

2N2868

NPN HIGH CURRENT HIGH SPEED SWITCH

ABSOLUTE MAXIMUM RATINGS (Note 1)

Maximum Temperatures

Storage Temperature

Operating Junction Temperature

Lead Temperature (Soldering, no time limit)

Maximum Power Dissipation

Total Dissipation at 25°C Case Temperature

at 100°C Case Temperature

at 25°C Ambient Temperature

(Notes 2 and 3)

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Maximum Voltages and Current

V_{CB0} Collector to Base Voltage

V_{CEO} Collector to Emitter Voltage

V_{EBO} Emitter to Base Voltage

I_C Collector Current

(Note 4)

-65°C to +300°C

200°C Maximum

250°C Maximum

2.8 Watts

1.6 Watts

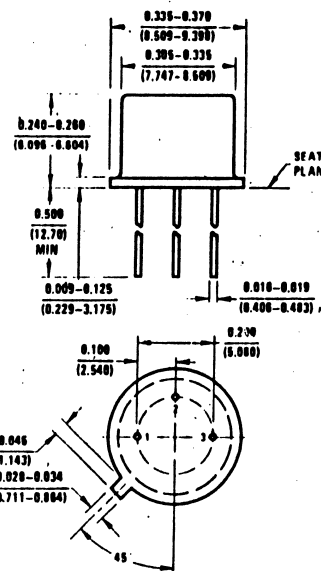
0.8 Watt

60 Volts

40 Volts

7.0 Volts

1.0 Amp



ELECTRICAL CHARACTERISTICS (25°C free air temperature unless otherwise noted)

Symbol	Characteristic	Min.	Max.	Units	Test Conditions
h_{FE}	DC Pulse Current Gain	(Note 5)	40	120	$I_C = 150 \text{ mA}$ $V_{CE} = 10 \text{ V}$
h_{FE}	DC Pulse Current Gain	(Note 5)	30		$I_C = 150 \text{ mA}$ $V_{CE} = 1.0 \text{ V}$
h_{FE}	DC Current Gain		30		$I_C = 10 \text{ mA}$ $V_{CE} = 10 \text{ V}$
h_{FE}	DC Pulse Current Gain	(Note 5)	20		$I_C = 500 \text{ mA}$ $V_{CE} = 10 \text{ V}$
$h_{FE}(-55^\circ\text{C})$	DC Current Gain		20		$I_C = 10 \text{ mA}$ $V_{CE} = 10 \text{ V}$
$V_{CE(sat)}$	Collector Saturation Voltage		0.25	Volts	$I_C = 150 \text{ mA}$ $I_B = 15 \text{ mA}$
$V_{BE(sat)}$	Base Saturation Voltage		1.3	Volts	$I_C = 150 \text{ mA}$ $I_B = 15 \text{ mA}$
h_{fe}	High Frequency Current Gain ($f = 20 \text{ mc}$)	2.5			$I_C = 50 \text{ mA}$ $V_{CE} = 10 \text{ V}$
I_{CBO}	Collector Cutoff Current		10	nA	$V_{CB} = 30 \text{ V}$ $I_E = 0$
$I_{CBO}(150^\circ\text{C})$	Collector Cutoff Current		15	μA	$V_{CB} = 30 \text{ V}$ $I_E = 0$
I_{EBO}	Emitter Cutoff Current		50	nA	$V_{EB} = 5.0 \text{ V}$ $I_C = 0$
I_{CEX}	Collector Cutoff Current		100	nA	$V_{CE} = 30 \text{ V}$ $V_{FB} = 3.0 \text{ V}$
I_{EBX}	Emitter Cutoff Current		100	nA	$V_{CE} = 30 \text{ V}$ $V_{EB} = 3.0 \text{ V}$
BV_{CBO}	Collector to Base Breakdown Voltage	60		Volts	$I_C = 100 \mu\text{A}$ $I_E = 0$
$V_{CEO(sust)}$	Collector to Emitter Sustaining Voltage	(Notes 4 and 5)	40	Volts	$I_C = 25 \text{ mA}$ (pulsed) $I_B = 0$
BV_{EBO}	Emitter to Base Breakdown Voltage	7.0		Volts	$I_E = 100 \mu\text{A}$ $I_C = 0$
C_{ob}	Output Capacitance ($f = 1.0 \text{ mc}$)		20	pf	$V_{CB} = 10 \text{ V}$ $I_E = 0$

NOTES:

- These ratings are limiting values above which the serviceability of any individual semiconductor device may be impaired.
- These are steady state limits. The factory should be consulted on applications involving pulsed or low duty cycle operations.
- These ratings give a maximum junction temperature of 200°C and junction-to-case thermal resistance of 02.5°C/Watt (derating factor of 16 mW/°C); junction-to-ambient thermal resistance of 218°C/Watt (derating factor of 4.6 mW/°C).
- This rating refers to a high-current point where collector-to-emitter voltage is lowest.
- Pulse Conditions: length $\leq 300 \mu\text{sec}$; duty cycle $\leq 2\%$.

