



## NPN 2N5320 – 2N5321

### SILICON PLANAR EPITAXIAL TRANSISTORS

The 2N5320 and 2N5321 are NPN transistors mounted in TO-39 metal case . They are especially intended for high-voltage medium power applications in industrial and commercial equipments.

Compliance to RoHS

#### ABSOLUTE MAXIMUM RATINGS

Symbol	Ratings	Value	Unit	
$V_{CEO}$	Collector-Emitter Voltage ( $I_B = 0$ )	2N5320	75	V
		2N5321	50	
$V_{CBO}$	Collector-Base Voltage ( $I_E = 0$ )	2N5320	100	V
		2N5321	75	
$V_{CEV}$	Collector-Emitter Voltage ( $V_{BE} = 1.5V$ )	2N5320	100	V
		2N5321	75	
$V_{EBO}$	Emitter-Base Voltage ( $I_C = 0$ )	2N5320	6	V
		2N5321	5	
$I_C$	Collector Current	2N5320	2	A
		2N5321		
$I_B$	Base Current	2N5320	1	A
		2N5321		
$P_D$	Total Power Dissipation	@ $T_{amb} = 25^\circ$	1	Watts
		2N5321		
		@ $T_{case} = 25^\circ$	10	
		2N5321		
$T_J$	Junction Temperature	2N5320	-65 to +200	$^\circ C$
		2N5321		
$T_{Stg}$	Storage Temperature range	2N5320	-65 to +200	$^\circ C$
		2N5321		

#### THERMAL CHARACTERISTICS

Symbol	Ratings	Value	Unit	
$R_{thJ-a}$	Thermal Resistance, Junction to ambient	2N5320	175	$^\circ C/W$
		2N5321		
$R_{thJ-c}$	Thermal Resistance, Junction to case	2N5320	17.5	$^\circ C/W$
		2N5321		

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### ELECTRICAL CHARACTERISTICS

TC=25°C unless otherwise noted

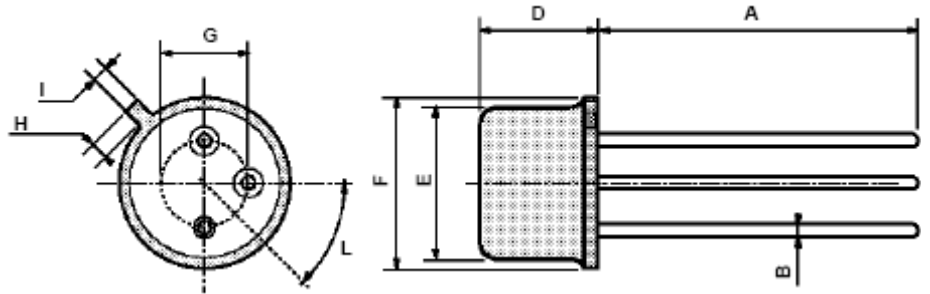
Symbol	Ratings	Test Condition(s)	Min	Typ	Mx	Unit	
$I_{CBO}$	Collector Cutoff Current	$V_{CB} = 80\text{ V}, I_E = 0$	<b>2N5320</b>	-	-	0.5	$\mu\text{A}$
		$V_{CB} = 60\text{ V}, I_E = 0$	<b>2N5321</b>	-	-	5	
$I_{EBO}$	Emitter Cutoff Current	$V_{EB} = 5\text{ V}, I_C = 0$	<b>2N5320</b>	-	0.1	-	$\mu\text{A}$
		$V_{EB} = 4\text{ V}, I_C = 0$	<b>2N5321</b>	-	0.5	-	
$V_{CEO}$	Collector Emitter Breakdown Voltage	$I_C = 10\text{ mA}, I_B = 0$	<b>2N5320</b>	75	-	-	V
			<b>2N5321</b>	50	-	-	
$V_{CEV}$	Collector Emitter Breakdown Voltage	$I_C = 100\text{ }\mu\text{A}$ $V_{BE} = 1.5\text{ V}$	<b>2N5320</b>	100	-	-	V
			<b>2N5321</b>	75	-	-	
$V_{EBO}$	Emitter Base Breakdown Voltage	$I_E = 100\text{ }\mu\text{A}, I_C = 0$	<b>2N5320</b>	6	-	-	V
			<b>2N5321</b>	5	-	-	
$h_{FE} (1)$	DC Current Gain	$I_C = 500\text{ mA}$ $V_{CE} = 4\text{ V}$	<b>2N5320</b>	30	-	130	-
			<b>2N5321</b>	40	-	250	
		$I_C = 1\text{ A}$ $V_{CE} = 2\text{ V}$	<b>2N5320</b>	10	-	-	
$V_{CE(SAT)} (1)$	Collector-Emitter saturation Voltage	$I_C = 500\text{ mA}, I_B = 50\text{ mA}$	<b>2N5320</b>	-	-	0.5	V
			<b>2N5321</b>	-	-	0.8	
$V_{BE} (1)$	Base-Emitter Voltage	$I_C = 500\text{ mA}, V_{CE} = 4\text{ V}$	<b>2N5320</b>	-	-	1.1	V
			<b>2N5321</b>	-	-	1.4	
$f_T$	Transition frequency	$I_C = 50\text{ mA}, V_{CE} = 4\text{ V}$ $f = 10\text{ MHz}$	<b>2N5320</b>	50	-	-	MHz
			<b>2N5321</b>	-	-	-	
$t_{on}$	Turn-on Time	$I_C = 500\text{ mA}, V_{CC} = 30\text{ V}$ $I_{B1} = 50\text{ mA}$	<b>2N5320</b>	-	-	80	ns
			<b>2N5321</b>	-	-	80	
$t_{off}$	Turn-off Time	$I_C = 500\text{ mA}, V_{CC} = 30\text{ V}$ $I_{B1} = -I_{B2} = 50\text{ mA}$	<b>2N5320</b>	-	-	800	ns
			<b>2N5321</b>	-	-	800	

(1) Pulse conditions :  $t_p < 300\text{ }\mu\text{s}, \delta = 1\%$

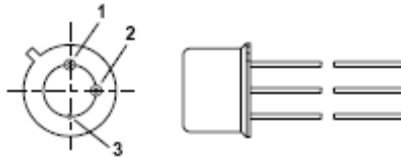
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### MECHANICAL DATA CASE TO-39

DIMENSIONS (mm)			
	min	typ	max
A	12.7	-	-
B	-	-	0.49
D	-	-	6.6
E	-	-	8.5
F	-	-	9.4
G	5.08	-	-
H	-	-	1.2
I	-	-	0.9
L	45°	-	-



Pin 1 :	Emitter
Pin 2 :	Base
Case :	Collector



Information furnished is believed to be accurate and reliable. However, CS assumes no responsibility for the consequences of use of such information nor for errors that could appear.  
Data are subject to change without notice.