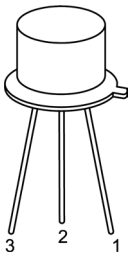
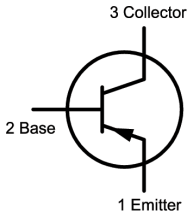
Bipolar Transistor

multicomp PRO

RoHS Compliant

NPN





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.

Pin Configuration:

1. Emitter
2. Base
3. Collector

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°C), Derate Above 25°C	P_D	0.5 2.85	W mW/°C
Total Device Dissipation -(T_A = +25°C), Derate Above 25°C		1.8 10.6	
Operating Junction Temperature Range	T_J	-65 to +200	°C
Storage Temperature Range,	T_{stg}		
Thermal Resistance, Junction-to-Case	R_{thJC}	97	°C/W
Thermal Resistance, Junction-to-Ambient	R_{thJA}	350	
Lead Temperature (During Soldering, 1/16" from case, 60sec max)	T_L	300	°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= 100μA. I_E = 0	140		
Emitter-Base Breakdown Voltage	$V_{(BR)EBO}$	I_E = 100μA. I_C= 0	7		
Collector Cut-Off Current	I_{CBO}	V_{CB} = 90V, I_E = 0	-	0.01	μA
		V_{CB} = 90V, I_E= 0, T_A = +150°C		10	
Emitter Cut-Off Current	I_{EBO}	V_{BE} = 5V, Ic = 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, TA = -55°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	pF
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	-		ps
Noise Figure	NF	V_{CE} = 10V, I_C- 100μA. f = 1kHz, R_S= 1kΩ		4	dB

Note:
1. Pulse Test : Pulse Width ≦300μs, Duty Cycle ≦2%

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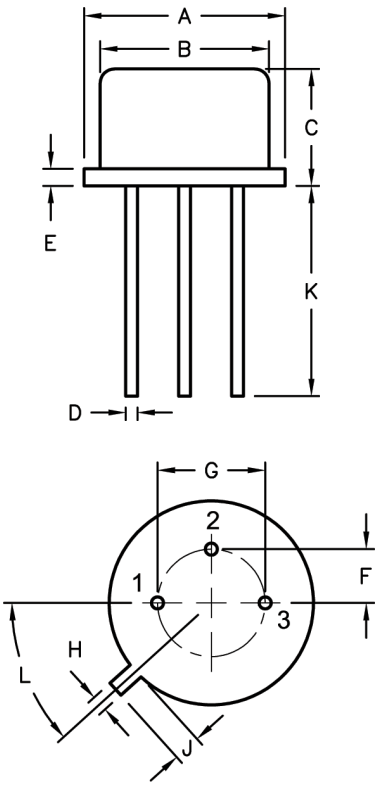

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Dim	A	B	C	D	E	F	G	H	J	K	L
Min.	5.24	4.52	4.31	0.4	-	-	-	0.91	0.71	12.7	45°
Max.	5.84	4.97	5.33	0.53	0.76	1.27	2.97	1.17	1.21	-	

Dimensions : Millimetres

Part Number Table

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

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