

2N1049-2N1136A

TYPE	MATERIAL	POLARITY	REPLACE- MENT	PAGE NUMBER	USE	MAXIMUM RATINGS					ELECTRICAL CHARACTERISTICS											
						P _D @ 25°C	V _{CE} Ref Point	T _J °C	V _{CB} (volts)	V _{CE} - (volts)	Subscript	h _{FE} @ I _C		V _{CE(SAT)} @ I _C		h _f -	Subscript	f ₋ Units	Subscript			
2N1049	S	N			LPA	40W	C	200	80	80	O	30	90	500M	7.5	500M						
2N1049A	S	N			LPA	40W	C	200	80	80	O	30	90	500M	7.5	500M						
2N1049B	S	N			LPA	40W	C	200	80	80	O	30	90	500M	2.0	500M						75K
2N1049C	S	N			LPA	40W	C	200	80	80	O	30	90	500M	1.0	500M						125K
2N1050	S	N			LPA	40W	C	200	120	120	O	30	90	500M	7.5	500M						75K
2N1050A	S	N			LPA	40W	C	200	120	120	O	30	90	500M	2.0	500M						125K
2N1050B	S	N			LPA	40W	C	200	120	80	O	30	90	500M	1.0	500M						125K
2N1050C	S	N			LPA	40W	C	200	120	80	O	30	90	500M	1.0	500M						80M
2N1051	S	N			RFA	0.5W	A	150	40	40	O	25	80	50M	3.0	50M	30	E				
2N1052	S	N			RFA	6.0M	A	200	200	200	V	20	80	0.2A	5.0	0.2A						
2N1054	S	N			VID	0.8W	A	200	125	115	O	20	80	0.2A			15	E				8.0M
2N1055	S	N			RFA	5.5M	A	200	100	100	O	20	80	50M	2.0	50M						
2N1056	G	P	2N2043	6-39	AFA	240M	A	100	70	50	R	18	43	20M	0.13	20M						500K
2N1057	G	P	2N1924	6-37	AFA	240M	A	100	45	45	R	34	90	20M	0.13	20M						500K
2N1058	G	P			AFA	50M	A	75	20	20	R						10	B				4.0M
2N1059	G	P			AFA	180M	A	75	40	15	R											10K
2N1060	G	P	2N2501	8-148	HSS	0.25W	A	150	40	40	O	17	80	5.0M	0.3	5.0M						
2N1065	G	P			AFA	0.12W	A	85	40	20	O	20	80		0.25	10M						10M
2N1066	G	P	2N3323	9-71	RFA	120M	A	100	40	40	O	20	175	1.5M								
2N1067	G	P	2N3766	7-142	PMS	5.0W	C	175	60	30	O	15	75	200M	2.0	200M						0.75M
2N1068	G	P	2N3766	7-142	PMS	10W	C	175	60	30	O	15	75	750M	2.0	200M						0.75M
2N1069	G	P	2N3766	7-142	PMS	50W	C	175	60	45	O	20	50	1.5A	1.33	0.5A						0.5M
2N1070	G	P	2N3766	7-142	PMS	50W	C	175	60	45	O	20	50	1.5A	0.5	1.5A						0.5M
2N1072	G	P	2N3766	7-142	PHS	2.0W	A	150	75	30	O	20	50	0.75A	2.0	0.75A						
2N1073	G	P		7-48	LPA			110	40	40	R	20	60	5.0A	1.0	5.0A						
2N1073A	G	P		7-48	LPA			110	80	80	R	20	60	5.0A	1.0	5.0A						
2N1073B	G	P		7-48	LPA			110	120	120	R	20	60	5.0A	1.0	5.0A						
2N1074	G	P			AFA	250M	A	160	50	40	O						9.0	E				200K
2N1075	G	P			AFA	250M	A	160	50	35	O						18	E				250K
2N1076	G	P			AFA	250M	A	160	50	30	O						36	E				300K
2N1077	G	P			AFA	250M	A	160	50	35	O						9.0	E				200K
