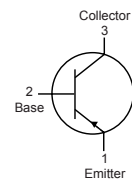
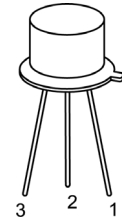


RoHS  
Compliant



#### Pin Configuration:

1. Emitter
2. Base
3. Collector

#### Description:

A Silicon NPN transistor in a TO-39 case intended for low power amplifier and switching applications

#### Maximum Ratings:

Characteristic	Symbol	Rating	Unit
Collector-Base Voltage	$V_{CBO}$	150	V
Collector-Emitter Voltage	$V_{CEO}$		
Emitter-Base Voltage	$V_{EBO}$	6	
Continuous Collector Current	$I_C$	0.3	A
Total Device Dissipation ( $T_A = +25^\circ\text{C}$ ) Derate Above $25^\circ\text{C}$	$P_D$	1 5.7	W mW/ $^\circ\text{C}$
Total Device Dissipation ( $T_C = +25^\circ\text{C}$ , Note 1) Derate Above $25^\circ\text{C}$	$P_D$	5 28.6	
Operating Junction Temperature Range,	$T_J$	-65 to +200	$^\circ\text{C}$
Storage Temperature Range	$T_{stg}$		
Thermal Resistance, Junction-to-case	$R_{thJC}$	35	$^\circ\text{C/W}$
Thermal Resistance, Junction-to-Ambient	$R_{thJA}$	175	

## Electrical Characteristics ( $T_A = +25^\circ\text{C}$ unless otherwise specified)

Parameter	Symbol	Test Conditions	Min.	Max.	Unit
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### OFF Characteristics

Collector-Emitter Sustaining Voltage	$V_{\text{CEO(sus)}}$	$I_C = 10\text{mA}, I_B = 0, \text{Note 1}$	150	-	V
Collector Cut-Off Current	$I_{\text{CBO}}$	$V_{\text{CB}} = 75\text{V}, I_E = 0$	-	0.05	$\mu\text{A}$
Emitter Cut-Off Current	$I_{\text{EBO}}$	$V_{\text{EB}} = 4\text{V}, I_C = 0$		25	nA

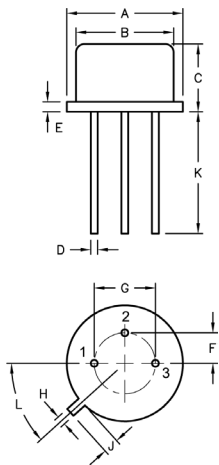
### ON Characteristics (Note 1)

DC Current Gain	$h_{\text{FE}}$	$I_C = 10\text{mA}, V_{\text{CE}} = 10\text{V}$	75	-	-
		$I_C = 150\text{mA}, V_{\text{CE}} = 10\text{V}$	100	300	
Collector - Emitter Saturation Voltage	$V_{\text{CE(sat)}}$	$I_C = 50\text{mA}, I_B = 5\text{mA}$	-	0.25	V
Base - Emitter Saturation Voltage	$V_{\text{BE(sat)}}$			0.9	

### Small Signal Characteristics

Current Gain-Bandwidth Product	$f_T$	$I_C = 20\text{mA}, V_{\text{CE}} = 20\text{V}, f = 100\text{MHz}$	150	-	MHz
Output Capacitance	$C_{\text{ObO}}$	$V_{\text{CB}} = 10\text{V}, I_E = 0, f = 0.1\text{MHz}$	-	8	$\mu\text{F}$
Input Capacitance	$C_{\text{ibO}}$	$V_{\text{CB}} = 5\text{V}, I_C = 0, f = 0.1\text{MHz}$		80	
Small-Signal Current Gain	$h_{\text{fe}}$	$I_C = 10\text{mA}, V_{\text{CE}} = 10\text{V}, f = 1\text{MHz}$	75	375	
Real Part of Input Impedance	$\text{Re}(h_{\text{ie}})$	$V_{\text{CE}} = 10\text{V}, I_C = 5\text{mA}, f = 1\text{MHz}$		300	$\Omega$

Note 1 : Pulse Test : Pulse Width  $\leq 300\mu\text{s}$ , Duty Cycle  $\leq 2\%$



Dimensions	Min.	Max.
A	8.5	9.39
B	7.74	8.5
C	6.09	6.6
D	0.4	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	12.7	-
L	42°	48°

Dimensions : Millimetres

### Pin Configuration:

1. Emitter
2. Base
3. Collector

### Part Number Table

Description	Part Number
Transistor, NPN, 0.3A, 150V, TO-39	2N3501

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