

2N5001 (SILICON)

30 WATT PNP POWER TRANSISTOR

ABSOLUTE MAXIMUM RATINGS (Note 1)

Maximum Temperatures

- Storage Temperature
- Operating Junction Temperature
- Lead Temperature (Soldering, 60 second time limit)

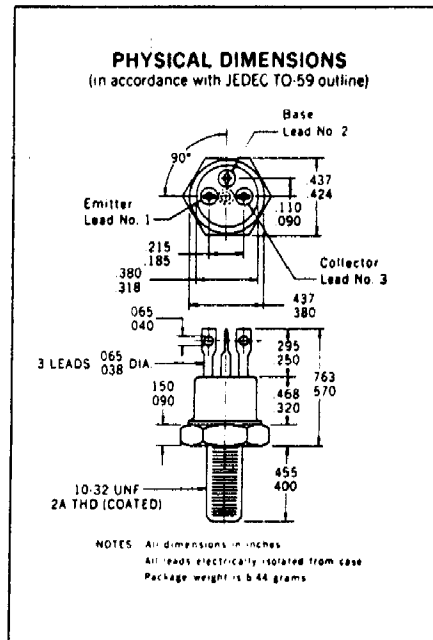
Maximum Power Dissipation

- Total Dissipation at 50°C Case Temperature, $V_{CE} = 40\text{ V}$
 (See Maximum Permissible Power Curve and Note 4)

Maximum Voltages and Current

- V_{CES} Collector to Emitter Voltage
- V_{CEO} Collector to Emitter Voltage (Note 2)
- V_{EBO} Emitter to Base Voltage
- I_C Collector Current

- 65°C to +200°C
- 65°C to +200°C
- +300°C
- 30 Watts
- 100 Volts
- 80 Volts
- 6.0 Volts
- 2.0 Amps



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

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 μs ; duty cycle = 1%.
- (4) Contact factory for maximum permissible power under pulsed or reverse biased operating conditions.