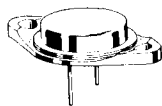


MP1612, A, B (GERMANIUM)

$V_{CB} = 100-160 \text{ V}$
 $I_C = 20 \text{ A}$
 $P_D = 85 \text{ W}$



CASE 3
(TO-3)

High-current, germanium PNP power transistor developed specially for high-speed, high-frequency, applications such as television horizontal deflection circuits.

MAXIMUM RATINGS

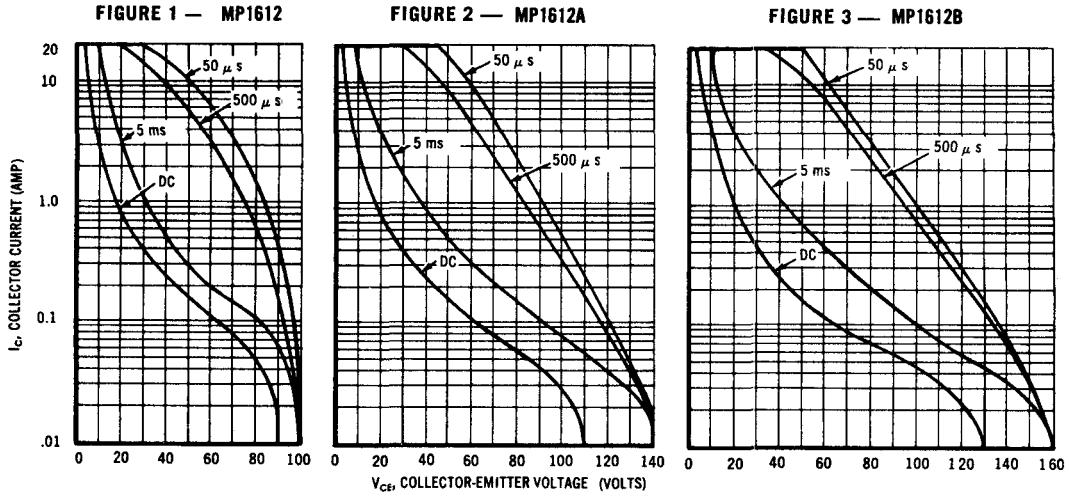
Rating	Symbol	MP1612	MP1612A	MP1612B	Unit
Collector-Base Voltage	V_{CB}	100	140	160	Volts
Collector-Emitter Voltage	V_{CEO}	50	75	100	Volts
Emitter-Base Voltage	V_{EB}	2.5	2.5	2.5	Volts
Collector Current (Continuous)	I_C	20	20	20	Amp
Base Current (Continuous)	I_B	5	5	5	Amp
Power Dissipation	P_D	85	85	85	Watts
Operating Junction Temperature Range	T_J	-65 to +110			$^{\circ}\text{C}$

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

Characteristic	Symbol	Min	Max	Unit
Collector-Base Cutoff Current ($V_{CB} = 80 \text{ V}, I_E = 0$) ($V_{CB} = 120 \text{ V}, I_E = 0$) ($V_{CB} = 140 \text{ V}, I_E = 0$)	I_{CBO} MP1612 MP1612A MP1612B	— — —	10 10 10	mA
Collector-Emitter Current ($V_{CE} = 100 \text{ V}, V_{BE} = 0$) ($V_{CE} = 140 \text{ V}, V_{BE} = 0$) ($V_{CE} = 160 \text{ V}, V_{BE} = 0$)	I_{CES} MP1612 MP1612A MP1612B	— — —	20 20 20	mA
Collector-Emitter Cutoff Current ($V_{CE} = 50 \text{ V}, V_{BE} = 0.2 \text{ V}, T_C = +85^{\circ}\text{C}$) ($V_{CE} = 75 \text{ V}, V_{BE} = 0.2 \text{ V}, T_C = +85^{\circ}\text{C}$) ($V_{CE} = 100 \text{ V}, V_{BE} = 0.2 \text{ V}, T_C = +85^{\circ}\text{C}$)	I_{CEX} MP1612 MP1612A MP1612B	— — —	40 40 40	mA
Emitter-Base Breakdown Voltage ($I_E = 50 \text{ mA dc}, I_C = 0$)	BV_{EBC}	2.5	—	Vdc
Collector-Emitter Sustaining Voltage ($I_E = 100 \text{ mA}, I_B = 0$)	$BV_{CEO(sus)}$ MP1612 MP1612A MP1612B	50 75 100	— — —	Volts
DC Current Gain ($I_C = 5.0 \text{ A}, V_{CB} = 2 \text{ V}$) ($I_C = 10 \text{ A}, V_{CB} = 2 \text{ V}$)	h_{FE}	40 25	— 100	—
Collector-Emitter Saturation Voltage ($I_C = 10 \text{ A dc}, I_B = 1.0 \text{ A dc}$) ($I_C = 20 \text{ A dc}, I_B = 2.0 \text{ A dc}$)	$V_{CE(sat)}$	— —	0.30 0.5	Vdc
Fall Time (Figure 5) ($I_C = 5 \text{ A dc}, I_{B1} = 0.5 \text{ A dc}, I_{B2} = 1.0 \text{ A dc}$) ($I_C = 10 \text{ A dc}, I_{B1} = 0.5 \text{ A dc}, I_{B2} = 1.0 \text{ A dc}$)	t_f	— —	1.25 1.5	μs

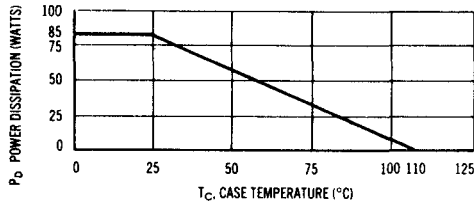
MP1612, A, B (continued)

SAFE OPERATING AREAS



The Safe Operating Area Curves indicate the I_C - V_{CE} limits below which the devices will not go into secondary breakdown. As secondary breakdown is independent of temperature and duty cycle, these curves can be used as long as the average power derating curve (Figure 4) is also taken into consideration to insure operation below the maximum junction temperature.

FIGURE 4 — POWER — TEMPERATURE DERATING CURVE



THESE TRANSISTORS ARE ALSO SUBJECT TO SAFE AREA CURVES AS INDICATED BY FIGURES 1, 2, 3.

FIGURE 5 — FALL TIME TEST CIRCUIT

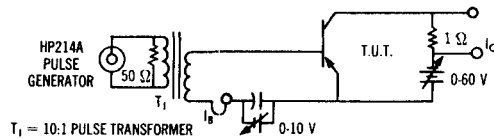


FIGURE 6 — BASE TURN-OFF CURRENT versus FALL TIME

