

PNP SILICON POWER SWITCHING TRANSISTORS

BC160, BC161



TO-39
Metal Can Package

Medium Power Amplifier and Switching Applications

Complementary BC140 and BC141

ABSOLUTE MAXIMUM RATINGS

DESCRIPTION	SYMBOL	BC160	BC161	UNITS
Collector Emitter Voltage	V_{CEO}	40	60	V
Collector Base Voltage	V_{CBO}	40	60	V
Emitter Base Voltage	V_{EBO}	5.0		V
Collector Current - Continuous	I_C	1.0		A
Power Dissipation@ $T_a=25^\circ\text{C}$ Derate Above 25°C	P_D	0.8 4.57		W mW/ $^\circ\text{C}$
Power Dissipation@ $T_c=25^\circ\text{C}$ Derate Above 25°C	P_D	4.0 22.73		W mW/ $^\circ\text{C}$
Operating and Storage Junction Temperature Range	T_j, T_{stg}	- 65 to +200		$^\circ\text{C}$

THERMAL CHARACTERISTICS

Junction to Ambient in free air	$R_{th(j-a)}$	219	$^\circ\text{C/W}$
Junction to Case	$R_{th(j-c)}$	44	$^\circ\text{C/W}$

ELECTRICAL CHARACTERISTICS ($T_a=25^\circ\text{C}$ unless specified otherwise)

DESCRIPTION	SYMBOL	TEST CONDITION	MIN	TYP	MAX	UNITS
Collector Emitter Voltage	V_{CES}	$I_C=100\mu\text{A}, V_{BE}=0$ BC160 BC161	40 60			V V
Collector Emitter Voltage	$*V_{CEO}$	$I_C=10\text{mA}, I_B=0$ BC160 BC161	40 60			V V
Emitter Base Voltage	V_{EBO}	$I_E=100\mu\text{A}, I_C=0$	5			V
Collector Cut off Current	I_{CES}	$V_{CE}=40\text{V}, V_{BE}=0,$ BC160 $V_{CE}=60\text{V}, V_{BE}=0,$ BC161 $T_a=150^\circ\text{C}$ $V_{CE}=40\text{V}, V_{BE}=0,$ BC160 $V_{CE}=60\text{V}, V_{BE}=0,$ BC161			100 100 100 100	nA nA μA μA
DC Current Gain	$*h_{FE}$	$I_C=100\text{mA}, V_{CE}=1\text{V}$ BC160 / BC161 Group-6 Group-10 Group-16	40 40 63 100		400 100 160 250	

*Pulsed: Pulse duration $\leq 300\mu\text{s}$, duty cycle $\leq 1\%$



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ELECTRICAL CHARACTERISTICS (T_a=25°C unless specified otherwise)

DESCRIPTION	SYMBOL	TEST CONDITION	MIN	TYP	MAX	UNITS
DC Current Gain	*h _{FE}	I _C =1A, V _{CE} =1V BC160 / BC161 Group-6 Group-10 Group-16		26 15 20 30		
Collector Emitter Saturation Voltage	*V _{CE (sat)}	I _C =1A, I _B =0.1A			1.0	V
Base Emitter on Voltage	*V _{BE (on)}	I _C =1A, V _{CE} =1V			1.7	V

DYNAMIC CHARACTERISTICS

Transition Frequency	f _T	I _C =50mA, V _{CE} =10V, f=20MHz	50			MHz
Output Capacitance	C _{ob}	V _{CB} =10V, I _E =0, f=1MHz			30	pF
Input Capacitance	C _{ib}	V _{EB} =10V, I _C =0, f=1MHz			180	pF

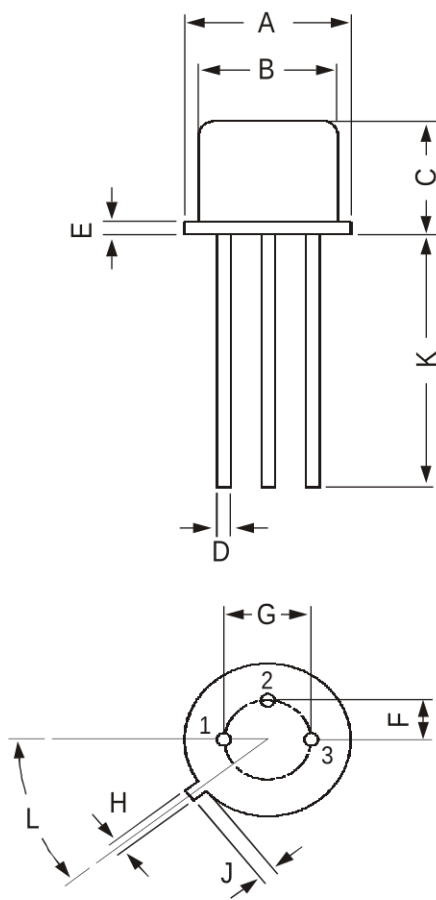
SWITCHING CHARACTERISTICS

Turn on time	t _{on}	I _C =150mA, I _{B1} =5µA			500	ns
Turn off time	t _{off}	I _C =100mA, I _{B1} =I _{B2} =5µA			650	ns

*Pulsed: Pulse duration ≤300µs, duty cycle ≤1%

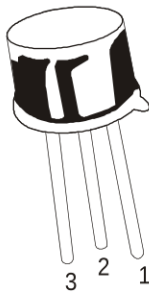
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All dimensions are in mm

DIM	MIN	MAX
A	8.50	9.39
B	7.74	8.50
C	6.09	6.60
D	0.40	0.53
E	—	0.88
F	2.41	2.66
G	4.82	5.33
H	0.71	0.86
J	0.73	1.02
K	12.70	—
L	42 DEG	48 DEG



PIN CONFIGURATION
1. EMITTER
2. BASE
3. COLLECTOR

Packing Details

PACKAGE	STANDARD PACK		INNER CARTON BOX		OUTER CARTON BOX		
	Details	Net Weight/Qty	Size	Qty	Size	Qty	Gr Wt.
TO-39	500 pcs/polybag	540 gm/500 pcs	3" x 7.5" x 7.5"	20K	17" x 15" x 13.5"	32K	40 kgs

Disclaimer

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Continental Device India Limited

C-120 Naraina Industrial Area, New Delhi 110 028, India.

Telephone + 91-11-2579 6150, 5141 1112 Fax + 91-11-2579 5290, 5141 1119

email@cdil.com www.cdilsemi.com