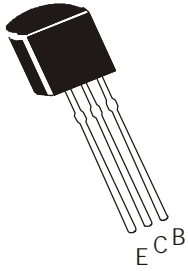


## SILICON PLANAR EPITAXIAL TRANSISTORS



<b>BC635</b>	<b>BC636</b>
<b>BC637</b>	<b>BC638</b>
<b>BC639</b>	<b>BC640</b>
<b>NPN</b>	<b>PNP</b>

**TO-92**  
**Plastic Package**

### Driver Stages of Audio Amplifiers Applications

### Complementary PNP Transistors BC636, BC638, BC640

#### ABSOLUTE MAXIMUM RATINGS ( $T_a=25^\circ\text{C}$ unless specified otherwise)

DESCRIPTION	SYMBOL	BC635	BC637	BC639	UNIT
		BC636	BC638	BC640	
Collector Emitter Voltage	$V_{CEO}$	45	60	80	V
Collector Base Voltage	$V_{CBO}$	45	60	80	V
Emitter Base Voltage	$V_{EBO}$		5.0		V
Collector Current Continuous	$I_C$		1.0		A
Power Dissipation @ $T_a=25^\circ\text{C}$	$P_D$		800		mW
Derate Above $25^\circ\text{C}$			6.4		mW/ $^\circ\text{C}$
Power Dissipation @ $T_c=25^\circ\text{C}$	$P_D$		2.75		W
Derate Above $25^\circ\text{C}$			22		mW/ $^\circ\text{C}$
Operating And Storage Junction Temperature Range	$T_j, T_{stg}$	-55 to +150			$^\circ\text{C}$

#### THERMAL RESISTANCE

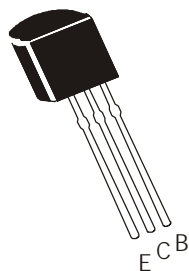
Junction to Ambient in free air	$R_{th(j-a)}$	156	$^\circ\text{C/W}$
Junction to case	$R_{th(j-c)}$	45	$^\circ\text{C/W}$

#### ELECTRICAL CHARACTERISTICS ( $T_a=25^\circ\text{C}$ unless specified otherwise)

DESCRIPTION	SYMBOL	TEST CONDITION	BC635	BC637	BC639	UNIT
			BC636	BC638	BC640	
Collector Emitter Voltage	$V_{CEO}^*$	$I_C=10\text{mA}, I_B=0$	>45	>60	>80	V
Collector Base Voltage	$V_{CBO}$	$I_C=100\mu\text{A}, I_E=0$	>45	>60	>80	V
Emitter Base Voltage	$V_{EBO}$	$I_E=10\mu\text{A}, I_C=0$		>5.0		V
Collector Cut off Current	$I_{CBO}$	$V_{CB}=30\text{V}, I_E=0$		<100		nA
	$I_{CBO}$	$T_a=125^\circ\text{C}$ $V_{CB}=30\text{V}, I_E=0$		<10		$\mu\text{A}$
Base Emitter On Voltage	$V_{BE(on)}^*$	$I_C=500\text{mA}, V_{CE}=2\text{V}$		<1.0		V
Collector Emitter Saturation Voltage	$V_{CE(sat)}^*$	$I_C=500\text{mA}, I_B=50\text{mA}$		<0.5		V

\*Pulse Condition: Width  $\leq 300\text{ms}$ , Duty Cycle  $\leq 2\%$ .

# SILICON PLANAR EPITAXIAL TRANSISTORS



BC635    BC636  
 BC637    BC638  
 BC639    BC640  
 NPN        PNP

TO-92  
 Plastic Package

## Complementary PNP Transistors BC636, BC638, BC640

ELECTRICAL CHARACTERISTICS ( $T_a=25^\circ\text{C}$  unless specified otherwise)

DESCRIPTION	SYMBOL	TEST CONDITION	BC635	BC637	BC639	UNIT
			BC636	BC638	BC640	
DC Current Gain	$h_{FE}$	$V_{CE}=2V, I_C=5mA$		>25		
		$V_{CE}=2V, I_C=150mA$	40-250	40-160	40-160	
		<b>Group -10</b>		63-160		
		<b>Group -16</b>		100-250		
		$V_{CE}=2V, I_C=500mA$		>25		

## DYNAMIC CHARACTERISTICS

Transition Frequency	$f_T$				
	NPN	$I_C=50mA, V_{CE}=2V$		Typ 200	MHz
	PNP	$f=100MHz$		Typ 150	MHz
Output Capacitance	$C_{ob}$	$V_{CB}=10V, f=1MHz$			
	NPN			Typ 7.0	pF
	PNP			Typ 9.0	pF
Input Capacitance	$C_{ib}$				
	NPN	$I_C=0, V_{BE}=0.5V$		Typ 50	pF
	PNP	$f=1MHz$		Typ 110	pF

