	-12
2SB1258	30	-100	-100	-6	-6	-1	-0.01	-100	-10	-6	-100	-10	1000	-3	-2	-1.5	-3	-6	100	0.2	-12
2SB1259	30	-120	-120	-6	10 (-15)	-1	-0.01	-120	-10	-6	-120	-10	2000	-5	-4	-1.5	-5	-10	-	-	-
2SB1351	30	-60	-60	-6	-12 (-20)	-1	-0.01	-60	-10	-6	-60	-10	2000	-10	-4	-1.5	-10	-20	-	-	-
2SB1352	60	-60	-60	-6	-12 (-20)	-1	-0.01	-60	-10	-6	-60	-10	2000	-10	-4	-1.5	-10	-20	-	-	-
2SB1382	75	-120	-120	-6	-16 (-26)	-1	-0.01	-120	-10	-6	-120	-10	2000	-8	-4	-1.5	-8	-16	50	1	-12
2SB1383	120	-120	-120	-6	-25 (-40)	-2	-0.01	-120	-10	-6	-120	-25	2000	-12	-4	-1.8	-12	-24	-	-	-
2SB1420	80	-120	-120	-6	-16 (-26)	-1	-0.01	-120	-10	-6	-120	-10	2000	-8	-4	-1.5	-8	-16	50	1	-12
2SB1476	60	-120	-120	-6	-6 (-10)	-1	-0.01	-120	-10	-6	-120	-10	2000	-5	-4	-2	-5	-10	-	-	-
2SB1559	80	-160	-150	-5	-8	-1	-0.1	-160	-0.1	-5	-150	-30	5000	-6	-4	-2.5	-6	-6	65	1	-12
2SB1560	100	-160	-150	-5	-10	-1	-0.1	-160	-0.1	-5	-150	-30	5000	-7	-4	-2.5	-7	-7	50	2	-12
2SB1570	150	-160	-150	-5	-12	-1	-0.1	-160	-0.1	-5	-150	-30	5000	-7	-4	-2.5	-7	-7	50	2	-12

Note: I_C inside parentheses is a pulse current.

THYRISTORS

Type No.	Absolute Maximum Ratings				Electrical Characteristics		
	Repetitive Peak Off-State Voltage	Non-Repetitive Peak Off-State Voltage	Mean On-State Current	Surge On-State Current	On-State Voltage	Gate Trigger Voltage	Gate Trigger Current
	T_j = -40°C to T_{jmax}, R_{GK} = 1kΩ		50 Hz Half-Cycle Sinewave Continuous Current	Non-Repetitive 50 Hz Half-Cycle Sinewave Single Shot T_{jmax}	T_C = 25°C	V_D = 6V, R_L = 10Ω, T_C = 25°C	
	V_{DRM} (V)	V_{DSM} (V)	$I_{T(AV)}$ (A)	I_{TSM} (A)	V_{TM} (V)max	V_{GT} (V)max	I_{GT} (mA)
TF321S	200	300	3.0 (T_C = 93°C)	60	1.4 (I_{TM} = 5A)	0.7 typ 1.5 max	3.0 typ 15 max
TF341S	400	500					
TF361S	600	700					
TF521S	200	300	5.0 (T_C = 87°C)	80	1.4 (I_{TM}=10A)	1.5	3.0 typ 15 max
*TF541S	400	500					
*TF561S	600	700					
TF821S	200	300	8.0 (T_C = 74°C)	120	1.4 (I_{TM} = 15A)	1.5	5.0 typ 15 max
*TF841S	400	500					
*TF861S	600	700					
TF541S-A	400 (R_{GK}=470Ω)	500	5.0	80	1.4 (I_{TM} = 10A)	1.5	0.03 typ 0.2 max
TF561S-A	600 (R_{GK}=470Ω)	700					
TF321M	200	300	3.0 (T_C = 102°C)	60	1. 4 (I_{TM} = 5A)	1.5	2.0 typ 10 max
TF341M	400	500					
TF361M	600	700					
TF521M	200	300	5.0 (T_C = 96°C)	80	1.4 (I_{TM} = 10A)	1.5	3.0 typ 15 max
TF541M	400	500					
TF561M	600	700					
TF821M	200	300	8.0 (T_C = 83°C)	120	1.4 (I_{TM} = 15A)	1.5	5.0 typ 15 max
TF841M	400	500					
TF861M	600	700					
TF321M-A	200	300	3.0 (T_C = 102°C)	60	1. 4 (I_{TM} = 5A)	1.0	0.1 max
TF341M-A	400	500					
TF361M-A	600	700					

*The devices are available in UL recognized and normal specifications. The makings and shapes of UL recognized devices are slightly different from normal devices.

