

BC140, 141

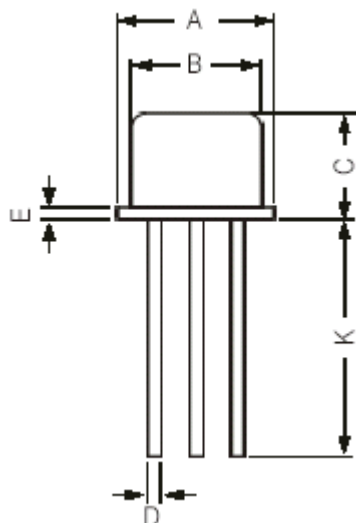
NPN Medium Power Transistors



Features:

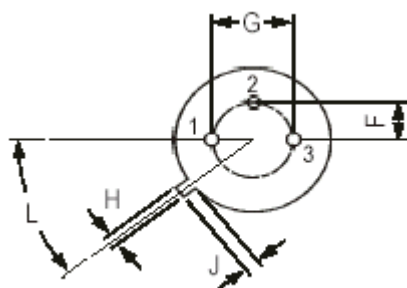
- NPN Silicon Power Switching Transistors.
- Medium Power Amplifier and Switching Applications.

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°C Derate Above 25°C	P _D	0.8 4.57		W mW/°C
Power Dissipation at T _c = 25°C Derate Above 25°C	P _D	4.0 22.73		
Operating and Storage Junction Temperature Range	T _J , T _{stg}	-65 to +200		°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	

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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 = 100μA, V _{BE} = 0 BC140 BC141	80 100	-	-	V
Collector Emitter Voltage	*V _{CEO}	I _C = 30mA, I _B = 0 BC140 BC141	40 60	-	-	
Emitter Base Voltage	V _{EBO}	I _E = 100μA, I _C = 0	7	-	-	V
Collector Cut off Current	I _{CES}	V _{CE} = 60V, V _{BE} = 0 V _{CE} = 60V, V _{BE} = 0, T _a = 150°C	-	-	100 100	nA μA
DC Current Gain	*h _{FE}	I _C = 100mA, V _{CE} = 1V BC140/BC141 Group-6 Group-10 Group-16	40 40 63 100		400 100 160 250	-
		I _C = 1A, V _{CE} = 1V BC140/BC141 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	-	-	2.0	
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	-	-	25	pF
Input Capacitance	C _{ib}	V _{EB} = 0.5V, I _C = 0, f = 1MHz	-	-	80	
Switching Characteristics						
Turn On Time	t _{on}	I _C = 150mA, I _{B1} = 7.5mA	-	-	250	ns
Turn Off Time	t _{off}	I _C = 150mA, I _{B1} = I _{B2} = 7.5mA	-	-	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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