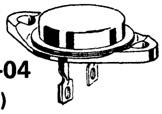
2N1073, A, B (GERMANIUM)



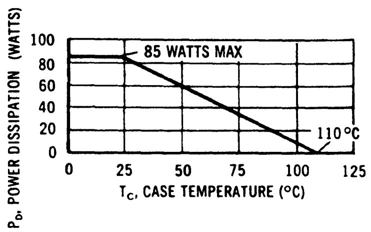
CASE 4-04
(TO-41)

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	5.0			Amp
Emitter Reverse Current (Surge 60 cps Recurrent)	I_E	1.5			Amp
Storage and Operating Temperature	T_{stg} T_J	-65 to +110			°C
Collector Dissipation (25°C Mtg. Case Temp.)	P_D	85			Watts

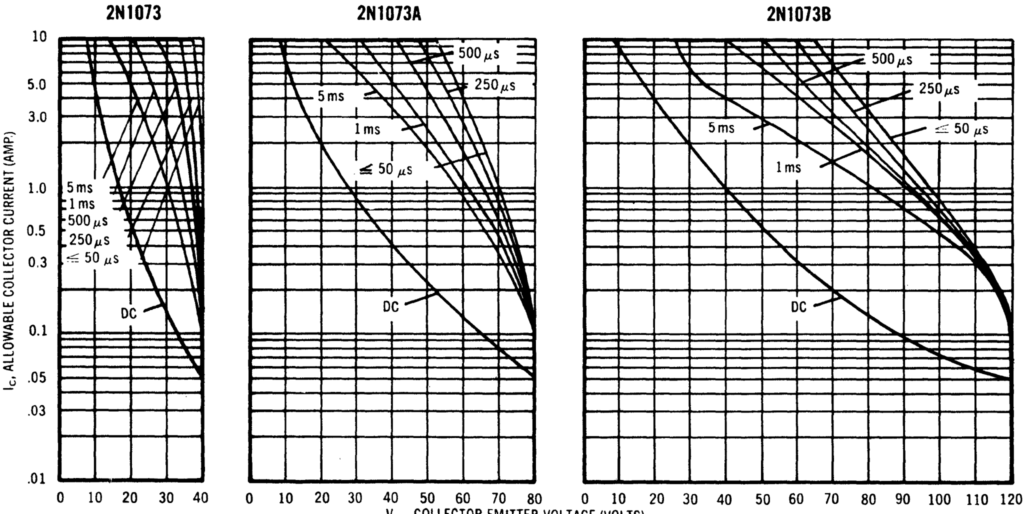
POWER-TEMPERATURE DERATING CURVE



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°C and is 0 watts at 110°C with a linear relation between the two temperatures such that:

$$\text{Allowable } P_D = \frac{110° - T_C}{1.0} \text{ Watts}$$

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.

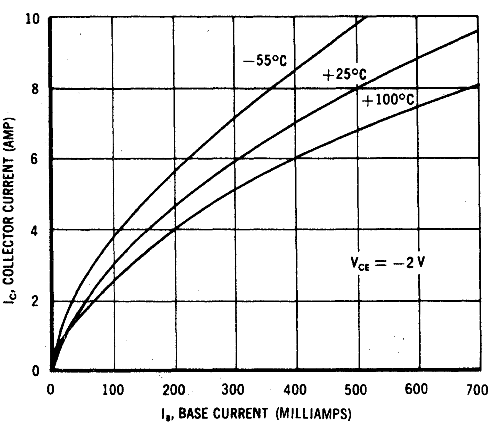
2N1073, A, B (continued)

ELECTRICAL CHARACTERISTICS (T_A = 25°C unless otherwise noted)