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THYRISTORS (with built-in avalanche diode)

Type No.	Absolute Maximum Ratings			Electrical Characteristics								
	Repetitive Peak Off-State Voltage	Mean On-State Current	Surge On-State Current	Breakover Voltage			Breakover Current		On-State Voltage	Gate Trigger Voltage	Gate Trigger Current	
	T_j= -10 to +125°C R_{GK}=1KΩ	Half-Wave (180°) Continuous Current (T_C=92°C)	Non-Repetitive Half-Cycle Sinewave Peak Value T_j=125°C	V_{BO}(V)			I_{BO}(mA)		I_{TM} = 5 A T_j = 25°C	V_D = 6V R_L = 10Ω T_j = 25°C		
	V_{DRM}(V)	$I_{T(AV)}$(A)	I_{TSM}(A)	min	typ	max	min	max	V_{TM} (V)max	V_{GT} (V)max	I_{GT}(mA) min	I_{GT}(mA) max
TFD312S-C	20	3.0	60	27.0	30.0	33.0	0.2	15	1.4	1.0	0.2	10
TFD312S-F	35			50.0	55.0	60.0						
TFD312S-G	45			60.0	65.0	70.0						
TFD312S-J	80			90.0	100	110						
TFD312S-K	100			115	125	135						
TFD312S-L	120			140	150	160						
TFD312S-M	145			163	175	187						
TFD312S-N	170			185	200	215						
TFD312S-O	190			210	225	240						

TRIACS

Type No.	Absolute Maximum Ratings			Electrical Characteristics								
	Repetitive Peak Off-State Voltage	RMS On-State Current	Surge On-State Current	On-State Voltage	Gate Trigger Voltage				Gate Trigger Current			
		Conduction Angle = 360°	50 Hz Full-Cycle Sinewave Non-Repetitive Peak Value T_j = 125°C	Pulse T_j = 25°C	V_D = 6 V, R_L = 10Ω, T_C = 25°C				V_D = 6 V, R_L = 10Ω, T_C = 25°C			
				V_{TM} (V)	V_{GT} (V)				I_{GT} (mA)			
	V_{DRM} (V)	$I_{T(RMS)}$ (A)	I_{TSM} (A)		$T_2^+G^+$	$T_2^+G^-$	$T_2^-G^+$	$T_2^-G^-$	$T_2^+G^+$	$T_2^+G^-$	$T_2^-G^+$	$T_2^-G^-$
				max	max		typ	max	max		typ	max
*TM341S-L	400	3.0 (T_C = 109°C)	30	1.6 (I_{TM} = 5A)	2.0	2.0	0.8	2.0	20	20	15	20
*TM361S-L	600											
*TM541S-L	400	5.0 (T_C = 104°C)	50	1.6 (I_{TM} = 7A)	2.0	2.0	0.8	2.0	20	20	15	20
*TM561S-L	600											
*TM841S-L	400	8.0 (T_C = 90°C)	80	1.6 (I_{TM} = 10A)	2.0	2.0	0.9	2.0	30	30	30	30
*TM861S-L	600											
*TM1041S-L	400	10 (T_C = 90°C)	100	1.6 (I_{TM} = 14A)	2.0	2.0	0.9	2.0	30	30	30	30
*TM1061S-L	600											
*TM1241S-L	400	12 (T_C = 85°C)	120	1.6 (I_{TM} = 16A)	2.0	2.0	1.0	2.0	30	30	70	30
*TM1261S-L	600											
*TM1641S-L	400	16 (T_C = 74°C)	150	1.6 (I_{TM} = 20A)	2.0	2.0	1.0	2.0	30	30	70	30
*TM1661S-L	600											
TM1041S-R	400	10 (T_C = 90°C)	80	1.6 (I_{TM} = 14A)	2.0	1.2	2.4	1.2	7.0	7.0	25	7.0
TM1061S-R	600				(V_D=20V, R_L=40Ω)							
TM341M-L	400	3.0 (T_C = 115°C)	30	1.6 (I_{TM} = 5A)	2.0	2.0	0.8	2.0	20	20	15	20
TM361M-L	600											
TM541M-L	400	5.0 (T_C = 111°C)	50	1.6 (I_{TM} = 7A)	2.0	2.0	0.8	2.0	20	20	15	20
TM561M-L	600											
TM841M-L	400	8.0 (T_C = 108°C)	80	1.6 (I_{TM} = 10A)	2.0	2.0	0.9	2.0	30	30	30	30
TM861M-L	600											
STA203A (Triac array)	400	1.2 (T_C = 97°C)	10	1.6 (I_{TM} = 1.6A)	3.5	1.2	2.0	1.2	3	3.0	13	3.0

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