

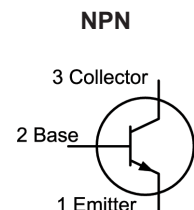
# Bipolar Transistor



## Description:

The 2N3902 is a silicon NPN transistor in a TO-3 type Package designed for use in high voltage inverters, converters, switching regulators and line Operated amplifiers.

**RoHS  
Compliant**



## Maximum Ratings:

Characteristic	Symbol	Rating	Unit
Collector-Emitter Voltage	$V_{CEX}$	700	V
Collector-Emitter Voltage	$V_{CEO(sus)}$	400	
Emitter Base Voltage	$V_{EB}$	5	
Collector Current -Continuous	$I_C$	3.5	A
Peak Base Current	$I_B$	2	
Total Device Dissipation $-(T_C = +75^\circ C)$ , Derate Above $95^\circ C$	$P_D$	100 1.33	W W/ $^\circ C$
Operating Junction Temperature Range	$T_J$	-65 to +150	$^\circ C$
Storage Temperature Range,	$T_{sta}$	-65 to +200	
Thermal Resistance, Junction-to-Case	$R_{thJC}$	0.75	$^\circ C/W$
Maximum Lead temperature (During Soldering, 1/8" from case, 5sec)	$T_L$	+275	$^\circ C$

## Electrical Characteristics: ( $T_C = +25^\circ C$ Unless otherwise specified)

Parameter	Symbol	Test Conditions	Min	Max	Unit
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### OFF Characteristics (Note 2)

Collector-Emitter Sustaining Voltage	$V_{CEO(sus)}$	$I_C = 100mA, I_B = 0$	325	-	V
Collector Cutoff Current	$I_{CEO}$	$V_{CE} = 400V, V_{BE} = 0$	-	0.25	mA
Emitter-Base Voltage	$I_{EBO}$	$I_E = 100mA, I_C = 5V$		5	

### ON Characteristics (Note 2)

DC Current Gain	$h_{FE}$	$V_{CE} = 5V, I_C = 1A$	30	90	
Collector-Emitter Saturation Voltage	$V_{CE(sat)}$	$I_C = 2.5A, I_B = 0.5A$	-	2.5	V
Base-Emitter Saturation Voltage	$V_{BE(sat)}$			2	

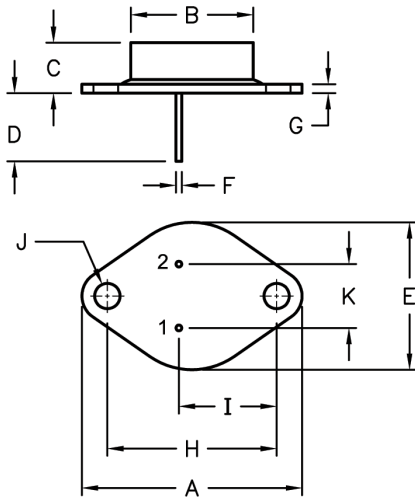
### Dynamic Characteristics

Current Gain-Bandwidth Product	$f_T$	$V_{CE} = 10V, I_C = 200mA, f = 1MHz$	2.8	-	MHz
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#### Note:

1. Pulse Test : Pulse Width = 5ms, Duty Cycle  $\leq 10\%$
2. Pulse Test : Pulse Width = 300 $\mu s$ , Duty Cycle  $\leq 2\%$

# Bipolar Transistor



**Pin Configuration:**

- Pin 1. Base
- Pin 2. Emitter
- Collector (Case)

Dim	A	B	C	D	E	F	G	H	I	J	K
<b>Min.</b>	38.75	19.28	7.96	11.18	25.2	0.92	1.38	29.9	16.64	3.88	10.67
<b>Max.</b>	39.96	22.23	9.28	12.19	26.67	1.09	1.62	30.4	17.3	4.36	11.18

Dimensions : Millimetres

**Part Number Table**

Description	Part Number
Transistor, NPN, 3.5A, 400V, TO-3	2N3902

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