

# BC140, 141

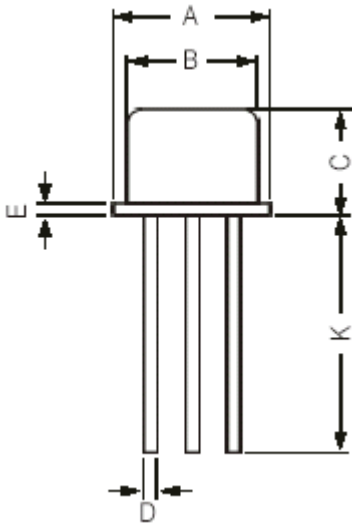
## NPN Medium Power Transistors



### Features:

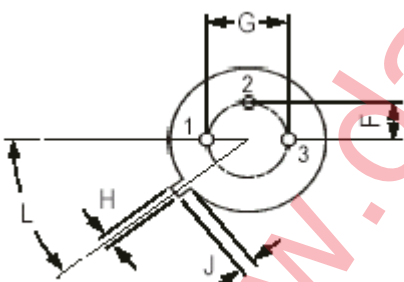
- NPN Silicon Power Switching Transistors.
- Medium Power Amplifier and Switching Applications.

### TO-39 Metal Can Package



Dimension	Minimum	Maximum
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°	48°

Dimensions : Millimetres



Pin Configuration:

1. Emitter
2. Base
3. Collector

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### Absolute Maximum Ratings

Description	Symbol	BC140	BC141	Units
Collector Emitter Voltage	$V_{CEO}$	40	60	V
Collector Base Voltage	$V_{CBO}$	80	100	
Emitter Base Voltage	$V_{EBO}$	7.0		
Collector Current - Continuous	$I_C$	1.0		A
Power Dissipation at $T_a = 25^\circ\text{C}$ Derate Above $25^\circ\text{C}$	$P_D$	0.8 4.57		W mW/ $^\circ\text{C}$
Power Dissipation at $T_c = 25^\circ\text{C}$ Derate Above $25^\circ\text{C}$	$P_D$	4.0 22.73		
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	$^\circ\text{C}/\text{W}$
Junction to Case	$R_{th(j-c)}$	44	

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### Electrical Characteristics ( $T_a = 25^\circ\text{C}$ unless specified otherwise)

Description	Symbol	Test Condition	Minimum	Typical	Maximum	Units
Collector Emitter Voltage	$V_{CES}$	$I_C = 100\mu\text{A}, V_{BE} = 0$ BC140 BC141	80 100	-	-	V
Collector Emitter Voltage	$*V_{CEO}$	$I_C = 30\text{mA}, I_B = 0$ BC140 BC141	40 60	-	-	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 $\mu\text{A}$
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	-
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
<b>Dynamic Characteristics</b>						
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	
<b>Switching Characteristics</b>						
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	

\*Pulsed : Pulse Duration  $\leq 300\mu\text{s}$ , Duty Cycle  $\leq 1\%$

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### Specifications

Package	Part Number
TO-39	BC140-6
	BC140-10
	BC140-16
	BC141-6
	BC141-10
	BC141-16

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### Notes:

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