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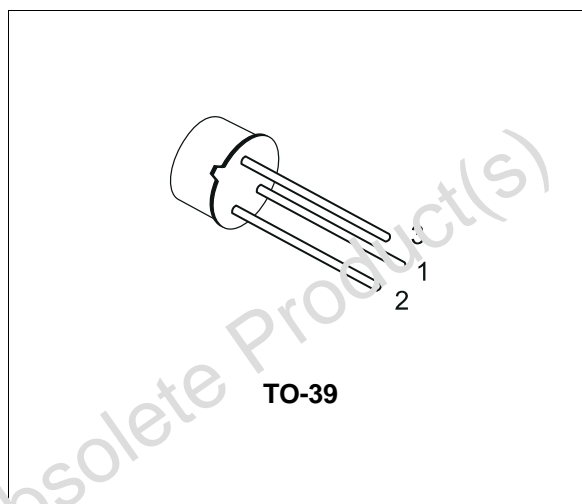
2N2102

EPITAXIAL PLANAR NPN

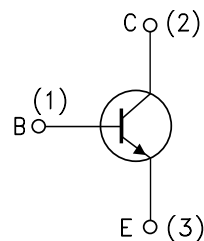
- GENERAL PURPOSE AMPLIFIER AND SWITCH

DESCRIPTION

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



INTERNAL SCHEMATIC DIAGRAM



ABSOLUTE MAXIMUM RATINGS

Symbol	Parameter	Value	Unit
V_{CBO}	Collector-Base Voltage ($I_E = 0$)	120	V
V_{CEO}	Collector-Emitter Voltage ($I_B = 0$)	65	V
V_{CER}	Collector-Emitter Voltage ($R_{BE} \leq 10\Omega$)	80	V
V_{EBO}	Emitter-Base Voltage ($I_C = 0$)	7	V
I_C	Collector Current	1	A
P_{tot}	Total Dissipation at $T_{amb} \leq 25^\circ C$	1	W
	at $T_C \leq 25^\circ C$	5	W
T_{stg}	Storage Temperature	-65 to 175	$^\circ C$
T_j	Max. Operating Junction Temperature	175	$^\circ C$

2N2102

THERMAL DATA

R _{thj-case}	Thermal Resistance Junction-Case	Max	30	°C/W
R _{thj-amb}	Thermal Resistance Junction-Ambient	Max	150	°C/W

ELECTRICAL CHARACTERISTICS (T_{case} = 25 °C unless otherwise specified)

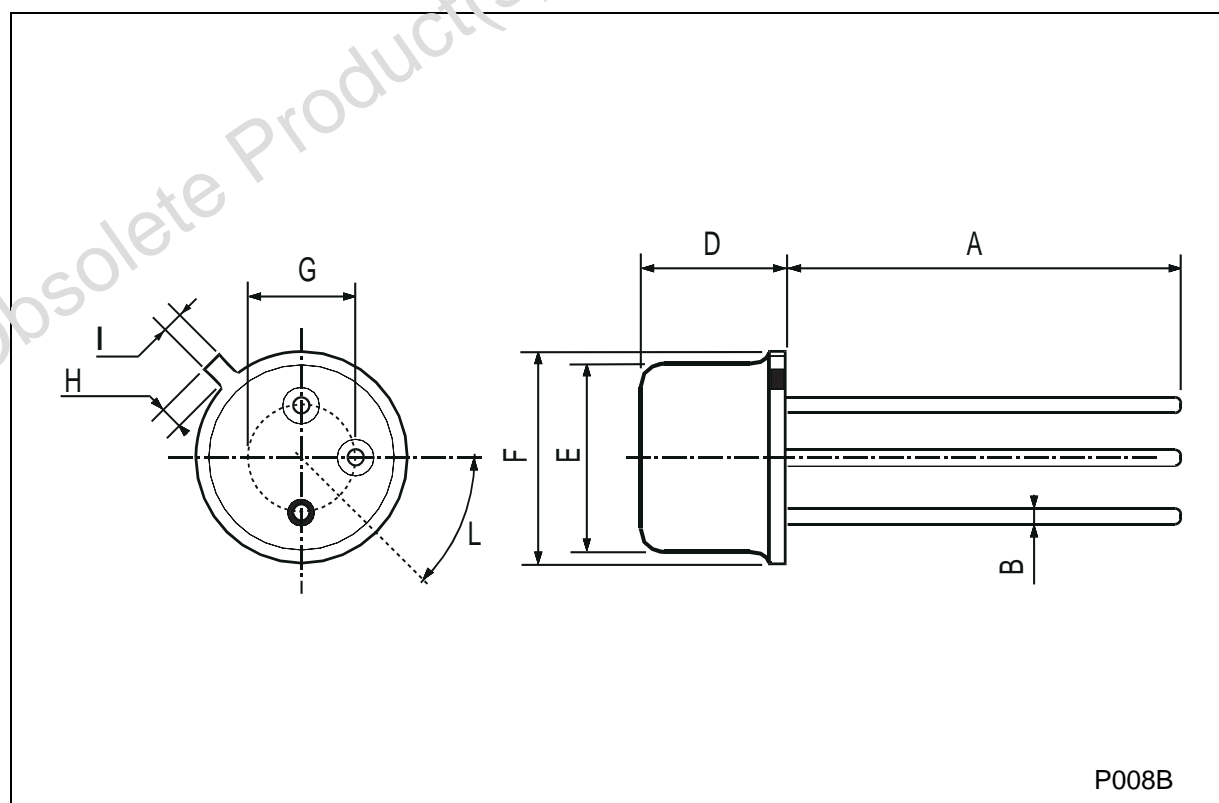
Symbol	Parameter	Test Conditions	Min.	Typ.	Max.	Unit
I _{CBO}	Collector Cut-off Current (I _E = 0)	V _{CB} = 60 V V _{CB} = 60 V T _C = 150 °C			2 2	nA μA
I _{EBO}	Emitter Cut-off Current (I _C = 0)	V _{EB} = 5 V			5	nA
V _{(BR)CBO}	Collector-Base Breakdown Voltage (I _E = 0)	I _C = 100 μA	120			V
V _{CEO(sus)*}	Collector-Emitter Sustaining Voltage (I _B = 0)	I _C = 30 mA	65			V
V _{CE(sat)*}	Collector-Emitter Saturation Voltage	I _C = 150 mA I _B = 15 mA			0.5	V
V _{BE(sat)*}	Base-Emitter Saturation Voltage	I _C = 150 mA I _B = 15 mA			1.1	V
h _{FE*}	DC Current Gain	I _C = 10 μA V _{CE} = 10 V I _C = 100 μA V _{CE} = 10 V I _C = 10 mA V _{CE} = 10 V I _C = 150 mA V _{CE} = 10 V I _C = 500 mA V _{CE} = 10 V I _C = 1 A V _{CE} = 10 V	10 20 35 40 25 10		120	
h _{fe*}	High Frequency Current Gain	I _C = 50 mA V _{CE} = 10 V f = 20 MHz		6		
NF	Noise Figure	I _C = 300 μA V _{CE} = 10 V f = 1 KHz BW = 1 Hz R _g = 510 Ω			8	dB
C _{CBO}	Collector-Base Capacitance	I _E = 0 V _{CB} = 10 V f = 1MHz			15	pF
C _{EBO}	Emitter-Base Capacitance	I _C = 0 V _{EB} = 0.5 V f = 1MHz			80	pF

* Pulse d: Pulse duration = 300 μs, duty cycle ≤ 1 %

2N2102

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.)					



2N2102

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