2N1078	G	P			LPA	20W	C	85	60	60	S	40		0.5A	1.0	1.0A						
2N1079	G	P			HPA	60W	C	200	60	60	S	20	80	1.0A	3.0	1.0A						10M
2N1080	G	P			HPA	60W	C	200	60	60	S	20	80	2.0A	5.0	2.0A						10M
2N1081	G	P			MSS	6.0M	A	200	40	40	O	20	100	0.5A	4.0	0.5A						
2N1082	G	P			RFA	0.2W	A	200	25	25	S	10	50	10M			10	E				17M
2N1086	G	N			RFC	65M	A	85	9.0	9.0	O	17	195	1.0M								
2N1086A	G	N			RFC	65M	A	85	9.0	9.0	O	17	195	1.0M								
2N1087	G	N			RFC	65M	A	85	9.0	9.0	O	17	195	1.0M								
2N1090	G	N			MSS	120M	A	85	25	25	O	30		20M	0.2	20M						5.0M
2N1091	G	N			MSS	120M	A	85	25	25	O	40		20M	0.3	200M						10M
2N1092	G	N			PMS	2.0W	A	175	60	30	O	15	75	200M	2.0	200M						0.75M
2N1093	G	P			AFA	150M	A	95	30	15	O	50	150	20M	0.2	20M						5.0M
2N1094	G	P			RFA	0.15W	A	100	30	15	O	15		4.0M			0.96	E				560M
2N1097	G	P	2N1414	6-33	AFC	200M	A	100	18	18	R	34	90	20M								1.0M
2N1098	G	P	2N1414	6-33	AFC	200M	A	100	18	18	R	25	90	20M								1.0M
2N1099	G	P		7-25	LFA	50W	C	95	80	70	S	35	70	5.0A								
2N1100	G	P		7-17	LFA	50W	C	95	100	65	O	25	50	5.0A	0.7	12A						
2N1101	G	N			AFA	180M	A	75	20	15	R	25	50	35M	0.5	100M						10K
2N1102	G	N			AFA	180M	A	75	40	25	R	25	50	35M	0.5	100M						10K
2N1103	G	N			AFA	125M	A	150	45	35	O	30	65	10M	1.5	10M						10M
2N1104	G	N			AFA	125M	A	150	45	35	O	45	150	10M	1.5	10M						20M
2N1105	G	N			AFA	800M	A	200	60	60	O	12	36	200M	5.0	200M						
2N1106	G	N			AFA	800M	A	200	100	100	O	12	36	200M	5.0	200M						
2N1107	G	P			RFA	30M	C		16													40M
2N1108	G	P			RFA	30M	C		16													35M
2N1109	G	P			RFA	30M	C		16													35M
2N1110	G	P			RFA	30M	C		16													35M
2N1111	G	P			RFA	30M	C		16													35M
2N1114	G	N			MSS	150M		100	25	15	R	40	180	20M								7.0M
2N1115	G	P			MSA	150M	A	85	20	15	O				0.35	60M						5.0M
2N1115A	G	P			MSA	150M	A	85	20	15	O				0.35	60M						5.0M
2N1116	G	N			RFA	600M	C	200	60	60	O	40	150	0.5A	5.0	0.5A						6.0M
2N1117	G	N			RFA	600M	C	200	60	60	O	40	150	0.2A	4.0	0.2A						4.0M
2N1118	S	P			RFA	150M	A	140	25	25	U											8.0M
2N1118A	S	P			RFA	150M	A	140	25	25	U	15	25	15M	0.15	5.0M						7.2M
2N1119	G	P			MSS	150M	A	140	10	10	U	15	50	10A	1.0	10A						3.0K
2N1120	G	P		7-51	LFA	45W	C	95	80	70	S	20	34	1.0M								
2N1121	G	P			RFC	65M	C	85	15	15	O	34										
2N1122	G	P	2N961	8-74	HSS	25M	A	100	12	11	S	25		10M	0.1	8.0M						40M
2N1122A	G	P	2N960	8-74	HSS	25M	A															

