Bipolar Transistor

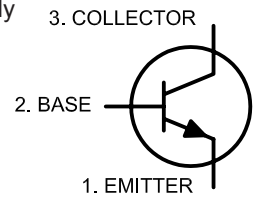
multicomp PRO

RoHS Compliant

Description:

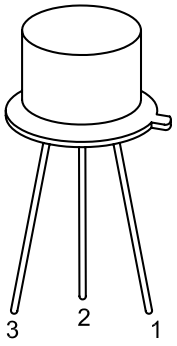
This is a Silicon NPN transistor in a TO-39 type case designed primarily for amplifier and switching applications. This device features high breakdown voltage, low leakage current, low capacity, and beta useful over an extremely wide current range.

NPN



Absolute Maximum Ratings:

Characteristic	Symbol	Rating
Collector-Base Voltage	V_{CBO}	80V
Collector-Emitter Voltage	V_{CEO}	60V
Emitter - Base Voltage	V_{EBO}	5V
Continuous Collector Current	I_C	0.7A
Total Device Dissipation (T_C = +25°C) Derate above 25°C	P_D	800mW 4.6mW/°C
Total Device Dissipation (T_C = +25°C) Derate above 25°C	P_D	5W 28.6mW/°C
Operating Junction Temperature Range	T_J	-65°C to +200°C
Storage Temperature Range	T_{STG}	-65°C to +200°C



Electrical Characteristics: (T_A = +25ºC Unless otherwise specified)

Parameter	Symbol	Test Conditions	Min.	Max.	Unit.
OFF Characteristics					
Collector-Emitter Breakdown Voltage	$V_{(BR)CEO}$	I_C = 0.1mA, I_B = 0	60	-	V
Collector-Base Breakdown Voltage	$V_{(BR)CBO}$	I_C = 100µA, I_E = 0	80	-	
Emitter-Base Breakdown Voltage	$V_{(BR)EBO}$	I_E = 100µA, I_C = 0	5	-	
Emitter Cut-Off Current	I_{EBO}	V_{BE} = 4V, I_C = 0	-	0.25	µA
On Characteristics (Note 1)					
DC Current Gain	h_{FE}	V_{CE} = 10V, I_C = 150mA	50	-	-
		V_{CE} = 2.5V, I_C = 150mA	25	-	-
Collector-Emitter Saturation Voltage	$V_{CE(sat)}$	I_C = 150mA, I_B = 15mA	-	1.4	V
Base-Emitter Saturation Voltage	$V_{BE(sat)}$	I_C = 150mA, I_B = 15mA	-	1	V

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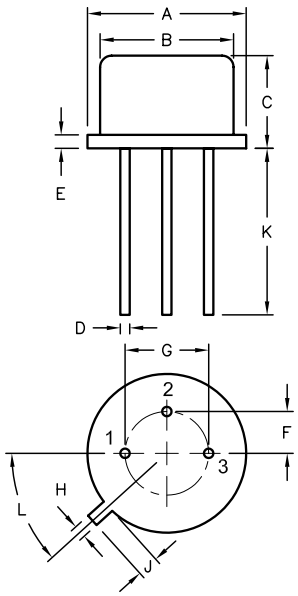
Parameter	Symbol	Test Conditions	Min.	Max.	Unit.
Small-Signal Characteristics					
Current Gain-Bandwidth Product	f_T	V_{CE} = 10V, I_C = 50mA, f = 20MHz	100	-	MHz
Output Capacitance	C_{obo}	V_{CB} = 10V, I_E = 0, f = 1MHz	-	12	pF
Input Capacitance	C_{ibo}	V_{BE} = 500mV, I_C = 0, f = 1MHz	-	80	pF

Note 1. Pulse Test: Pulse Width ≦ 300μs, Duty Cycle ≦ 1%



1. EMITTER
2. BASE
3. COLLECTOR

Dimensions	A	B	C	D	E	F	G	H	J	K	L
Min.	8.5	7.74	6.09	0.4	-	2.41	4.82	0.71	0.73	12.7	42º
Max.	9.39	8.5	6.6	0.53	0.88	2.66	5.33	0.86	1.02	-	48º

Dimensions : Millimetres

Part Number Table

Description	Part Number
Bipolar Transistor, NPN, 700mA, 60V, TO-39	2N3053A

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