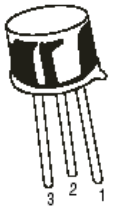
NPN Medium Power Transistor



Pin Configuration
1. Emitter
2. Base
3. Collector

Features:

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

Absolute Maximum Ratings:

(T_a = 25°C unless otherwise specified)

Characteristic	Symbol	BC140-16	BC141-16	Unit
Collector Emitter Voltage	V_{CBO}	40	60	V
Collector Base Voltage	V_{CES}	80	100	
Emitter Base Voltage	V_{EBO}	7		
Collector Current Continuous	I_C	1		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		4 22.73		
Operating Storage Temperature Range	T_j, T_{stg}	-65 to +200		°C

Thermal Resistance

Junction to Ambient in Free Air	$R_{th(j-a)}$	219		°C/W
Junction to Case	$R_{th(j-c)}$	44		

Electrical Characteristics:

(T_a = +25°C unless otherwise specified)

Parameter	Symbol	Test Condition	Min.	Typ.	Max.	Unit
Collector Emitter Voltage	V_{CES}	I_C = 100µA, V_{BE} = 0 BC140-16 BC141-16	 80 100		-	V
	*V_{CEO}	I_C = 30mA, I_B = 0 BC140-16 BC141-16	 40 60			
Emitter Base Voltage	V_{EBO}	I_E = 100µA, I_C = 0	7		-	
Collector Cut off Current	I_{CES}	V_{CE} = 60V, V_{BE} = 0	-	-	100	nA
		V_{CE} = 60V, V_{BE} = 0, T_a = 150ºC				µA
DC Current Gain	*h_{FE}	I_C = 100mA, V_{CE} = 1V BC140-16/BC141-16 Group-6 Group-10 Group-16	 40 40 63 100		 400 100 160 250	-
		I_C = 1A, V_{CE} = 1V BC140-16/BC141-16 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	V
Base Emitter on Voltage	*$V_{BE(on)}$	I_C = 1A, V_{CE} = 1V			2	

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 ≤300µs, Duty Cycle ≤1%

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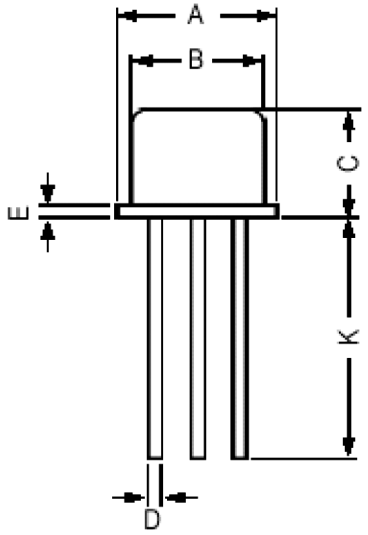
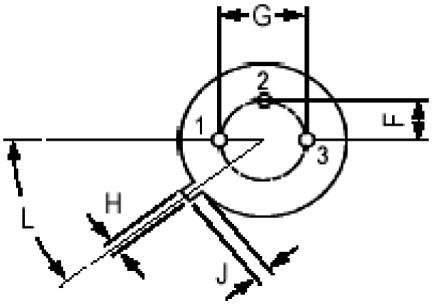
TO-39 Metal Can Package



Dim.	Min.	Max.
A	8.5	9.39
B	7.74	8.5
C	6.09	6.6
D	0.4	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	12.7	-
L	42°	48°

Dimensions : Millimetres



Pin Configuration

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Part Number Table

Description	Part Number
Transistor, NPN, TO-39	BC140-16
	BC141-16