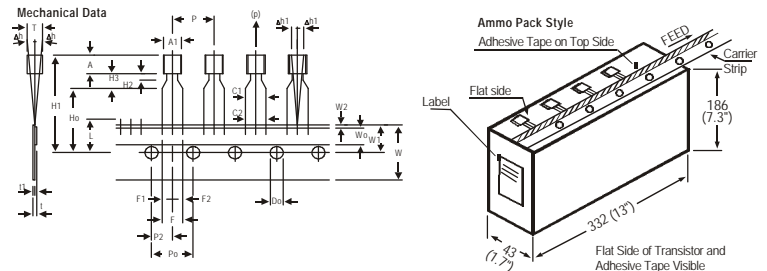
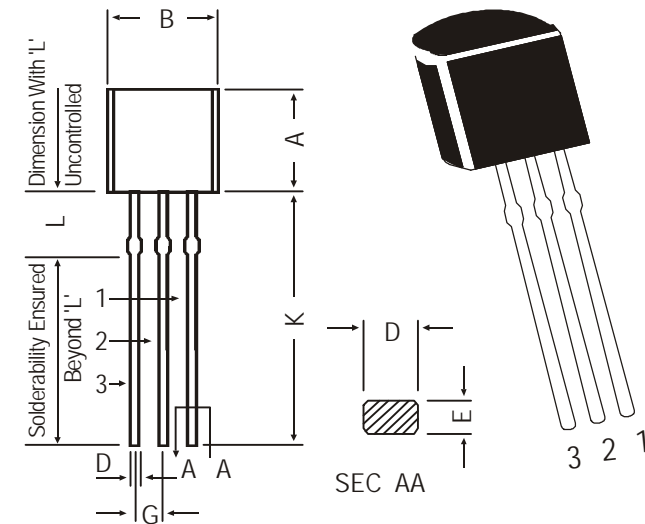
\*Pulse Condition: Width  $\leq 300ms$ , Duty Cycle  $\leq 2\%$ .

BC635 BC636  
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TO-92  
 Plastic Package

### TO-92 Plastic Package

### TO-92 Transistors in Tape and Ammo Pack



All dimensions in mm

ITEM	SYMBOL	SPECIFICATION				REMARKS
		MIN.	NOM.	MAX.	TOL.	
BODY WIDTH	A1	4.0	4.8			
BODY HEIGHT	A	4.8	5.2			
BODY THICKNESS	T	3.9	4.2			
PITCH OF COMPONENT	P	12.7			± 1.0	CUMULATIVE PITCH ERROR 1.0 mm/20 PITCH
FEED HOLE PITCH	Po	12.7			± 0.3	
FEED HOLE CENTRE TO COMPONENT CENTRE	P2	6.35			± 0.4	TO BE MEASURED AT BOTTOM OF CLINCH
DISTANCE BETWEEN OUTER LEADS	F	5.08				
COMPONENT ALIGNMENT SIDE VIEW	Δh	0	1.0			AT TOP OF BODY
COMPONENT ALIGNMENT FRONT VIEW	Δh1	0	1.3			AT TOP OF BODY
TAPE WIDTH	W	18			± 0.5	
HOLD-DOWN TAPE WIDTH	Wo	6			± 0.2	
HOLE POSITION	W1	9			+ 0.6 - 0.5	
HOLD-DOWN TAPE POSITION	W2	0.5			± 0.2	
LEAD WIRE CLINCH HEIGHT	Ho	16			± 0.5	
COMPONENT HEIGHT	H1		23.25			
LENGTH OF SNIPPED LEADS	L		11.0			
FEED HOLE DIAMETER	Do		4		± 0.2	
TOTAL TAPE THICKNESS	t		1.2			t1 0.3-0.6
LEAD - TO - LEAD DISTANCE	F1, F2	2.54			+ 0.4 - 0.1	
STAND OFF	H2	0.45		1.45		
CLINCH HEIGHT	H3			3.0		
LEAD PARALLELISM	C1 - C2			0.22		
PULL - OUT FORCE	(P)		6N			

NOTES

- Maximum alignment deviation between leads will not to be greater than 0.2mm.
- Maximum non-cumulative variation between tape feed holes shall not exceed 1 mm in 20 pitches.
- Holddown tape will not exceed beyond the edge(s) of carrier tape and there shall be no exposure of adhesive.
- There will be no more than three (3) consecutive missing components in a tape.
- A tape trailer, having at least three feed holes are provided after the last component in a tape.
- Splices should not interfere with the sprocket feed holes.

DIM	MIN.	MAX.
A	4.32	5.33
B	4.45	5.20
C	3.18	4.19
D	0.41	0.55
E	0.35	0.50
F	5 DEG	
G	1.14	1.40
H	1.14	1.53
K	12.70	—
L	1.982	2.082

All dimensions in mm.

PIN CONFIGURATION

1. BASE
2. COLLECTOR
3. EMITTER

### Packing Detail

PACKAGE	STANDARD PACK		INNER CARTON BOX		OUTER CARTON BOX		
	Details	Net Weight/Qty	Size	Qty	Size	Qty	Gr Wt
TO-92 Bulk	1K/polybag	200 gm/1K pcs	3" x 7.5" x 7.5"	5K	17" x 15" x 13.5"	80K	23 kgs
TO-92 T&A	2K/ammo box	645 gm/2K pcs	12.5" x 8" x 1.8"	2K	17" x 15" x 13.5"	32K	12.5 kgs

## Notes

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**TO-92**  
**Plastic Package**

## Disclaimer

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