

**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	W
		@ $T_{amb} = < 45^\circ$	0.65	
$T_J$	Junction Temperature	175	$^\circ C$	
$T_{Stg}$	Storage Temperature range	-55 to +175	$^\circ C$	

### 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

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

### ELECTRICAL CHARACTERISTICS

TC=25°C unless otherwise noted

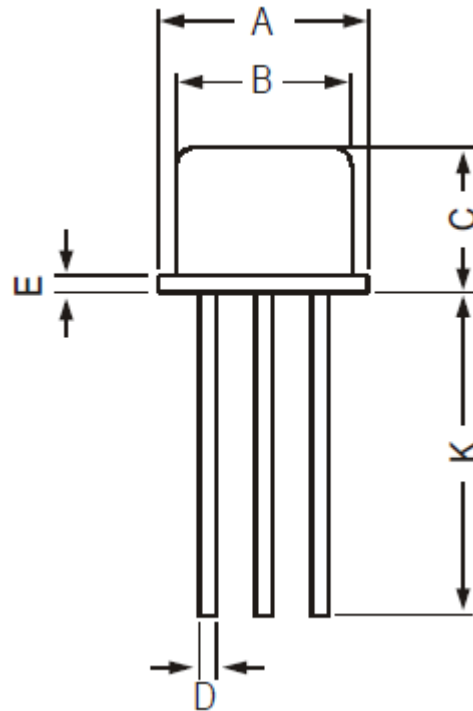
Symbol	Ratings	Test Condition(s)	Min	Typ	Max	Unit	
$I_{CES}$	Collector – Cutoff Current	$I_E = 0$	BC140	-	-	100	nA
		$V_{CES} = 60\text{ V}$	BC141				
		$I_E = 0, V_{CES} = 60\text{ V}$	BC140	-	-	100	$\mu\text{A}$
		$T_{amb} = 150^\circ\text{C}$	BC141				
$V_{CB0}$	Collector – Base Breakdown Voltage	$I_C = 100\ \mu\text{A}$	BC140	80	-	-	V
		$I_E = 0$	BC141	100	-	-	
$V_{CE0} (*)$	Collector – Emitter Breakdown Voltage	$I_C = 30\text{ mA}$	BC140	40	-	-	V
		$I_B = 0$	BC141	60	-	-	
$V_{EB0}$	Emitter – Base Breakdown Voltage	$I_E = 100\ \mu\text{A}$	BC140	7	-	-	V
		$I_C = 0$	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	$I_C = 100\ \mu\text{A}, V_{CE} = 1\text{ V}$		-	75	-	-
			Gr 10	-	40	-	
			Gr 16	-	90	-	
		$I_C = 100\text{ mA}, V_{CE} = 1\text{ V}$		40	140	250	
			Gr 10	63	100	160	
			Gr 16	100	160	250	
		$I_C = 1\text{ A}, V_{CE} = 1\text{ V}$		-	26	-	
			Gr 10	-	20	-	
			Gr 16	-	30	-	
$f_T$	Transition Frequency	$I_C = 50\text{ mA}, V_{CE} = 10\text{ V}$	50	-	-	MHz	
$C_{CB0}$	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 $\mu\text{s}$ , duty cycle = 1%

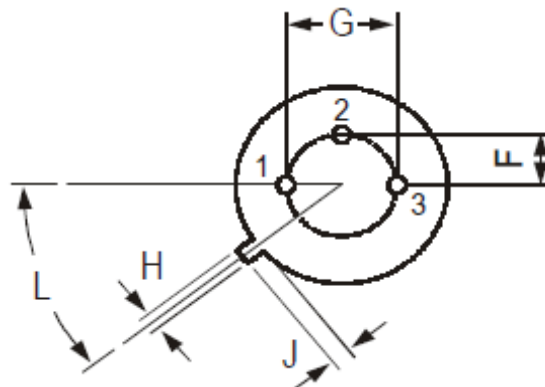
**NPN BC140/10 – BC140/16  
NPN BC141/10 – BC141/16**

**MECHANICAL DATA CASE TO-39**

DIMENSIONS (mm)		
	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°	48°



Pin 1 :	Emitter
Pin 2 :	Base
Pin 3 :	Collector
Case :	Collector



Revised September 2012

Information furnished is believed to be accurate and reliable. However, Comset Semiconductors assumes no responsibility for the consequences of use of such information nor for any infringement of patents or other rights of third parties which may result from its use. Data are subject to change without notice. Comset Semiconductors makes no warranty, representation or guarantee regarding the suitability of its products for any particular purpose, nor does Comset Semiconductors assume any liability arising out of the application or use of any product and specifically disclaims any and all liability, including without limitation consequential or incidental damages. Comset Semiconductors' products are not authorized for use as critical components in life support devices or systems.