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 particulary 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°	3.7	W
		@ T_{amb}= < 45°	0.65	
T_J	Junction Temperature		175	°C
T_{Stg}	Storage Temperature range		-55 to +175	°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

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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 V_{CES}= 60 V	BC140 BC141	-	-	100	nA
		I_E= 0, V_{CES}= 60 V T_{amb} = 150°c	BC140 BC141	-	-	100	µA
V_{CB0}	Collector – Base Breakdown Voltage	I_C = 100 µA I_E= 0	BC140 BC141	80 100	- -	- -	V
V_{CE0} (*)	Collector – Emitter Breakdown Voltage	I_C = 30 mA I_B= 0	BC140 BC141	40 60	- -	- -	V
V_{EB0}	Emitter – Base Breakdown Voltage	I_E= 100 µA I_C= 0	BC140 BC141	7	-	-	V
$V_{CE(SAT)}$ (*)	Collector-Emitter saturation Voltage	I_C= 100 mA , I_B= 10 mA		-	0.1		V
		I_C= 500 mA , I_B= 50 mA		-	0.35		
		I_C= 1 A, I_B= 100 mA		-	0.6	1	
V_{BE} (*)	Base-Emitter Voltage	I_C= 1 A , V_{CE}= 1V			1.25	1.8	
h_{FE} (*)	DC Current Gain	I_C= 100 µA , V_{CE}= 1 V		-	75	-	-
			Gr 10	-	40	-	
			Gr 16	-	90	-	
		I_C= 100 mA , V_{CE}= 1 V		40	140	250	
			Gr 10	63	100	160	
			Gr 16	100	160	250	
		I_C= 1 A , V_{CE}= 1 V		-	26	-	
			Gr 10	-	20	-	
			Gr 16	-	30	-	
f_T	Transition Frequency	I_C= 50 mA , V_{CE}= 10 V		50	-	-	MH_Z
C_{CBO}	Collector – base Capacitance	I_E= 0 ;V_{CB}= 10V f = 1 MH_Z		-	12	25	pF
t_{off}	Turn-off times	I_C=100 mA I_{B1}=-I_{B2}=5 mA		-	-	850	ns
t_{on}	Turn-on times	I_C=100 mA I_{B1}=1 mA		-	-	250	ns

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

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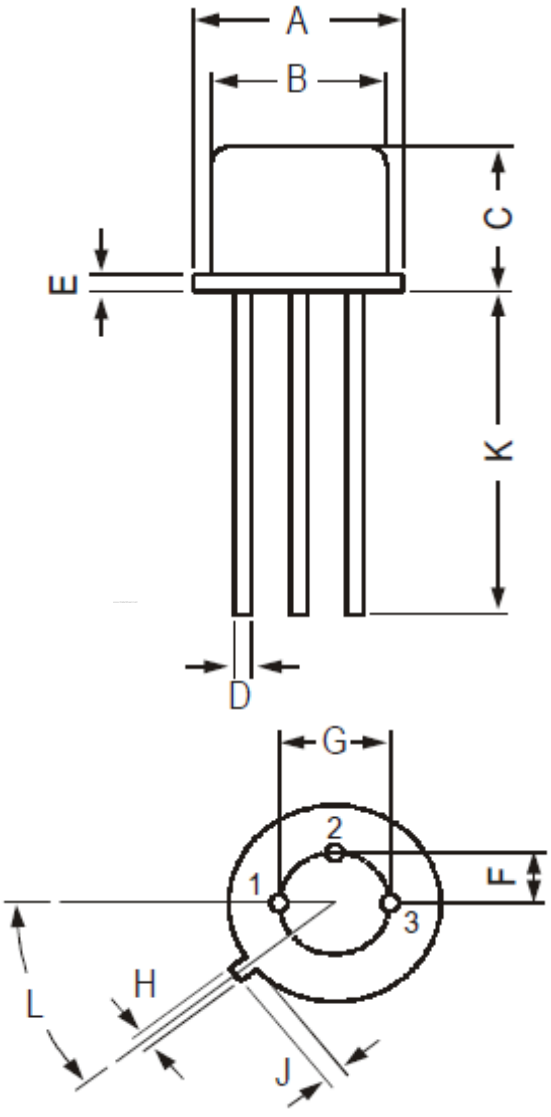
MECHANICAL DATA CASE TO-39

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 Sepember 2012