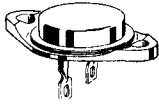
2N1073, A, B (GERMANIUM)

$V_{CER} = 40-120\text{ V}$

$I_C = 10\text{ A}$

$P_D = 85\text{ W}$

CASE 4
(TO-41)

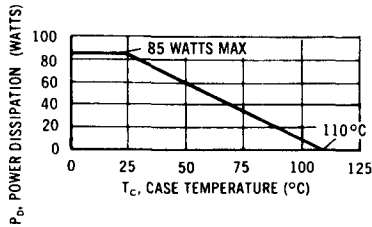


PNP germanium power transistors for high-voltage power switching applications.

MAXIMUM RATINGS

Rating	Symbol	2N1073	2N1073A	2N1073B	Unit
Collector-Emitter Voltage	V_{CER}	40	80	120	Vdc
Collector-Base Voltage	V_{CB}	40	80	120	Vdc
Emitter-Base Voltage	V_{EB}	1.5	1.5	1.5	Vdc
Collector Current (Cont)	I_C	10	10	10	Amp
Base Current (Cont)	I_B	5	5	5	Amp
Emitter Reverse Current (Surge 60 cps Recurrent)	I_E	1.5	1.5	1.5	Amp
Storage and Operating Temperature	T_{stg} T_J	-65 to +110			$^{\circ}\text{C}$
Collector Dissipation (25 $^{\circ}\text{C}$ Mtg. Case Temp.)	P_D	85	85	85	Watts

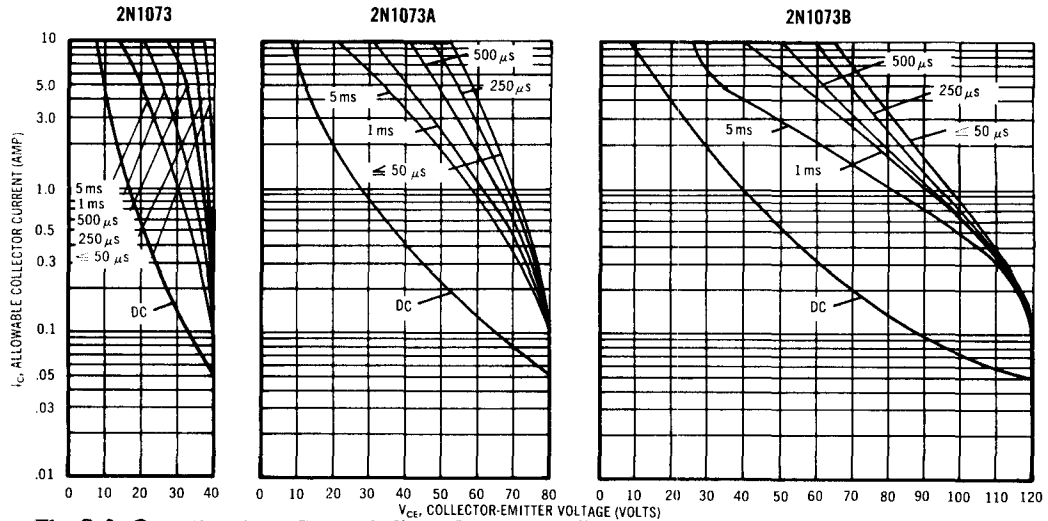
POWER-TEMPERATURE DERATING CURVE



The maximum continuous power is related to maximum junction temperature by the thermal resistance factor. This curve has a value of 85 watts at a case temperature of 25 $^{\circ}\text{C}$ and is 0 watts at 110 $^{\circ}\text{C}$ with a linear relation between the two temperatures such that:

$$\text{Allowable } P_o = \frac{110^{\circ} - T_c}{1.0} \text{ Watts}$$

SAFE OPERATING AREAS — PULSE CONDITIONS



The Safe Operating Area Curves indicate $I_C - V_{CE}$ limits below which the device will not go into secondary breakdown. Collector load lines for specific circuits must fall within the applicable Safe Area to avoid causing a collector-emitter short.

