

2N174

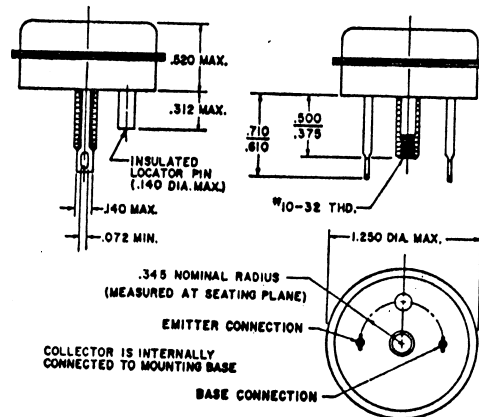
POWER TRANSISTOR

GENERAL DESCRIPTION

The 2N174 is a PNP germanium power transistor designed for general use with a 28 volt power supply and for use with a 12 volt power supply in applications where high voltage transients are encountered. It is characterized by a maximum emitter current of 15 amperes, a maximum collector diode rating of 80 volts and a thermal resistance below .6°C per watt. A low saturation resistance will give high efficiency in switching applications.

The case is hermetically sealed. The collector and the case are electrically connected.

DIMENSIONS AND CONNECTIONS



NOTE: MAXIMUM RECOMMENDED TORQUE ON THE MOUNTING STUD IS TWELVE INCH-POUNDS.

ABSOLUTE MAXIMUM RATINGS

Collector diode voltage V_{CB} -80 volts	Base current (continuous) 4 amp.
($V_{EB} = -1.5$ volts)	Maximum junction temperature 100 °C
Emitter diode voltage V_{EBO} -60 volts	Minimum junction temperature -65 °C
Emitter current (continuous) 15 amp.	

ELECTRICAL CHARACTERISTICS

T = 25°C unless otherwise specified

	Min.	Typical	Max.	
Collector diode current I_{CBO} ($V_{CB} = -2$ volts)		100		microamp
Collector diode current I_{CB} ($V_{CB} = -80$ volts, $V_{EB} = -1.5$ volts) ..		.5	4	ma
Collector diode current I_{CBO} ($V_{CB} = -80$ volts, 71°C)			15	ma
Emitter diode current I_{EBO} ($V_{EBO} = -60$ volts) .....		.25	4	ma
Current gain h_{FE} ($V_{CB} = -2$ volts, $I_C = 5$ amps)	25		50	
Current gain h_{FE} ($V_{CB} = -2$ volts, $I_C = 12$ amps)		20		
Base voltage V_{EB} ($V_{CB} = -2$ volts, $I_C = 5$ amps) .....			.9	volt
Floating potential V_{EBF} ($V_{CBO} = -80$ volts, $I_E = 0$)			-1	volt
Saturation voltage V_{EC} ($I_B = 2$ amp, $I_C = 12$ amps) .....		.3	.9	volt
Collector to emitter voltage V_{CES} ($I_C = 300$ ma, $V_{EB} = 0$) *	-70			volts
Collector to emitter voltage V_{CEO} ($I_C = 1$ amp, $I_B = 0$) *	-55			volts
Common emitter current amplification cutoff frequency $f_{\alpha e}$ ($I_C = 5$ amp, $V_{CE} = -6$ volts)		10		kcs
Rise time ("on" $I_C = 12$ Adc, $I_B = 2$ amp, $V_{CE} = -12$ volts)		15		microsec
Fall time ("off" $I_C = 0$, $V_{EB} = -6$ volts, $R_{EB} = 10\Omega$)		15		microsec

*In order to avoid excessive heating of the collector junction, perform test with the sweep method.

THERMAL CHARACTERISTICS

Thermal resistance (junction to case) .....	.5	°C/Watt
Thermal resistance (junction to heat sink)† .....	.6	°C/Watt
Thermal capacity (for pulses in 1 to 10 millisecond range) .....	.075	watt sec/°C