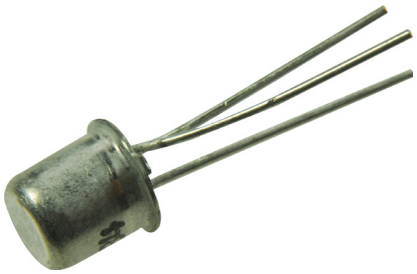
Bipolar Transistor

multicomp PRO

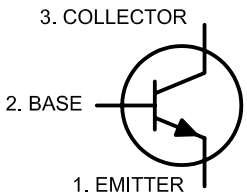


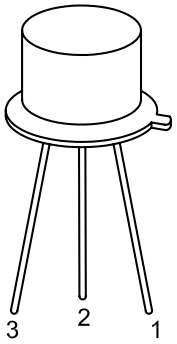
RoHS Compliant

Features

- Meets MIL 19500 /376
- Collector - Base Voltage 60V
- Collector - Current 50mA
- High Speed, Low Power Bipolar Transistor

NPN





Absolute Maximum Ratings:

Characteristic	Symbol	Rating
Collector-Emitter Voltage	V_{CEO}	60V DC
Collector-Base Voltage	V_{CBO}	60V DC
Emitter - Base Voltage	V_{EBO}	6V DC
Continuous Collector Current	I_C	50mA DC
Total Device Dissipation (T_C = +25°C) Derate above 25°C	P_D	360mW >2.06mW/°C
Total Device Dissipation (T_C = +25°C) Derate above 25°C	P_D	1.2W 6.85mW/°C
Operating Junction Temperature Range	T_J	-65°C to +200°C
Storage Temperature Range	T_{STG}	-65°C to +200°C

Thermal Characteristics

Characteristics	Symbol	Maximum	Unit
Thermal Resistance, Junction to Ambient	$R_{\theta JA}$*	485	°C/W
Thermal Resistance, Junction to Case	$R_{\theta JC}$	146	°C/W
Lead Temperature 1/16 inches from Case for 10s	T_L	300	°C

*$R_{\theta JA}$ is measured with the device soldered into a typical printed circuit board

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

Parameter	Symbol	Test Conditions	Min.	Typ.	Max.	Unit.
OFF Characteristics						
Collector-Emitter Breakdown Voltage	BV_{CEO}	I_C = 10mA DC, I_B = 0, (Note 1)	60	-	-	V DC
Collector-Base Breakdown Voltage	BV_{CBO}	I_C = 10µA DC, I_E = 0	60	-	-	
Emitter-Base Breakdown Voltage	BV_{EBO}	I_E = 100µA DC, I_C = 0	6	-	-	
Collector-Cut-Off Current	I_{CBO}	V_{CB} = 45V DC, I_E = 0	-	-	10	nA DC
		V_{CB} = 45V DC, I_E = 0, T_A = +150°C	-	-	10	µA DC
Emitter Cut off Current	I_{EBO}	(V_{BE} = 5 V DC, I_C = 0)	-	-	10	nA DC

