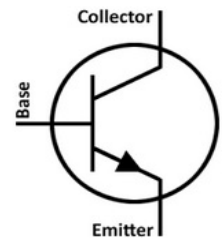
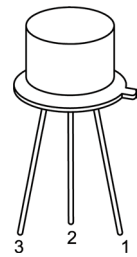


# Bipolar Transistor

**RoHS  
Compliant**

**NPN**



**Pin Configuration:**

1. Emitter
2. Base
3. Collector

## Description:

This is a silicon NPN transistor in a TO-18 type case designed primarily for amplifier and switching applications. The 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	$V_{CBO}$	140	V
Collector-Emitter Voltage	$V_{CEO}$	80	
Emitter Base Voltage	$V_{EBO}$	7	
Continuous Collector Current	$I_C$	1	A
Total Device Dissipation $-(T_A = +25^\circ\text{C})$ , Derate Above $25^\circ\text{C}$	$P_D$	0.5	W
Total Device Dissipation $-(T_A = +25^\circ\text{C})$ , Derate Above $25^\circ\text{C}$		2.85	
Operating Junction Temperature Range	$T_J$	-65 to +200	$^\circ\text{C}$
Storage Temperature Range,	$T_{stg}$		
Thermal Resistance, Junction-to-Case	$R_{thJC}$	97	$^\circ\text{C}/\text{W}$
Thermal Resistance, Junction-to-Ambient	$R_{thJA}$	350	
Lead Temperature (During Soldering, 1/16" from case, 60sec max)	$T_L$	300	$^\circ\text{C}$

## Electrical Characteristics: (TA = +25°C Unless otherwise specified)

Parameter	Symbol	Test Conditions	Min.	Max.	Unit
Collector-Emitter Breakdown Voltage	$V_{(BR)CEO}$	$I_C = 30mA, I_B = 0$	80	-	V
Collector-Base Breakdown Voltage	$V_{(BR)CBO}$	$I_C = 100\mu A, I_E = 0$	140		
Emitter-Base Breakdown Voltage	$V_{(BR)EBO}$	$I_E = 100\mu A, I_C = 0$	7		
Collector Cut-Off Current	$I_{CBO}$	$V_{CB} = 90V, I_E = 0$	-	0.01	$\mu A$
		$V_{CB} = 90V, I_E = 0, T_A = +150^\circ C$		10	
Emitter Cut-Off Current	$I_{EBO}$	$V_{BE} = 5V, I_C = 0$		0.01	A

## ON Characteristics

DC Current Gain (Note 1)	$h_{FE}$	$V_{CE} = 10V, I_C = 0.1mA$	50	-	-
		$V_{CE} = 10V, I_C = 10mA$	90		
		$V_{CE} = 10V, I_C = 150mA$	100	300	
		$V_{CE} = 10V, I_C = 150mA, T_A = -55^\circ C$	40	-	
		$V_{CE} = 10V, I_C = 500mA$	50		
		$V_{CE} = 10V, I_C = 1A$	15		
Collector-Emitter Saturation Voltage	$V_{CE(sat)}$	$I_C = 150mA, I_B = 15mA$	-	0.2	V
		$I_C = 500mA, I_B = 50mA$		0.5	
Base-Emitter Saturation Voltage	$V_{BE(sat)}$	$I_C = 150mA, I_B = 15mA$		1.1	

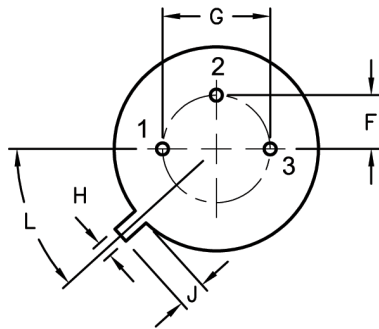
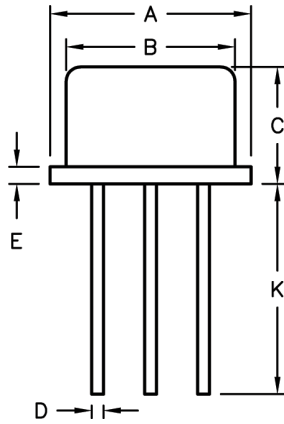
## Small - Signal Characteristics

Current Gain-Bandwidth Product	$f_T$	$V_{CE} = 10V, I_C = 50mA, f = 20MHz$	100	400	MHz
Output Capacitance	$C_{obo}$	$V_{CB} = 10V, I_E = 0, f = 1MHz$	-	12	$\mu F$
Input Capacitance	$C_{lbo}$	$V_{BE} = 500mV, I_C = 0, f = 1MHz$		60	
Small-Signal Current Gain	$h_{fe}$	$V_{CE} = 5V, I_C = 1mA, f = 1kHz$	80	400	-
Collector-Base Time Constant	$rb'C_c$	$V_{CB} = 10V, I_E = 10mA, f = 79.8MHz$	-		
Noise Figure	NF	$V_{CE} = 10V, I_C = 100\mu A, f = 1kHz, R_S = 1k\Omega$			4

### Note:

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

# Bipolar Transistor



### Pin Configuration:

1. Emitter
2. Base
3. Collector

Dim	A	B	C	D	E	F	G	H	J	K	L
Min.	5.24	4.52	4.31	0.4	-	-	-	0.91	0.71	12.7	45°
Max.	5.84	4.97	5.33	0.53	0.76	1.27	2.97	1.17	1.21	-	

Dimensions : Millimetres

### Part Number Table

Description	Part Number
Transistor, NPN, 1A, 80V, TO-18	2N3700

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