

NPN 2N2102

MEDIUM POWER AMPLIFIER & SWITCH

The 2N2102 is a silicon Planar Epitaxial NPN transistor in Jedec TO-39 metal case. They are intended for a wide variety of small-signal and medium power applications in military and industrial equipments. Compliance to RoHS.

ABSOLUTE MAXIMUM RATINGS

Symbol	Ratings		Value	Unit
V _{CEO}	Collector-Emitter Voltage (I _B = 0)		65	V
V _{CBO}	Collector-Base Voltage (I _E = 0)		120	V
V _{CER}	Collector-Emitter Voltage (R _{BE} = 10 Ω)		80	V
V _{EBO}	Emitter-Base Voltage		7	V
I _C	Collector Current		1	A
P _D	Total Power Dissipation	T _{amb} = 25°C	1	W
		T _{case} = 25°C	5	
T _J	Junction Temperature		-65 to 200	°C
T _{Stg}	Storage Temperature range			

THERMAL CHARACTERISTICS

Symbol	Ratings	Value	Unit
R_{thJ-c}	Thermal Resistance, Junction-case	35	$^\circ\text{C}/\text{W}$
R_{thj-a}	thermal resistance from junction to ambient in free air	175	

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ELECTRICAL CHARACTERISTICS

TC=25°C unless otherwise noted

Symbol	Ratings	Test Condition(s)	Min	Typ	Max	Unit
I_{CBO}	Collector Cutoff Current	$V_{CB} = 60\text{ V}$ $I_E = 0$	$T_{amb} = 25^\circ\text{C}$	-	-	2 nA
			$T_{amb} = 150^\circ\text{C}$	-	-	2 μA
I_{EBO}	Emitter Cutoff Current	$V_{EB} = 5\text{ V}$, $I_C = 0$	-	-	5	nA
V_{CBO}	Collector Base Sustaining Voltage	$I_C = 100\text{ }\mu\text{A}$, $I_E = 0$	120	-	-	V
V_{CEO}	Collector Emitter Sustaining Voltage (*)	$I_C = 30\text{ mA}$, $I_B = 0$	65	-	-	V
h_{FE}	DC Current Gain (*)	$I_C = 10\text{ }\mu\text{A}$, $V_{CE} = 10\text{ V}$	10	-	-	-
		$I_C = 0.1\text{ mA}$, $V_{CE} = 10\text{ V}$	20	-	-	
		$I_C = 10\text{ mA}$, $V_{CE} = 10\text{ V}$	35	-	-	
		$I_C = 150\text{ mA}$, $V_{CE} = 10\text{ V}$	40	-	120	
		$I_C = 500\text{ mA}$, $V_{CE} = 10\text{ V}$	25	-	-	
		$I_C = 1\text{ A}$, $V_{CE} = 10\text{ V}$	10	-	-	
$V_{CE(SAT)}$	Collector-Emitter saturation Voltage (*)	$I_C = 150\text{ mA}$, $I_B = 15\text{ mA}$	-	-	0.5	V
$V_{BE(SAT)}$	Base-Emitter saturation Voltage (*)	$I_C = 150\text{ mA}$, $I_B = 15\text{ mA}$	-	-	1.1	V
C_C	Collector Capacitance	$I_E = 0$, $V_{CB} = 10\text{ V}$ $f = 1\text{ MHz}$	-	-	15	pF
C_e	emitter Capacitance	$I_C = 0$, $V_{EB} = 0.5\text{ V}$ $f = 1\text{ MHz}$	-	-	80	pF

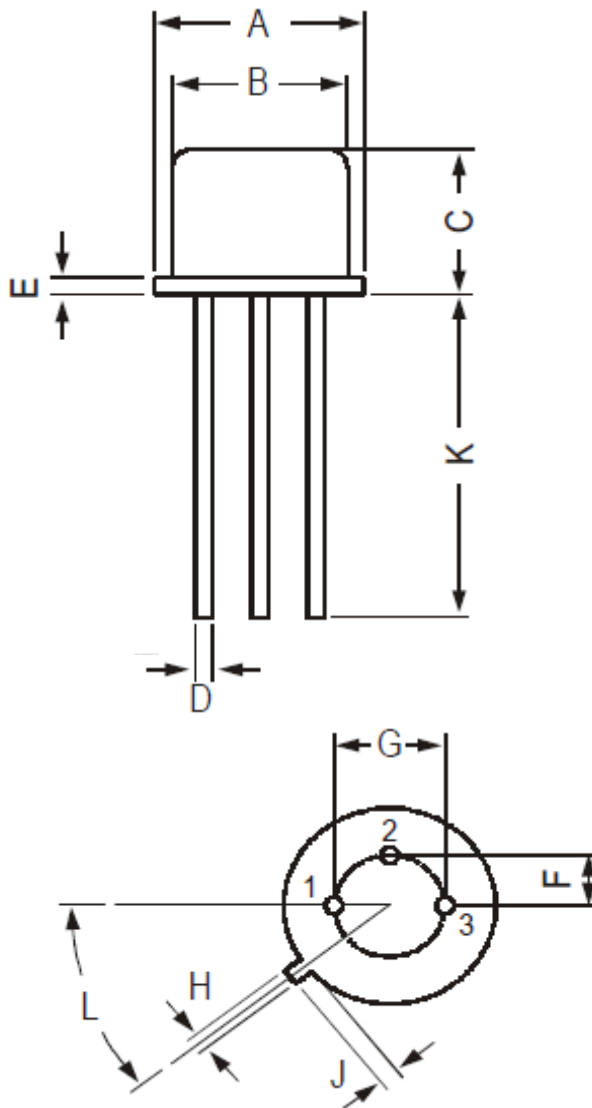
(*) Pulse conditions : $t_p < 300\text{ }\mu\text{s}$, $\delta = 2\%$.

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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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