

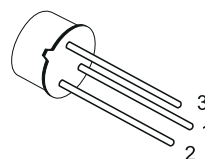
## SMALL SIGNAL NPN TRANSISTORS

- SILICON EPITAXIAL PLANAR NPN TRANSISTORS
- MEDIUM POWER AMPLIFIER
- PNP COMPLEMENTS ARE 2N5322 AND 2N5323

### DESCRIPTION

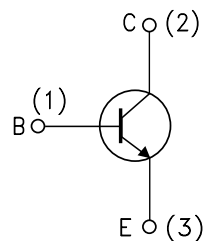
The 2N5320 and 2N5321 are silicon epitaxial planar NPN transistors in Jedec TO-39 metal case. They are especially intended for high-voltage medium power application in industrial and commercial equipments.

The complementary PNP types are respectively the 2N5322 and 2N5323



**TO-39**

### INTERNAL SCHEMATIC DIAGRAM



SC06960

### ABSOLUTE MAXIMUM RATINGS

Symbol	Parameter	Value		Unit
		2N5320	2N5321	
$V_{CBO}$	Collector-Base Voltage ( $I_E = 0$ )	100	75	V
$V_{CEV}$	Collector-Emitter Voltage ( $V_{BE} = 1.5V$ )	100	75	V
$V_{CEO}$	Collector-Emitter Voltage ( $I_B = 0$ )	75	50	V
$V_{EBO}$	Emitter-Base Voltage ( $I_C = 0$ )	6	5	V
$I_C$	Collector Current	1.2		A
$I_{CM}$	Collector Peak Current	2		A
$I_B$	Base Current	1		A
$P_{tot}$	Total Dissipation at $T_{amb} = 25^\circ C$	1		W
$P_{tot}$	Total Dissipation at $T_c = 25^\circ C$	10		W
$T_{stg}, T_j$	Storage and Junction Temperature	-65 to 200		$^\circ C$

## 2N5320/2N5321

### THERMAL DATA

R <sub>thj-case</sub>	Thermal Resistance Junction-Case	Max	17.5	°C/W
R <sub>thj-amb</sub>	Thermal Resistance Junction-Ambient	Max	175	°C/W

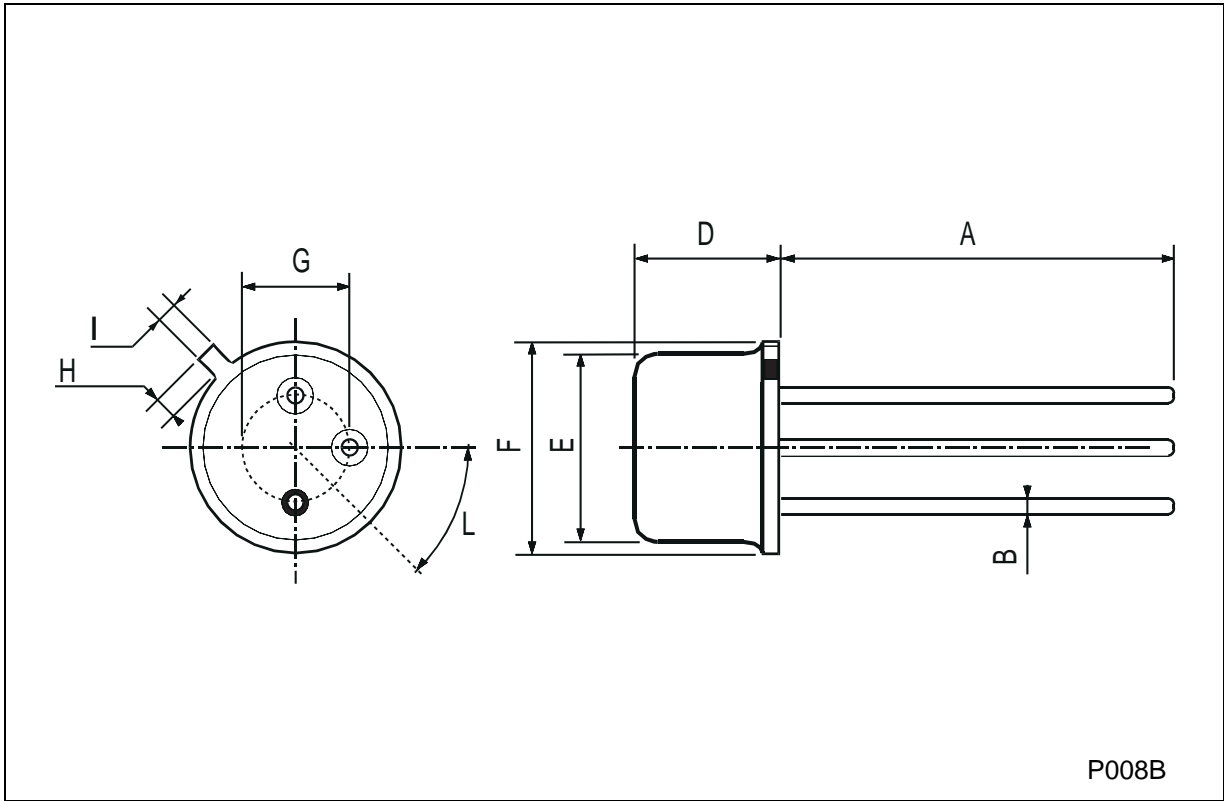
### ELECTRICAL CHARACTERISTICS (T<sub>case</sub> = 25 °C unless otherwise specified)

