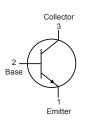
# **Bipolar Transistor**











## Pin Configuration:

- 1. Emitter
- 2. Base
- 3. Collector

### **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

# **Maximum Ratings:**

Characteristic	Symbol	Rating	Unit		
Collector-Base Voltage	V <sub>CBO</sub>	80			
Collector-Emitter Voltage	V <sub>CEO</sub>	V <sub>CEO</sub> 60			
Emitter-Base Voltage	V <sub>EBO</sub>	5			
Continuous Collector Current	I <sub>C</sub>	0.7	А		
Total Device Dissipation (T <sub>A</sub> = +25°C), Derate above 25°C	D.	800 4.6	mW mW/°C		
Total Device Dissipation (T <sub>C</sub> = +25°C), Derate above 25°C	P <sub>D</sub>	5 28.6	W mW/°C		
Operating Junction Temperature Range	T <sub>J</sub>	05 to 1450	°C		
Storage Temperature Range	T <sub>stg</sub>	-65 to +150			

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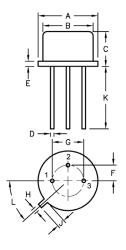
# **Bipolar Transistor**



## Electrical Characteristics (T<sub>A</sub> = +25°C unless otherwise specified)

Parameter Symbol		Test Conditions		Max.	Unit
OFF Characteristics					
Collector-Emitter Breakdown Voltage	V <sub>(BR)CEO</sub>	$I_{\rm C} = 0.1  \text{mA}, I_{\rm B} = 0$	60		
Collector-Base Breakdown Voltage	V <sub>(BR)CBO</sub>	$I_{\rm C} = 100 \mu A, I_{\rm E} = 0$	80	-	V
Emitter-Base Breakdown Voltage	V <sub>(BR)EBO</sub>	$I_{E} = 100 \mu A, I_{C} = 0$	5		
Emitter Cut-Off Current	I <sub>EBO</sub>	$V_{BE} = 4V, I_{C} = 0$	-	0.25	μA
ON Characteristics, Note 1					
DC Current Gain	h	V <sub>CE</sub> = 10V, I <sub>C</sub> = 150mA	50		250
DC Current Gain	h <sub>FE</sub>	$V_{CE} = 2.5V, I_{C} = 150mA$	25	<u> </u>	1
Collector - Emitter Saturation Voltage	tion Voltage $V_{CE(sat)}$			1.4	V
Base - Emitter Saturation Voltage	V <sub>BE(sat)</sub>	$I_{\rm C}$ = 150mA, $I_{\rm B}$ = 15mA	-	1	V
Small Signal Characteristics			•		
Current Gain-Bandwidth Product	f <sub>T</sub>	V <sub>CE</sub> = 10V, I <sub>C</sub> = 50mA, f = 20MHz	100	-	MHz
Output Capacitance	C <sub>ObO</sub>	V <sub>CB</sub> = 10V, I <sub>E</sub> = 0, f = 1MHz		12	,r
Input Capacitance	C <sub>ibO</sub>	$V_{BF} = 500 \text{mV}, I_{C} = 0, f = 1 \text{MHz}$	1 -	80	pF

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



Dim.	Α	В	С	D	E	F	G	Н	J	K	L
Min.	8.5	7.74	6.09	0.4	-	2.41	4.82	0.71	0.73	12.7	42°
Max.	9.39	8.5	6.6	0.53	0.88	2.66	5.33	0.86	1.02	-	48°

Dimensions: Millimetres

#### Pin Configuration:

- 1. Emitter
- 2. Base
- 3. Collector

#### **Part Number Table**

Description	Part Number		
Transistor, NPN, 0.7A, 60V, TO-39	2N3053A		

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