Parameter	Symbol	Test Conditions	Min.	Typ.	Max.	Unit.
On Characteristics						
DC Current Gain	h_{FE}	I_C = 1µA DC, V_{CE} = 5V DC	30	190	-	-
		I_C = 10µA DC, V_{CE} = 5V DC	100	250	500	-
		I_C = 10µA DC, V_{CE} = 5V DC, T_A = 55°C	20	40	-	-
		I_C = 100µA DC, V_{CE} = 5 V DC	175	275	-	-
		I_C = 500µA DC, V_{CE} = 5V DC)	200	300	-	-
		I_C = 1mA DC, V_{CE} = 5V DC)	250	350	-	-
		I_C = 10mA DC, V_{CE} = 5V DC) (Note 1)	-	400	800	-
Collector-Emitter Saturation Voltage	$V_{CE(sat)}$	I_C = 10mA DC, I_B = 1mA DC	-	0.25	0.35	V DC
Base-Emitter Saturation Voltage	$V_{BE(on)}$	I_C = 0.1mA DC, V_{CE} = 5V DC	0.5	0.65	0.7	
Dynamic Characteristics						
Current Gain-Bandwidth Product	f_T	I_C = 0.05mA DC, V_{CE} = 5V DC, f = 5MHz	15	50	-	MHz
		I_C = 0.5mA DC, V_{CE} = 5 V DC, f = 30MHz	60	100	-	
Output Capacitance	C_{ob}	V_{CB} = 5 V DC, I_E = 0, f = 140kHz	-	3	6	pF
Input Capacitance	C_{ib}	V_{BE} = 5V DC, I_E = 0, f = 140kHz	-	4	6	pF
Input Impedance	h_{IE}	I_C = 1mA DC, V_{CE} = 5V DC, f = 1kHz	3.5	-	24	kΩ
Voltage Feedback Ratio	h_{RE}	I_C = 1mA DC, V_{CE} = 5V DC, f = 1kHz	-	-	800	$\times 10^{-6}$
Small Signal Current Gain	h_{fe}	I_C = 1mA DC, V_{CE} = 5V DC, f = 1kHz	150	-	900	-
Output Admittance	hoe	I_C = 1mA DC, V_{CE} = 5V DC, f = 1kHz	-	-	40	µmhos
Noise Figure	NF	I_C = 10µA DC, V_{CE} = 5V DC, R_S = 10kΩ, f = 100Hz, BW = 20 Hz	-	8	10	dB
		I_C = 10µA DC, V_{CE} = 5V DC, Rs = 10kΩ, f = 1kHz, BW = 200Hz	-	-	3	dB
		I_C = 10µA DC, V_{CE} = 5V DC, R_S = 10kΩ, f = 10kHz, BW = 2kHz	-	-	2	dB
		(I_C = 10µA DC, V_{CE} = 5V DC, R_S = 10kΩ, f = 10Hz to 15.7kHz, BW = 15.7kHz	-	-	3	dB

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

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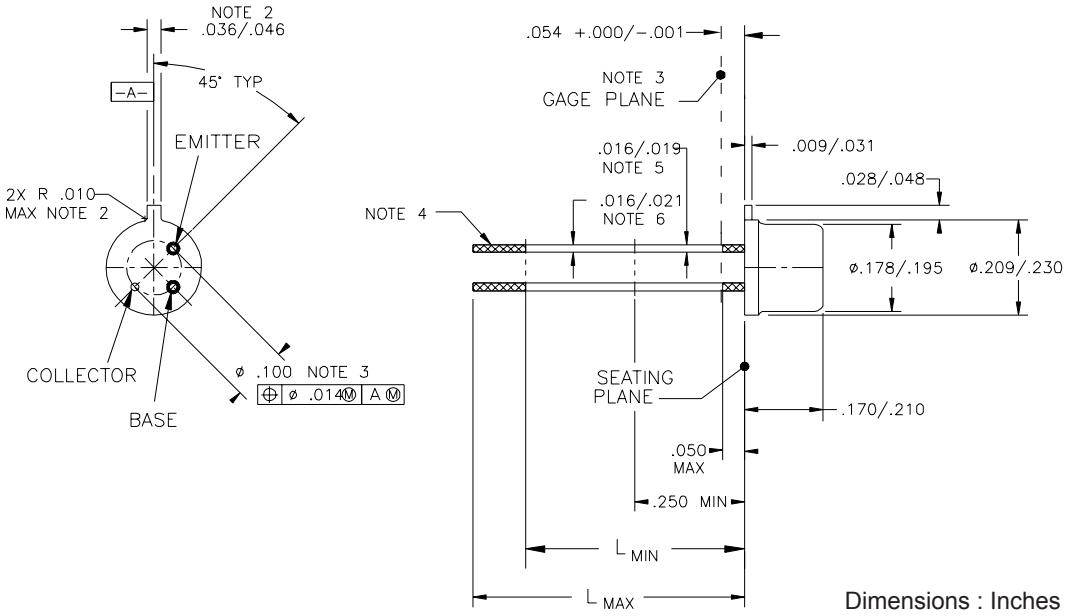
LEAD	DIM L	
	MIN	MAX
SHORT	.500/.750	



Dimensions : Inches

Notes:

1. Dimensions are in Inches
2. Tab width shall be held to tolerance for at least 0.011 Beyond corner radius
3. True position applies at gage plane; device may be measured by direct methods or by mil spec. Gage & procedure.
4. ⊠ Symbol indicates portion of leads not held to tolerance.
5. 0.016/0.019 Lead Dia. applies between 0.05 max. & 0.25 min.
6. 0.016/0.021 Lead Dia. applies between 0.25 min. & 0.5 min.
7. Standard product lead finish is gold plate. Optional lead finish shall be hot solder dip per customer spec.

Part Number Table

Description	Part Number
Bipolar Transistor, NPN, 50mA, 60V, TO-18	2N2484