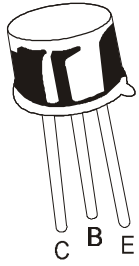


NPN SILICON POWER SWITCHING TRANSISTORS

BC140, BC141



**TO-39
Metal Can Package**

Medium Power Amplifier and Switching Applications

Complementary BC160 and BC161

ABSOLUTE MAXIMUM RATINGS

DESCRIPTION	SYMBOL	BC140	BC141	UNITS
Collector Emitter Voltage	V_{CEO}	40	60	V
Collector Base Voltage	V_{CBO}	80	100	V
Emitter Base Voltage	V_{EBO}	7.0		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	$^\circ\text{C/W}$

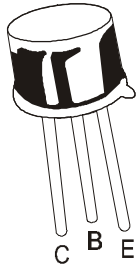
ELECTRICAL CHARACTERISTICS ($T_a=25^\circ\text{C}$ unless specified otherwise)

DESCRIPTION	SYMBOL	TEST CONDITION	MIN	TYP	MAX	UNITS
Collector Emitter Voltage	V_{CES}	$I_C=100\mu\text{A}, V_{BE}=0$ BC140 BC141	80 100			V V
Collector Emitter Voltage	$*V_{CEO}$	$I_C=30\text{mA}, I_B=0$ BC140 BC141	40 60			V V
Emitter Base Voltage	V_{EBO}	$I_E=100\mu\text{A}, I_C=0$	7			V
Collector Cut off Current	I_{CES}	$V_{CE}=60\text{V}, V_{BE}=0$ $V_{CE}=60\text{V}, V_{BE}=0, T_a=150^\circ\text{C}$			100 100	nA μA
DC Current Gain	$*h_{FE}$	$I_C=100\text{mA}, V_{CE}=1\text{V}$ BC140 / BC141 Group-6 Group-10 Group-16 $I_C=1\text{A}, V_{CE}=1\text{V}$ BC140 / BC141 Group-6 Group-10 Group-16	40 40 63 100		400 100 160 250	
				26 15 20 30		

*Pulsed: Pulse duration $\leq 300\text{ms}$, Duty cycle $\leq 1\%$

NPN SILICON POWER SWITCHING TRANSISTORS

BC140, BC141



TO-39
Metal Can Package

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

DESCRIPTION	SYMBOL	TEST CONDITION	MIN	TYP	MAX	UNITS
Collector Emitter Saturation Voltage	$*V_{CE(sat)}$	$I_C=1\text{A}, I_B=0.1\text{A}$			1.0	V
Base Emitter on Voltage	$*V_{BE(on)}$	$I_C=1\text{A}, V_{CE}=1\text{V}$			2.0	V

DYNAMIC CHARACTERISTICS

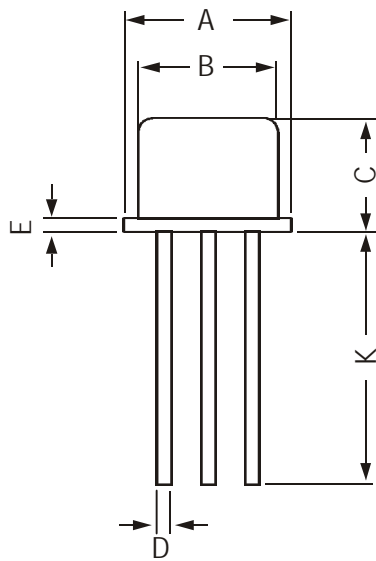
Transition Frequency	f_T	$I_C=50\text{mA}, V_{CE}=10\text{V}, f=20\text{MHz}$	50			MHz
Output Capacitance	C_{ob}	$V_{CB}=10\text{V}, I_E=0, f=1\text{MHz}$			25	pF
Input Capacitance	C_{ib}	$V_{EB}=0.5\text{V}, I_C=0, f=1\text{MHz}$			80	pF

SWITCHING CHARACTERISTICS

Turn on time	t_{on}	$I_C=150\text{mA}, I_{B1}=7.5\text{mA}$			250	ns
Turn off time	t_{off}	$I_C=150\text{mA}, I_{B1}=I_{B2}=7.5\text{mA}$			850	ns

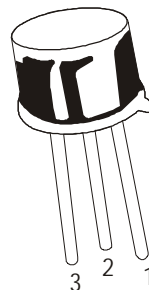
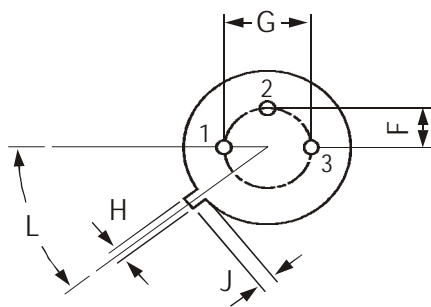
*Pulsed: Pulse duration $\leq 300\text{ms}$, Duty cycle $\leq 1\%$

TO-39 Metal Can Package



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

All dimensions are in mm



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

The product information and the selection guides facilitate selection of the CDIL's Discrete Semiconductor Device(s) best suited for application in your product(s) as per your requirement. It is recommended that you completely review our Data Sheet(s) so as to confirm that the Device(s) meet functionality parameters for your application. The information furnished in the Data Sheet and on the CDIL Web Site/CD are believed to be accurate and reliable. CDIL however, does not assume responsibility for inaccuracies or incomplete information. Furthermore, CDIL does not assume liability whatsoever, arising out of the application or use of any CDIL product; neither does it convey any license under its patent rights nor rights of others. These products are not designed for use in life saving/support appliances or systems. CDIL customers selling these products (either as individual Discrete Semiconductor Devices or incorporated in their end products), in any life saving/support appliances or systems or applications do so at their own risk and CDIL will not be responsible for any damages resulting from such sale(s).

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CDIL is a registered Trademark of
Continental Device India Limited

C-120 Naraina Industrial Area, New Delhi 110 028, India.
Telephone + 91-11-2579 6150 Fax + 91-11-2579 9569, 2579 5290
e-mail sales@cdil.com www.cdil.com www.cdilsemi.com