



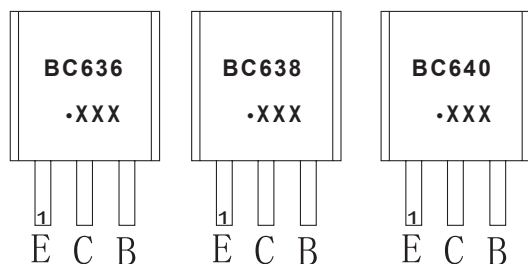
# TO-92 Plastic-Encapsulate Transistors

## BC636 / BC638 / BC640 TRANSISTOR (PNP)

### FEATURES

High current transistors

### MARKING



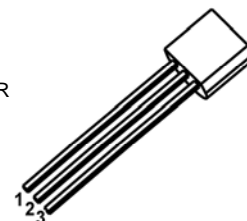
BC636,BC638,BC640=Device code

Solid dot=Green molding compound device,  
if none,the normal device

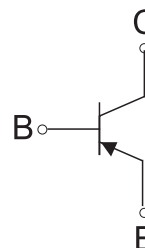
XXX=Code

### TO-92

1. EMITTER
2. COLLECTOR
3. BASE



### Equivalent Circuit



### ORDERING INFORMATION

Part Number	Package	Packing Method	Pack Quantity
BC636	TO-92	Bulk	1000pcs/Bag
BC636-TA	TO-92	Tape	2000pcs/Box
BC638	TO-92	Bulk	1000pcs/Bag
BC638-TA	TO-92	Tape	2000pcs/Box
BC640	TO-92	Bulk	1000pcs/Bag
BC640-TA	TO-92	Tape	2000pcs/Box

### MAXIMUM RATINGS (T<sub>a</sub>=25°C unless otherwise noted)

Symbol	Parameter	Value	Unit
V <sub>CBO</sub>	Collector-Base Voltage	BC636	-45
		BC638	-60
		BC640	-100
V <sub>CEO</sub>	Collector-Emitter Voltage	BC636	-45
		BC638	-60
		BC640	-80
V <sub>EBO</sub>	Emitter-Base Voltage	-5	V
I <sub>C</sub>	Collector Current -Continuous	-1	A
P <sub>C</sub>	Collector Power Dissipation	0.83	W
R <sub>θJA</sub>	Thermal Resistance, junction to Ambient	150	°C/W
T <sub>J</sub> , T <sub>stg</sub>	Operation Junction and Storage Temperature Range	-55~+150	°C

## ELECTRICAL CHARACTERISTICS

$T_a=25^\circ\text{C}$  unless otherwise specified

Parameter	Symbol	Test conditions	Min	Typ	Max	Unit
Collector-base breakdown voltage	$V_{(BR)CBO}$	$I_C=-100\mu\text{A}, I_E=0$ BC636	-45			V
		BC638	-60			
		BC640	-100			
Collector-emitter breakdown voltage	$V_{(BR)CEO}$	$I_C=-1\text{mA}, I_B=0$ BC636	-45			V
		BC638	-60			
		BC640	-80			
Emitter-base breakdown voltage	$V_{(BR)EBO}$	$I_E=-100\mu\text{A}, I_C=0$	-5			V
Collector cut-off current	$I_{CBO}$	$V_{CB}=-30\text{V}, I_E=0$			-0.1	$\mu\text{A}$
Emitter cut-off current	$I_{EBO}$	$V_{EB}=-5\text{V}, I_C=0$			-0.1	$\mu\text{A}$
DC current gain	$h_{FE(1)}$	$V_{CE}=-2\text{V}, I_C=-5\text{mA}$	40			
	$h_{FE(2)}$	$V_{CE}=-2\text{V}, I_C=-150\text{mA}$	63		250	
	$h_{FE(3)}$	$V_{CE}=-2\text{V}, I_C=-500\text{mA}$	25			
Collector-emitter saturation voltage	$V_{CE(sat)}$	$I_C=-500\text{mA}, I_B=-50\text{mA}$			-0.5	V
Base-emitter voltage	$V_{BE}$	$V_{CE}=-2\text{V}, I_C=-500\text{mA}$			-1	V
Transition frequency	$f_T$	$V_{CE}=-5\text{V}, I_C=-50\text{mA}, f=100\text{MHz}$	100			MHz

### CLASSIFICATION OF $h_{FE(2)}$

Rank	BC636-10	BC636-16, BC638-16, BC640-16
Range	63-160	100-250

## TO-92 Package Outline Dimensions



Symbol	Dimensions In Millimeters		Dimensions In Inches	
	Min	Max	Min	Max
A	3.300	3.700	0.130	0.146
A1	1.100	1.400	0.043	0.055
b	0.380	0.550	0.015	0.022
c	0.360	0.510	0.014	0.020
D	4.300	4.700	0.169	0.185
D1	3.430		0.135	
E	4.300	4.700	0.169	0.185
e	1.270 TYP		0.050 TYP	
e1	2.440	2.640	0.096	0.104
L	14.100	14.500	0.555	0.571
Φ		1.600		0.063
h	0.000	0.380	0.000	0.015

