BC160
BC161

CASE 79, STYLE 1
TO-39 (TO-205AD)

AMPLIFIER TRANSISTOR

PNP SILICON

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Refer to 2N4033 for graphs.

MAXIMUM RATINGS

Rating	Symbol	BC 160	BC 161	Unit
Collector-Emitter Voltage	V_{CEO}	40	60	Vdc
Collector-Base Voltage	V_{CBO}	40	60	Vdc
Emitter-Base Voltage	V_{EBO}	5		Vdc
Collector Current – Continuous	I_C	1		Adc
Total Device Dissipation @ T_A = 25°C Derate above 25°C	P_D	0.8 4.6		Watt mW/°C
Total Device Dissipation @ T_C = 25°C Derate above 25°C	P_D	3.7 20		Watt mW/°C
Operating and Storage Junction Temperature Range	T_J, T_{stg}	−65 to +200		°C

THERMAL CHARACTERISTICS

Characteristic	Symbol	Max	Unit
Thermal Resistance, Junction to Case	$R_{\theta JC}$	35	°C/W
Thermal Resistance, Junction to Ambient	$R_{\theta JA}$	200	°C/W

ELECTRICAL CHARACTERISTICS (T_A = 25°C unless otherwise noted.)

Characteristic	Symbol	Min	Max	Unit
OFF CHARACTERISTICS				
Collector Cutoff Current I_E = 0, V_{CES} = −40 V for BC160 V_{CES} = −60 V for BC161 V_{CES} = −40 V for BC160 T_{Amb} = 150°C V_{CES} = −60 V for BC161 T_{Amb} = 150°C	I_{CES}		−100 −100 −100 −100	nA μA
Collector Emitter Breakdown Voltage I_C = −100 μA, I_E = 0 for BC160 for BC161	$V_{(BR)CES}$	−40 −60		V
Collector-Emitter Breakdown Voltage(1) I_C = −10 mA, I_B = 0 for BC160 for BC161	$V_{(BR)CEO}$	−40 −60		V
Emittor-Base Breakdown Voltage I_E = −100 μA, I_C = 0	$V_{(BR)EBO}$	−5		V
ON CHARACTERISTICS				
DC Current Gain(1) I_C = −100 mA, V_{CE} = −1 V for BC160, BC161 for BC160, BC161 Group 6 for BC160, BC161 Group 10 for BC160, BC161 Group 16	h_{FE}	 40 40 63 100	 400 100 160 250	
Collector-Emitter Saturation Voltage(1) (I_C = −1 A, I_B = −0.1 A)	$V_{CE(sat)}$		−1	V
Base-Emitter Voltage(1) (I_C = −1 A, V_{CE} = −1 V)	$V_{BE(on)}$		−1.7	V
SMALL SIGNAL CHARACTERISTICS				
Gain Bandwidth Product (I_C = −50 mA, V_{CE} = −10 V, f = 20 MHz	f_T	50		MHz
Input Capacitance (V_{EB} = −10 V, f = 1 MHz)	C_{ib}		180	pF
Output Capacitance (V_{CB} = −10 V, I_E = 0, f = 1 MHz)	C_{obo}		30	pF
Turn On Time (I_C = −100 mA, I_{B1} = −5 μA)	T_{on}		500	ns
Turn Off Time (I_C = −100 mA, I_{B1} = I_{B2} = −5 μA)	T_{off}		650	ns

(1) Pulsed: Pulse Duration = 300 μs, Duty Cycle = 1%.