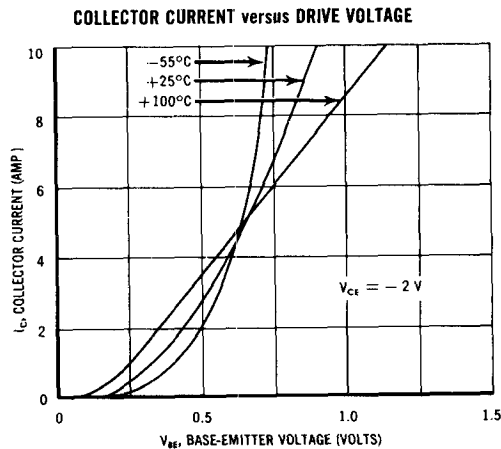
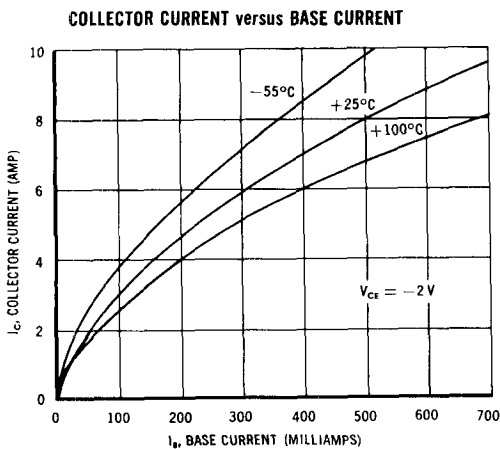
(Duty cycle of the excursions make no significant change in these safe areas.) To insure operation below the maximum T_J , the power-temperature derating curve must be observed for both steady state and pulse power conditions.

2N1073, A, B (continued)

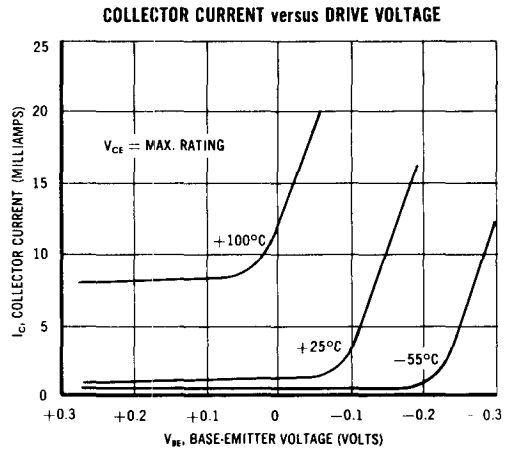
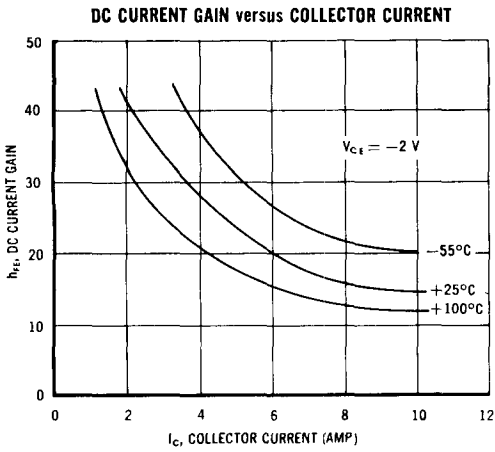
ELECTRICAL CHARACTERISTICS ($T_A = 25^\circ\text{C}$ unless otherwise noted)