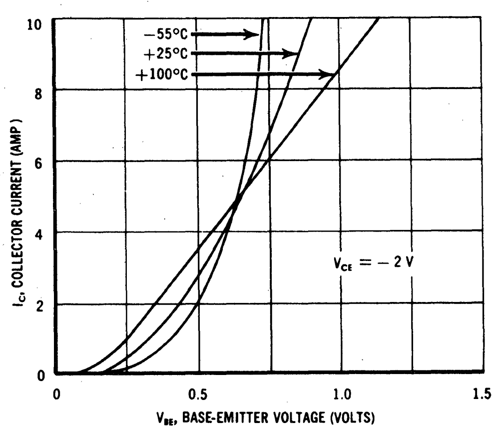
Characteristic		Symbol	Min	Typ	Max	Unit
Collector-Base Cutoff Current		I_{CBO}				mAdc
(V_{CB} = 25 Vdc, I_E = 0)	2N1073		-	-	1.0	
(V_{CB} = 25 Vdc, I_E = 0, T_C = 85°C)	2N1073		-	-	15	
(V_{CB} = 40 Vdc, I_E = 0)	2N1073		-	-	20	
(V_{CB} = 60 Vdc, I_E = 0)	2N1073A		-	-	1.0	
(V_{CB} = 60 Vdc, I_E = 0, T_C = 85°C)	2N1073A		-	-	15	
(V_{CB} = 80 Vdc, I_E = 0)	2N1073A		-	-	20	
(V_{CB} = 100 Vdc, I_E = 0)	2N1073B		-	-	2.0	
(V_{CB} = 100 Vdc, I_E = 0, T_C = 85°C)	2N1073B		-	-	20	
(V_{CB} = 120 Vdc, I_E = 0)	2N1073B		-	-	20	
(V_{CB} = 2.0 Vdc, I_E = 0)			-	-	0.3	
Emitter-Base Leakage Current (V_{EB} = 0.75 Vdc)		I_{EBO}	-	-	50	mAdc
Emitter Floating Potential		V_{EBF}				Vdc
(V_{CE} = 40 Vdc)	2N1073		-	-	1.0	
(V_{CE} = 80 Vdc)	2N1073A		-	-	1.0	
(V_{CE} = 120 Vdc)	2N1073B		-	-	1.0	
Collector-Emitter Breakdown Voltage*		BV_{CER}*				Vdc
(I_C = 50 mAdc, R_{BE} = 100Ω)	2N1073		40	-	-	
	2N1073A		80	-	-	
	2N1073B		120	-	-	
DC Current Gain (I_C = 5.0 Adc, V_{CE} = 2.0 Vdc)		h_{FE}	20	-	60	-
Small-Signal Current Gain (I_C = 0.5 Adc, V_{CE} = 12 Vdc, f = 30 kHz)		h_{fe}	-	15	-	-
Base Input Voltage (V_{CE} = 2.0 Vdc, I_C = 5.0 Adc)		V_{BE}	-	-	1.0	Vdc
Collector-Emitter Saturation Voltage (I_C = 5.0 Adc, I_B = 0.5 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.

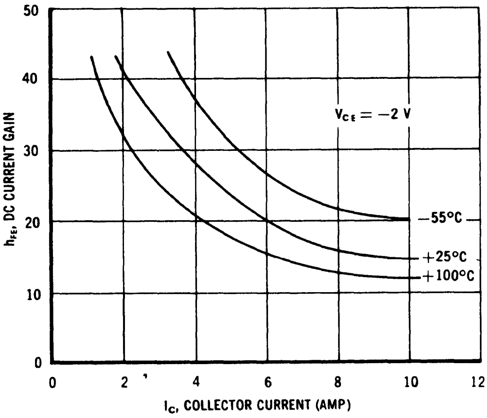
COLLECTOR CURRENT versus BASE CURRENT



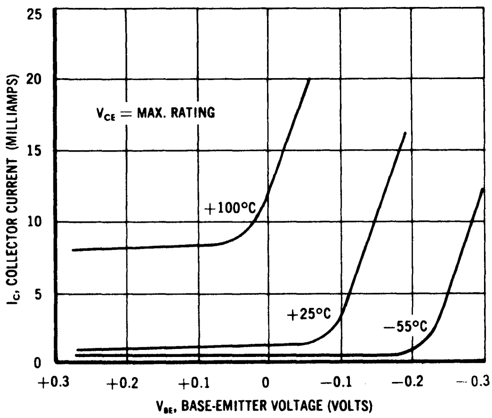
COLLECTOR CURRENT versus DRIVE VOLTAGE



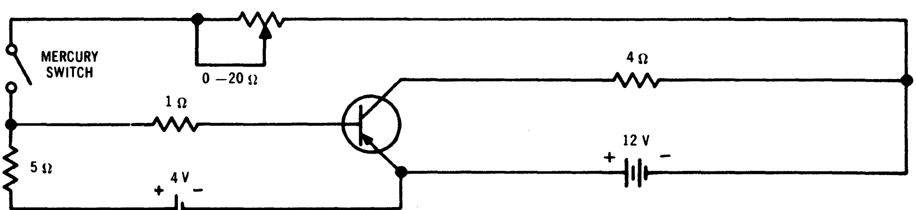
DC CURRENT GAIN versus COLLECTOR CURRENT



COLLECTOR CURRENT versus DRIVE VOLTAGE



SWITCHING TEST CIRCUIT



PULSE CONDITIONS ; $I_C = 3$ Adc, $I_B = 300$ mAdc

2N1099 (GERMANIUM)

For Specifications, See 2N277 Data.

2N1100 (GERMANIUM)

For Specifications, See 2N174 Data.