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2N5001 (SILICON)

30 WATT PNP POWER TRANSISTOR

ABSOLUTE MAXIMUM RATINGS (Note 1)

Maximum Temperatures

Storage Temperature

-65°C to +200°C

Operating Junction Temperature

-65°C to +200°C

Lead Temperature (Soldering, 60 second time limit)

+300°C

Maximum Power Dissipation

Total Dissipation at 50°C Case Temperature, $V_{CE} = 40$ V

30 Watts

(See Maximum Permissible Power Curve and Note 4)

Maximum Voltages and Current

V_{CES} Collector to Emitter Voltage

100 Volts

V_{CEO} Collector to Emitter Voltage (Note 2)

80 Volts

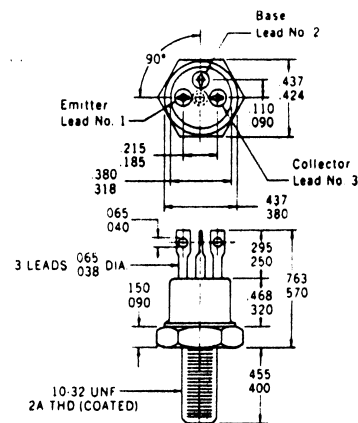
V_{EBO} Emitter to Base Voltage

6.0 Volts

I_C Collector Current

2.0 Amps

PHYSICAL DIMENSIONS (in accordance with JEDEC TO-59 outline)



NOTES: All dimensions in inches.
All leads electrically isolated from case.
Package weight is 0.44 grams.

ELECTRICAL CHARACTERISTICS (25° Case Temperature unless otherwise noted)

SYMBOL	CHARACTERISTIC	MIN.	TYP.	MAX.	UNITS	TEST CONDITIONS
$V_{CEO(sust)}$	Collector to Emitter Sustaining Voltage (Notes 2 and 3)	80			Volts	$I_C = 100$ mA $I_B = 0$
BV_{CES}	Collector to Emitter Breakdown Voltage	100			Volts	$I_C = 1.0$ mA $V_{BE} = 0$
BV_{EBO}	Emitter to Base Breakdown Voltage	6.0			Volts	$I_C = 0$ $I_E = 1.0$ mA
h_{FE}	DC Pulse Current Gain (Note 3)	50	120			$I_C = 50$ mA $V_{CE} = 5.0$ V
h_{FE}	DC Pulse Current Gain (Note 3)	70	110	200		$I_C = 1.0$ A $V_{CE} = 5.0$ V
$h_{FE}(-55^\circ\text{C})$	DC Pulse Current Gain (Note 3)	35	63			$I_C = 1.0$ A $V_{CE} = 5.0$ V
h_{FE}	DC Pulse Current Gain (Note 3)	30	56			$I_C = 2.0$ A $V_{CE} = 5.0$ V
h_{fe}	High Frequency Current Gain ($f = 20$ MHz)	3.0	4.3			$I_C = 0.2$ A $V_{CE} = 5.0$ V
$V_{CE(sat)}$	Pulsed Collector Saturation Voltage (Note 3)		0.38	0.46	Volts	$I_C = 1.0$ A $I_B = 0.1$ A
$V_{CE(sat)}$	Pulsed Collector Saturation Voltage (Note 3)		0.75	0.85	Volts	$I_C = 2.0$ A $I_B = 0.2$ A
$V_{BE(sat)}$	Pulsed Base Saturation Voltage (Note 3)		0.98	1.2	Volts	$I_C = 1.0$ A $I_B = 0.1$ A
$V_{BE(sat)}$	Pulsed Base Saturation Voltage (Note 3)		1.30	1.5	Volts	$I_C = 2.0$ A $I_B = 0.2$ A
$V_{BE(on)}$	Pulsed Base Emitter "ON" Voltage (Note 3)			1.5	Volts	$I_C = 2.0$ A $V_{CE} = 5.0$ V
I_{CES}	Collector Cutoff Current		.002	1.0	μ A	$V_{CE} = 60$ V $V_{BE} = 0$
I_{EBO}	Emitter Cutoff Current			1.0	μ A	$I_C = 0$ $V_{EB} = 5.0$ V
$I_{CEX}(150^\circ\text{C})$	Collector Reverse Current			500	μ A	$V_{CE} = 60$ V $V_{EB} = 2.0$ V
C_{cb}	Collector to Base Capacitance		30	70	pF	$I_E = 0$ $V_{CB} = 10$ V

NOTES:

- (1) These ratings are limiting values above which the serviceability of any individual semiconductor device may be impaired.
- (2) This rating refers to a high current point where collector to emitter voltage is lowest.
- (3) Pulse Conditions: length = 300 μ s; duty cycle = 1%.
- (4) Contact factory for maximum permissible power under pulsed or reverse biased operating conditions.