Characteristic	Symbol	Min	Typ	Max	Unit
Collector-Base Cutoff Current ($V_{CB} = 25\text{ Vdc}, I_E = 0$)	I_{CBO}	-	-	1.0	mAdc
($V_{CB} = 25\text{ Vdc}, I_E = 0, T_C = 85^\circ\text{C}$)	2N1073	-	-	15	
($V_{CB} = 40\text{ Vdc}, I_E = 0$)	2N1073	-	-	20	
($V_{CB} = 60\text{ Vdc}, I_E = 0$)	2N1073A	-	-	1.0	
($V_{CB} = 60\text{ Vdc}, I_E = 0, T_C = 85^\circ\text{C}$)	2N1073A	-	-	15	
($V_{CB} = 80\text{ Vdc}, I_E = 0$)	2N1073A	-	-	20	
($V_{CB} = 100\text{ Vdc}, I_E = 0$)	2N1073B	-	-	2.0	
($V_{CB} = 100\text{ Vdc}, I_E = 0, T_C = 85^\circ\text{C}$)	2N1073B	-	-	20	
($V_{CB} = 120\text{ Vdc}, I_E = 0$)	2N1073B	-	-	20	
($V_{CB} = 2.0\text{ Vdc}, I_E = 0$)	2N1073B	-	-	0.3	
Emitter-Base Leakage Current ($V_{EB} = 0.75\text{ Vdc}$)	I_{EBO}	-	-	50	mAdc
Emitter Floating Potential ($V_{CE} = 40\text{ Vdc}$)	V_{EBF}	-	-	1.0	Vdc
($V_{CE} = 80\text{ Vdc}$)	2N1073A	-	-	1.0	
($V_{CE} = 120\text{ Vdc}$)	2N1073B	-	-	1.0	
Collector-Emitter Breakdown Voltage* ($I_C = 50\text{ mAdc}, R_{BE} = 100\Omega$)	BV_{CER}^*	40	-	-	Vdc
	2N1073	80	-	-	
	2N1073A	120	-	-	
DC Current Gain ($I_C = 5.0\text{ Adc}, V_{CE} = 2.0\text{ Vdc}$)	h_{FE}	20	-	60	-
Small-Signal Current Gain ($I_C = 0.5\text{ Adc}, V_{CE} = 12\text{ Vdc}, f = 30\text{ kHz}$)	h_{fe}	-	15	-	-
Base Input Voltage ($V_{CE} = 2.0\text{ Vdc}, I_C = 5.0\text{ Adc}$)	V_{BE}	-	-	1.0	Vdc
Collector-Emitter Saturation Voltage ($I_C = 5.0\text{ Adc}, I_B = 0.5\text{ Adc}$)	$V_{CE(sat)}$	-	0.5	1.0	Vdc
Rise Time	t_r	-	5.5	-	μs
Storage Time	t_s	-	1.2	-	μs
Fall Time	t_f	-	2.0	-	μs

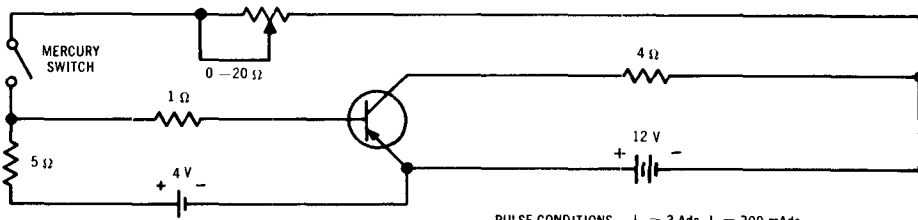
*To avoid excessive heating of collector junction, perform this test with a sweep method.



2N1073, A, B (continued)



SWITCHING TEST CIRCUIT



PULSE CONDITIONS: $I_C = 3 \text{ Adc}$, $I_B = 300 \text{ mAdc}$

2N1099 (GERMANIUM)

For Specifications, See 2N277 Data Sheet

2N1100 (GERMANIUM)

For Specifications, See 2N174 Data Sheet