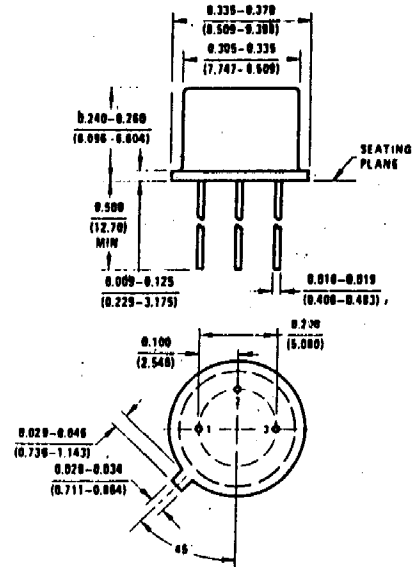


# 2N2868

## NPN HIGH CURRENT HIGH SPEED SWITCH

### ABSOLUTE MAXIMUM RATINGS (Note 1)

Maximum Temperatures		
Storage Temperature		-65°C to +300°C
Operating Junction Temperature		200°C Maximum
Lead Temperature (Soldering, no time limit)		250°C Maximum
Maximum Power Dissipation		
Total Dissipation at 25°C Case Temperature	(Notes 2 and 3)	2.8 Watts
at 100°C Case Temperature	(Notes 2 and 3)	1.6 Watts
at 25°C Ambient Temperature	(Notes 2 and 3)	0.8 Watt
Maximum Voltages and Current		
V <sub>CBO</sub> Collector to Base Voltage		60 Volts
V <sub>CEO</sub> Collector to Emitter Voltage	(Note 4)	40 Volts
V <sub>EBO</sub> Emitter to Base Voltage		7.0 Volts
I <sub>C</sub> Collector Current		1.0 Amp



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

Symbol	Characteristic	Min.	Max.	Units	Test Conditions
h <sub>FE</sub>	DC Pulse Current Gain	(Note 5) 40	120		I <sub>C</sub> = 150 mA V <sub>CE</sub> = 10 V
h <sub>FE</sub>	DC Pulse Current Gain	(Note 5) 30			I <sub>C</sub> = 150 mA V <sub>CE</sub> = 1.0 V
h <sub>FE</sub>	DC Current Gain	30			I <sub>C</sub> = 10 mA V <sub>CE</sub> = 10 V
h <sub>FE</sub>	DC Pulse Current Gain	(Note 5) 20			I <sub>C</sub> = 500 mA V <sub>CE</sub> = 10 V
h <sub>FE</sub> (-55°C)	DC Current Gain	20			I <sub>C</sub> = 10 mA V <sub>CE</sub> = 10 V
V <sub>CE(sat)</sub>	Collector Saturation Voltage		0.25	Volts	I <sub>C</sub> = 150 mA I <sub>B</sub> = 15 mA
V <sub>BE(sat)</sub>	Base Saturation Voltage		1.3	Volts	I <sub>C</sub> = 150 mA I <sub>B</sub> = 15 mA
h <sub>fe</sub>	High Frequency Current Gain (f = 20 mc)	2.5			I <sub>C</sub> = 50 mA V <sub>CE</sub> = 10 V
I <sub>CBO</sub>	Collector Cutoff Current		10	nA	V <sub>CB</sub> = 30 V I <sub>E</sub> = 0
I <sub>CBO</sub> (150°C)	Collector Cutoff Current		15	μA	V <sub>CB</sub> = 30 V I <sub>E</sub> = 0
I <sub>EBO</sub>	Emitter Cutoff Current		50	nA	V <sub>EB</sub> = 5.0 V I <sub>C</sub> = 0
I <sub>CEX</sub>	Collector Cutoff Current		100	nA	V <sub>CE</sub> = 30 V V <sub>EB</sub> = 3.0 V
I <sub>EBX</sub>	Emitter Cutoff Current		100	nA	V <sub>CE</sub> = 30 V V <sub>EB</sub> = 3.0 V
BV <sub>CBO</sub>	Collector to Base Breakdown Voltage	60		Volts	I <sub>C</sub> = 100 μA I <sub>E</sub> = 0
V <sub>CEO(sust)</sub>	Collector to Emitter Sustaining Voltage	(Notes 4 and 5) 40		Volts	I <sub>C</sub> = 25 mA (pulsed) I <sub>B</sub> = 0
BV <sub>EBO</sub>	Emitter to Base Breakdown Voltage	7.0		Volts	I <sub>E</sub> = 100 μA I <sub>C</sub> = 0
C <sub>ob</sub>	Output Capacitance (f = 1.0 mc)		20	pf	V <sub>CB</sub> = 10 V I <sub>E</sub> = 0

- NOTES:
- (1) These ratings are limiting values above which the serviceability of any individual semiconductor device may be impaired.
  - (2) These are steady state limits. The factory should be consulted on applications involving pulsed or low duty cycle operations.
  - (3) These ratings give a maximum junction temperature of 200°C and junction-to-case thermal resistance of 82.5°C/Watt (derating factor of 16 mW/°C); junction-to-ambient thermal resistance of 218°C/Watt (derating factor of 4.6 mW/°C).
  - (4) This rating refers to a high-current point where collector-to-emitter voltage is lowest.
  - (5) Pulse Conditions: length ≤ 300 μsec; duty cycle ≤ 2%.



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