

NPN BC140/10 – BC140/16 NPN BC141/10 – BC141/16

GENERAL PURPOSE TRANSISTORS

They are silicon planar epitaxial NPN transistors mounted in TO-39 metal package.
They are particularly designed for audio amplifiers and switching applications up to 1A.
PNP complements are the BC160 – BC161.

Compliance to RoHS.

ABSOLUTE MAXIMUM RATINGS

Symbol	Ratings		Value	Unit
V_{CBO}	Collector-Base Voltage $I_E = 0$	BC140	80	V
		BC141	100	
V_{CEO}	Collector-Emitter Voltage $I_B = 0$	BC140	40	V
		BC141	60	
V_{EBO}	Emitter-Base Voltage $I_C = 0$	BC140	7	V
		BC141		
I_C	Collector Current	BC140	1	A
		BC141		
I_B	Base Current	BC140	0.1	A
		BC141		
P_{tot}		@ $T_{case} = < 45^\circ$	3.7	Watts
		@ $T_{amb} = < 45^\circ$	0.65	
T_J	Junction Temperature		175	$^\circ\text{C}$
T_{Stg}	Storage Temperature range		-55 to +175	$^\circ\text{C}$

THERMAL CHARACTERISTICS

Symbol	Ratings	Value	Unit
R_{thJ-c}	Thermal Resistance, Junction-case	35	K/ W
$R_{thJ-amb}$	Thermal Resistance, Junction-ambient	200	K/ W

ELECTRICAL CHARACTERISTICS

TC=25°C unless otherwise noted

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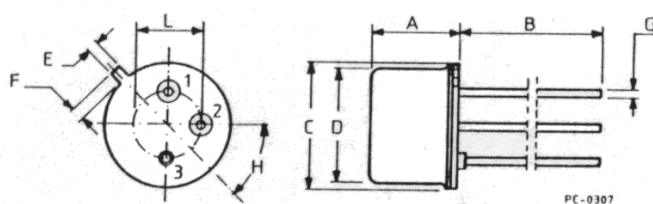
Symbol	Ratings	Test Condition(s)		Min	Typ	Mx	Unit
I_{CES}	Collector – Cutoff Current	$I_E = 0 ; V_{CES} = 60 \text{ V}$	BC140	-	-	100	nA
		$I_E = 0 ; V_{CES} = 60 \text{ V}$ $T_{amb} = 150^\circ\text{C}$	BC141	-	-	100	μA
V_{CB0}	Collector – Base Breakdown Voltage	$I_C = 100 \mu\text{A}$ $I_E = 0$	BC140	80	-	-	V
			BC141	100	-	-	
$V_{CE0} (*)$	Collector – Emitter Breakdown Voltage	$I_C = 30 \text{ mA}$ $I_B = 0$	BC140	40	-	-	V
			BC141	60	-	-	
V_{EB0}	Emitter – Base Breakdown Voltage	$I_E = 100 \mu\text{A}$ $I_C = 0$	BC140	7	-	-	V
			BC141				
$V_{CE(SAT)} (*)$	Collector-Emitter saturation Voltage	$I_C = 100 \text{ mA}, I_B = 10 \text{ mA}$		-	0.1		V
		$I_C = 500 \text{ mA}, I_B = 50 \text{ mA}$		-	0.35		
		$I_C = 1 \text{ A}, I_B = 100 \text{ mA}$		-	0.6	1	
$V_{BE} (*)$	Base-Emitter Voltage	$I_C = 1 \text{ A}, V_{CE} = 1 \text{ V}$			1.25	1.8	
$h_{FE} (*)$	DC Current Gain	$I_C = 100 \mu\text{A}, V_{CE} = 1 \text{ V}$	Gr 10	-	75	-	-
			Gr 16	-	40	-	
		$I_C = 100 \text{ mA}, V_{CE} = 1 \text{ V}$		40	140	250	
			Gr 10	63	100	160	
		$I_C = 1 \text{ A}, V_{CE} = 1 \text{ V}$	Gr 16	100	160	250	
				-	26	-	
			Gr 10	-	20	-	
			Gr 16	-	30	-	
f_T	Transition Frequency	$I_C = 50 \text{ mA}, V_{CE} = 10 \text{ V}$		50	-	-	MHz
C_{CBO}	Collector – base Capacitance	$I_E = 0 ; V_{CB} = 10 \text{ V}$ $f = 1 \text{ MHz}$		-	12	25	pF
t_{off}	Turn-off times	$I_C = 100 \text{ mA}$ $I_{B1} = -I_{B2} = 5 \text{ mA}$		-	-	850	ns
t_{on}	Turn-on times	$I_C = 100 \text{ mA}$ $I_{B1} = 1 \text{ mA}$		-	-	250	ns

(*) Pulsed : pulse duration = 300 μs , duty cycle = 1%

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MECHANICAL DATA CASE TO-39

DIMENSIONS	
	mm
A	6,25
B	13,59
C	9,24
D	8,24
E	0,78
F	1,05
G	0,42
H	45°
L	4,1



Pin 1 :	Emitter
Pin 2 :	Base
Case :	Collector

Information furnished is believed to be accurate and reliable. However, CS assumes no responsibility for the consequences of use of such information nor for errors that could appear.
 Data are subject to change without notice.