

## 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
		@ $T_{case} = 25^\circ$	10	
$T_J$	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	175	$^\circ C/W$
$R_{thJ-c}$	Thermal Resistance, Junction to case	17.5	$^\circ C/W$

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### ELECTRICAL CHARACTERISTICS

TC=25°C unless otherwise noted

Symbol	Ratings	Test Condition(s)		Min	Typ	Max	Unit
I <sub>CBO</sub>	Collector Cutoff Current	V <sub>CB</sub> = 80 V, I <sub>E</sub> =0	2N5320	-	-	0.5	μA
		V <sub>CB</sub> = 60 V, I <sub>E</sub> =0	2N5321	-	-	5	
I <sub>EBO</sub>	Emitter Cutoff Current	V <sub>EB</sub> = 5 V, I <sub>C</sub> =0	2N5320	-	0.1	-	μA
		V <sub>EB</sub> = 4 V, I <sub>C</sub> =0	2N5321	-	0.5	-	
V <sub>CEO</sub>	Collector Emitter Breakdown Voltage	I <sub>C</sub> = 10 mA, I <sub>B</sub> =0	2N5320	75	-	-	V
			2N5321	50	-	-	
V <sub>CEV</sub>	Collector Emitter Breakdown Voltage	I <sub>C</sub> = 100 μA V <sub>BE</sub> = 1.5V	2N5320	100	-	-	V
			2N5321	75	-	-	
V <sub>EBO</sub>	Emitter Base Breakdown Voltage	I <sub>E</sub> = 100 μA, I <sub>C</sub> =0	2N5320	6	-	-	V
			2N5321	5	-	-	
h <sub>FE</sub> (*)	DC Current Gain	I <sub>C</sub> = 500 mA V <sub>CE</sub> = 4 V	2N5320	30	-	130	-
			2N5321	40	-	250	
		I <sub>C</sub> = 1 A V <sub>CE</sub> = 2 V	2N5320	10	-	-	
V <sub>CE(SAT)</sub> (*)	Collector-Emitter saturation Voltage	I <sub>C</sub> = 500 mA I <sub>B</sub> = 50 mA	2N5320	-	-	0.5	V
			2N5321	-	-	0.8	
V <sub>BE</sub> (*)	Base-Emitter Voltage	I <sub>C</sub> = 500 mA V <sub>CE</sub> = 4 V	2N5320	-	-	1.1	V
			2N5321	-	-	1.4	
f <sub>T</sub>	Transition frequency	I <sub>C</sub> = 50 mA V <sub>CE</sub> = 4 V f = 10 MHz	2N5320	50	-	-	MHz
			2N5321				
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	2N5320	-	-	80	ns
			2N5321				
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	2N5320	-	-	800	ns
			2N5321				

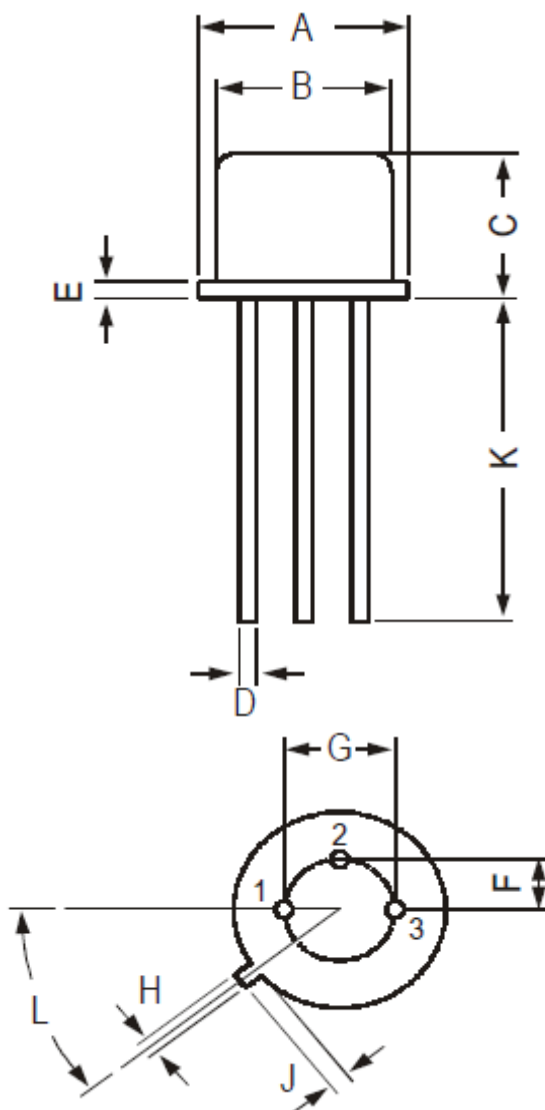
(\*) Pulse conditions :  $t_p < 300\text{ }\mu\text{s}$ ,  $\delta = 1\%$

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### MECHANICAL DATA CASE TO-39

DIMENSIONS (mm)		
	min	max
A	8.50	9.39
B	7.74	8.50
C	6.09	6.60
D	0.40	0.53
E	-	0.88
F	2.41	2.66
G	4.82	5.33
H	0.71	0.86
J	0.73	1.02
K	12.70	-
L	42°	48°

Pin 1 :	Emitter
Pin 2 :	Base
Pin 3 :	Collector
Case :	Collector



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