

## 2N/PN3567 • 2N/PN3568 • 2N/PN3569

### NPN SMALL SIGNAL GENERAL PURPOSE AMPLIFIERS

DIFFUSED SILICON PLANAR\* EPITAXIAL TRANSISTORS

#### ABSOLUTE MAXIMUM RATINGS (Note 1)

	2N3567/8/9	PN3567/8/9
<b>Maximum Temperatures</b>		
Storage Temperature	-55°C to +125°C	-55°C to +150°C
Operating Junction Temperature	125°C	150°C
Lead Temperature (10 seconds)	260°C	260°C
<b>Maximum Power Dissipation (Notes 2 &amp; 3)</b>		
Total Dissipation at 25°C Case Temperature	0.8 W	1.0 W
at 25°C Ambient Temperature	0.3 W	0.625 W
<b>Maximum Voltages and Currents</b>	<b>2N/PN3568</b>	<b>2N/PN3567/9</b>
V <sub>EB0</sub> Emitter to Base Voltage	5.0 V	5.0 V
V <sub>CB0</sub> Collector to Base Voltage	80 V	80 V
V <sub>CEO</sub> Collector to Emitter Voltage (Notes 4 & 6)	60 V	40 V
I <sub>C</sub> Collector Current	500 mA	500 mA
I <sub>B</sub> Base Current	100 mA	100 mA

#### ELECTRICAL CHARACTERISTICS (25°C Ambient Temperature unless otherwise noted)

SYMBOL	CHARACTERISTIC	2N/PN3567		2N/PN3568		2N/PN3569		UNITS	TEST CONDITIONS
		MIN.	MAX.	MIN.	MAX.	MIN.	MAX.		
I <sub>CBO</sub>	Collector Cutoff Current		50		50		50	nA	V <sub>CB</sub> = 40 V, I <sub>E</sub> = 0
			5.0		5.0		5.0	μA	V <sub>CB</sub> = 40 V, I <sub>E</sub> = 0, T <sub>A</sub> = 75°C
I <sub>EBO</sub>	Emitter Cutoff Current		25		25		25	nA	V <sub>EB</sub> = 4.0 V, I <sub>C</sub> = 0
BV <sub>CB0</sub>	Collector to Base Breakdown Voltage	80		80		80		V	I <sub>E</sub> = 0, I <sub>C</sub> = 100 μA
BV <sub>EBO</sub>	Emitter to Base Breakdown Voltage	5.0		5.0		5.0		V	I <sub>C</sub> = 0, I <sub>E</sub> = 10 μA
BV <sub>CEO</sub>	Collector to Emitter Breakdown Voltage (Note 5)	40		60		40		V	I <sub>B</sub> = 0, I <sub>C</sub> = 30 mA
h <sub>FE</sub>	DC Current Gain (Note 5)	40	120	40	120	100	300		V <sub>CE</sub> = 1.0 V, I <sub>C</sub> = 150 mA
		40		40		100			V <sub>CE</sub> = 1.0 V, I <sub>C</sub> = 30 mA
V <sub>BE(ON)</sub>	Base to Emitter "On" Voltage (Note 5)		1.1		1.1		1.1	V	V <sub>CE</sub> = 1.0 V, I <sub>C</sub> = 150 mA
V <sub>CE(sat)</sub>	Collector to Emitter Saturation Voltage (Note 5)		0.25		0.25		0.25	V	I <sub>C</sub> = 150 mA, I <sub>B</sub> = 15 mA
C <sub>cb</sub>	Collector to Base Capacitance		20		20		20	pF	I <sub>E</sub> = 0, V <sub>CB</sub> = 10 V, f = 140 kHz
C <sub>eb</sub>	Emitter to Base Capacitance		80		80		80	pF	I <sub>C</sub> = 0, V <sub>EB</sub> = 0.5 V, f = 140 kHz
h <sub>fe1</sub>	Magnitude of Common Emitter Small Signal Current Gain	3.0	30	3.0	30	3.0	30		V <sub>CE</sub> = 10 V, I <sub>C</sub> = 50 mA f = 20 MHz

#### 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 125°C and junction to case thermal resistance of 125°C/W (derating factor of 8.0 mW/°C); junction to ambient thermal resistance of 333°C/W (derating factor of 3.0 mW/°C) for 2N3567, 2N3568, and 2N3569. These ratings give a maximum junction temperature of 150°C/W and junction to case thermal resistance of 125°C/W (derating factor of 8.0 mW/°C); junction to ambient thermal resistance of 200°C/W (derating factor of 5.0 mW/°C) for PN3567, PN3568, and PN3569.
- This rating refers to a high current point where collector to emitter voltage is lowest.
- Pulse Conditions: length = 300 μs; duty cycle = 1%.
- Applicable 0 to 30 mA.