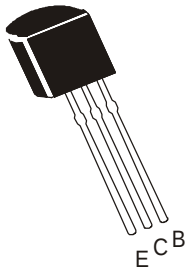
SILICON PLANAR EPITAXIAL TRANSISTORS

BC635 BC636
BC637 BC638
BC639 BC640
NPN PNP



TO-92
Plastic Package

Driver Stages of Audio Amplifiers Applications

Complementary PNP Transistors BC636, BC638, BC640

ABSOLUTE MAXIMUM RATINGS (T_a=25ºC unless specified otherwise)

DESCRIPTION	SYMBOL	BC635 / BC636	BC637 / BC638	BC639 / BC640	UNIT
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=25ºC	P_D		800		mW
Derate Above 25ºC			6.4		mW/ºC
Power Dissipation @ T_c=25ºC	P_D		2.75		W
Derate Above 25ºC			22		mW/ºC
Operating And Storage Junction Temperature Range	T_j, T_{stg}	-55 to +150			ºC

THERMAL RESISTANCE

Junction to Ambient in free air	$R_{th(j-a)}$	156	ºC/W
Junction to case	$R_{th(j-c)}$	45	ºC/W

ELECTRICAL CHARACTERISTICS (T_a=25ºC unless specified otherwise)

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

***Pulse Condition: Width ≤ 300ms, Duty Cycle ≤2%.**

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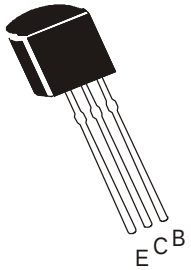

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Complementary PNP Transistors BC636, BC638, BC640

ELECTRICAL CHARACTERISTICS (T_a=25ºC unless specified otherwise)

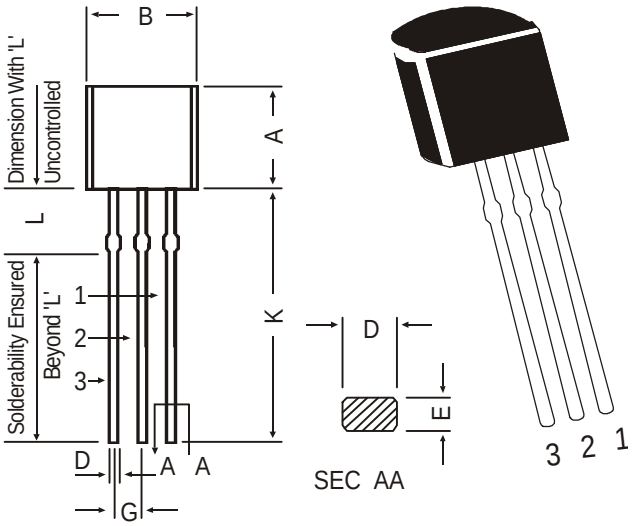
DESCRIPTION	SYMBOL	TEST CONDITION	BC635 / BC636	BC637 / BC638	BC639 / BC640	UNIT
DC Current Gain	h_{FE}	V_{CE}=2V,I_C=5mA		>25		
		V_{CE}=2V,I_C=150mA	40-250	40-160	40-160	
		Group -10		63-160		
		Group -16		100-250		
		V_{CE}=2V,I_C=500mA		>25		

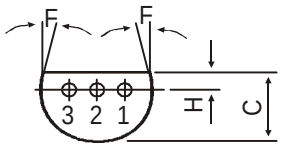
DYNAMIC CHARACTERISTICS

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		Ic=0, V_{BE}=0.5V		Typ 50	pF
PNP		f=1MHz		Typ 110	pF

***Pulse Condition: Width ≤ 300ms, Duty Cycle ≤2%.**

TO-92 Plastic Package



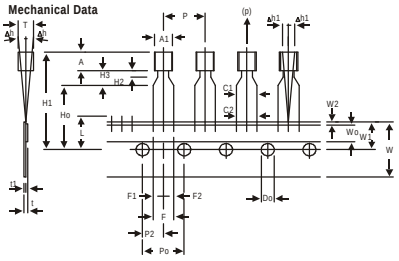


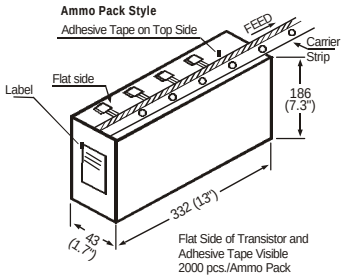
PIN CONFIGURATION
1. BASE
2. COLLECTOR
3. EMITTER

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 diminsions in mm.

TO-92 Transistors in Tape and Ammo Pack





All dimensions in mm

ITEM	SYMBOL	SPECIFICATION MIN.	NOM.	MAX.	TOL .	REMARKS
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	
FEED HOLE PITCH	Po		12.7		± 0.3	CUMULATIVE PITCH ERROR 1.0 mm/20 PITCH
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		+ 0.6 - 0.2	
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		+ 0.7 - 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
1. Maximum alignment deviation between leads will not to be greater than 0.2mm.
2. Maximum non-cumulative variation between tape feed holes shall not exceed 1 mm in 20 pitches.
3. Holddown tape will not exceed beyond the edge(s) of carrier tape and there shall be no exposure of adhesive.
4. There will be no more than three (3) consecutive missing components in a tape.
5. A tape trailer, having at least three feed holes are provided after the last component in a tape.
6. Splices should not interfere with the sprocket feed holes.

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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Disclaimer

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