## TO-92 Suggested Pad Layout



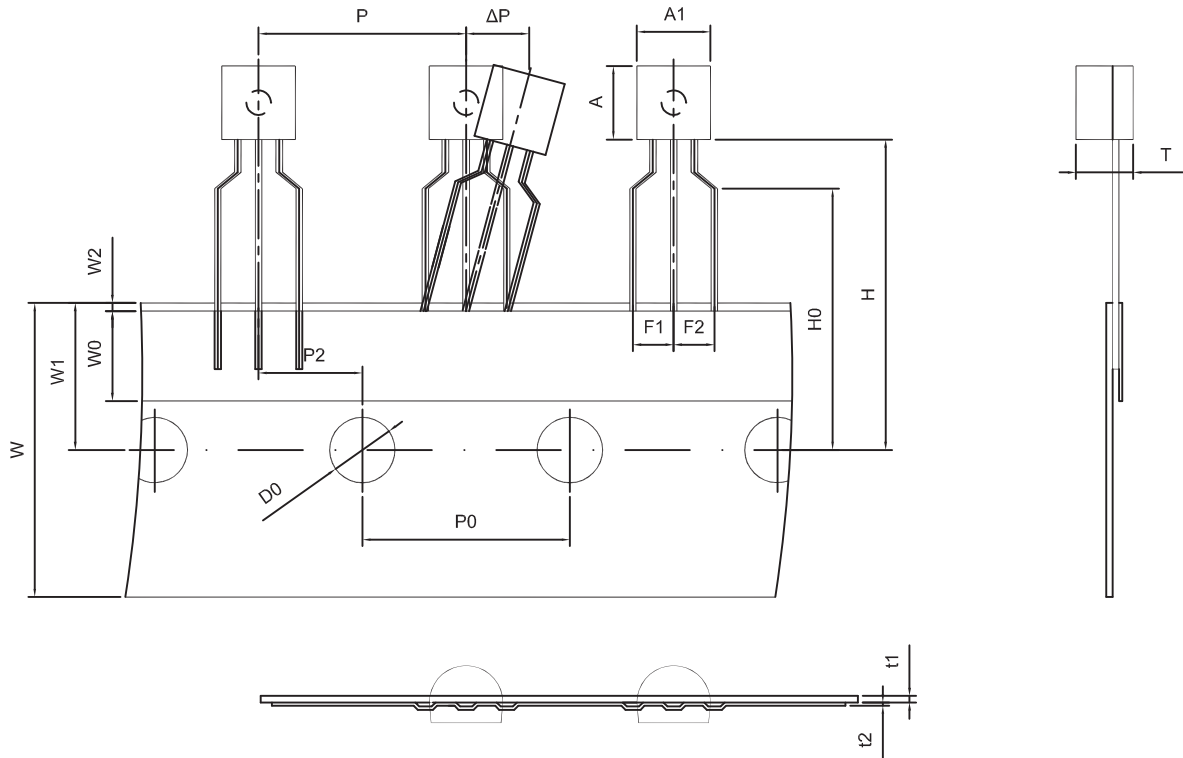
### Note:

1. Controlling dimension: in millimeters.
2. General tolerance:  $\pm 0.05$  mm.
3. The pad layout is for reference purposes only.

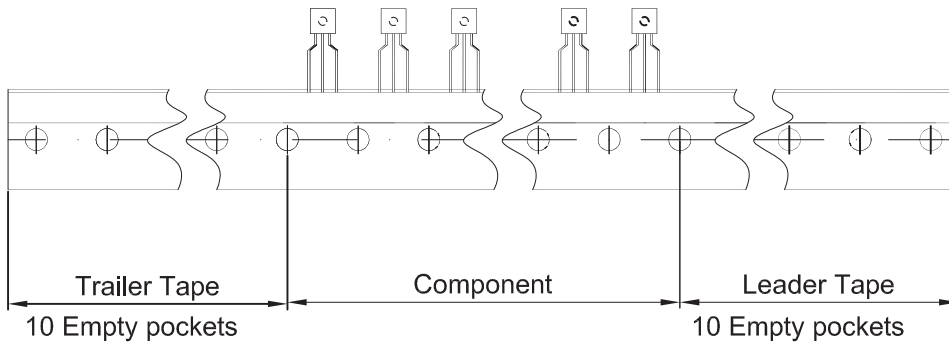
### NOTICE

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TO-92 PACKAGE TAPING DIMENSION



Dimensions are in millimeter								
A1	A	T	P	P0	P2	F1	F2	W
4.5	4.5	3.5	12.7	12.7	6.35	2.5	2.5	18.0
W0	W1	W2	H	H0	D0	t1	t2	ΔP
6.0	9.0	1.0 MAX.	19.0	16.0	4.0	0.4	0.2	0



Package	Box	Box Size(mm)	Carton	Carton Size(mm)
TO-92	2000 pcs	333×162×43	20,000 pcs	350×340×250