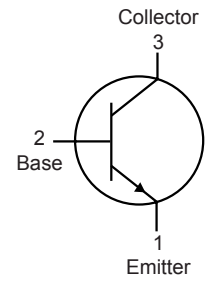
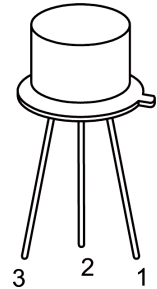


# Bipolar Transistor

RoHS  
Compliant



## Description:

A Silicon epitaxial NPN planer transistor in a TO-39 type package designed for use as drivers for high Power transistors in general purpose amplifier and switching circuits.

## Maximum Ratings:

Characteristic	Symbol	Rating	Unit
Collector Emitter Voltage	$V_{CEO}$	100	V
Collector Base Voltage	$(I_E = 0), V_{CBO}$		
Emitter Base Voltage	$(I_C = 0), V_{EBO}$	4	
Collector Current	$I_C$	1	A
Base Current	$I_B$	500	mA
Total Device Dissipation	$(T_C = +25^\circ\text{C}), P_{tot}$	10	W
Total Device Dissipation	$(T_A = +25^\circ\text{C}), P_{tot}$	1	
Operating Junction Temperature	$T_J$	-65 to +200	°C
Storage Temperature Range	$T_{stg}$	-65 to +200	
Thermal Resistance, Junction-to-Case	$R_{thJC}$	17.4	°C/W
Thermal Resistance, Junction-to-Ambient	$R_{thJA}$	175	

# Bipolar Transistor

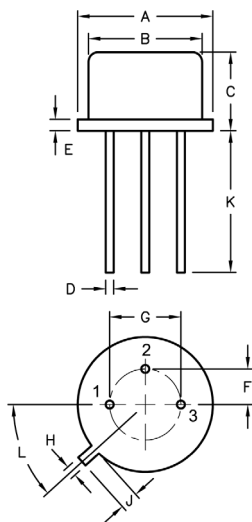


## Electrical Characteristics: ( $T_A = +25^\circ\text{C}$ unless otherwise specified)

Parameter	Symbol	Test Conditions	Min	Max	Unit
Collector Cutoff Current	$I_{CBO}$	$V_{CB} = 100\text{V}, I_E = 0$	-	1	$\mu\text{A}$
	$I_{CEO}$	$V_{CE} = 70\text{V}, I_B = 0$		10	
	$I_{CEV}$	$V_{CE} = 100\text{V}, V_{BE} = -1.5\text{V}$ $V_{CE} = 100\text{V}, V_{BE} = -1.5\text{V}, T_C = +150^\circ\text{C}$		1	$\text{mA}$
Emitter Cutoff Current	$I_{EBO}$	$V_{EB} = 4\text{V}, I_C = 0$			$\mu\text{A}$
Collector-Emitter Sustaining Voltage	$V_{CEO(SUS)}$	$I_C = 10\text{mA}, I_B = 0$ , Note 1	100	-	
Collector-Emitter Saturation Voltage	$V_{CE(Sat)}$	$I_C = 250\text{mA}, I_B = 25\text{mA}$ , Note 1	-	0.6	$\text{V}$
		$I_C = 500\text{mA}, I_B = 50\text{mA}$ , Note 1		1	
		$I_C = 1\text{A}, I_B = 200\text{mA}$ , Note 1		2	
Base-Emitter Voltage	$V_{BE(on)}$	$V_{CE} = 2\text{V}, I_C = 250\text{mA}$		1	
DC Current Gain	$h_{FE}$	$I_C = 250\text{mA}, V_{CE} = 2\text{V}$ , Note 1	40	150	-
		$I_C = 1\text{A}, V_{CE} = 2\text{V}$ , Note 1	5		
Transition Frequency	$f_T$	$V_{CE} = 10\text{V}, I_C = 100\text{mA}, f = 10\text{MHz}$	30		$\text{MHz}$
Collector-Base Capacitance	$C_{cbo}$	$V_{CB} = 20\text{V}, I_E = 0, f = 1\text{MHz}$	-	50	$\text{pF}$
Small-Signal Current Gain	$h_{fe}$	$V_{CE} = 1.5\text{V}, I_C = 200\text{mA}, f = 1\text{kHz}$	40	-	-

### Note:

1. Pulse Duration:  $300\mu\text{s}$ , Duty Cycle  $\leq 2\%$



Dimensions	A	B	C	D	E	F	G	H	J	K	L
<b>Min.</b>	8.5	7.74	6.09	0.4	-	2.41	4.82	0.71	0.73	12.7	$42^\circ$
<b>Max.</b>	9.39	8.5	6.6	0.53	0.88	2.66	5.33	0.86	1.02	-	$48^\circ$

Dimensions : Millimetres

### Pin Configuration:

1. Emitter
2. Base 1
3. Base 2

### Part Number Table

Description	Part Number
Transistor, NPN, 1A, 100V, TO-39	2N5681

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