Symbol	Parameter	Test Conditions	Min.	Typ.	Max.	Unit
I <sub>CBO</sub>	Collector Cut-off Current (I <sub>E</sub> = 0)	V <sub>CB</sub> = 80 V for <b>2N5320</b> V <sub>CB</sub> = 60 V for <b>2N5321</b>			0.5 5	μA μA
I <sub>EBO</sub>	Collector Cut-off Current (I <sub>C</sub> = 0)	V <sub>EB</sub> = 5 V for <b>2N5320</b> V <sub>EB</sub> = 4 V for <b>2N5321</b>		0.1 0.5		μA μA
V <sub>(BR)CEV</sub>	Collector-Emitter Breakdown Voltage (V <sub>BE</sub> = 1.5V)	I <sub>C</sub> = 100 μA for <b>2N5320</b> for <b>2N5321</b>	100 75			V V
V <sub>(BR)CEO*</sub>	Collector-Emitter Breakdown Voltage (I <sub>B</sub> = 0)	I <sub>C</sub> = 10 mA for <b>2N5320</b> for <b>2N5321</b>	75 50			V V
V <sub>(BR)EBO</sub>	Emitter-Base Breakdown Voltage (I <sub>C</sub> = 0)	I <sub>E</sub> = 100 μA for <b>2N5320</b> for <b>2N5321</b>	6 5			V V
V <sub>CE(sat)*</sub>	Collector-Emitter Saturation Voltage	I <sub>C</sub> = 500 mA I <sub>B</sub> = 50 mA for <b>2N5320</b> for <b>2N5321</b>			0.5 0.8	V V
V <sub>BE*</sub>	Base-Emitter Voltage	I <sub>C</sub> = 500 mA V <sub>CE</sub> = 4 V for <b>2N5320</b> for <b>2N5321</b>			1.1 1.4	V V
h <sub>FE*</sub>	DC Current Gain	for <b>2N5320</b> I <sub>C</sub> = 500 mA V <sub>CE</sub> = 4 V I <sub>C</sub> = 1 A V <sub>CE</sub> = 2 V for <b>2N5321</b> I <sub>C</sub> = 500 mA V <sub>CE</sub> = 4 V	30 10 40		130 250	
f <sub>T</sub>	Transition Frequency	I <sub>C</sub> = 50 mA V <sub>CE</sub> = 4 V f = 10 MHz	50			MHz
t <sub>on</sub>	Turn-on Time	I <sub>C</sub> = 500 mA V <sub>CC</sub> = 30 V I <sub>B1</sub> = 50 mA			80	ns
t <sub>off</sub>	Turn-off Time	I <sub>C</sub> = 500 mA V <sub>CC</sub> = 30 V I <sub>B1</sub> = -I <sub>B2</sub> = 50 mA			800	ns

\* Pulsed: Pulse duration = 300 μs, duty cycle = 1 %

TO-39 MECHANICAL DATA

DIM.	mm			inch		
	MIN.	TYP.	MAX.	MIN.	TYP.	MAX.
A	12.7			0.500		
B			0.49			0.019
D			6.6			0.260
E			8.5			0.334
F			9.4			0.370
G	5.08			0.200		
H			1.2			0.047
I			0.9			0.035
L	45° (typ.)					



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