

# BC635 & BC640

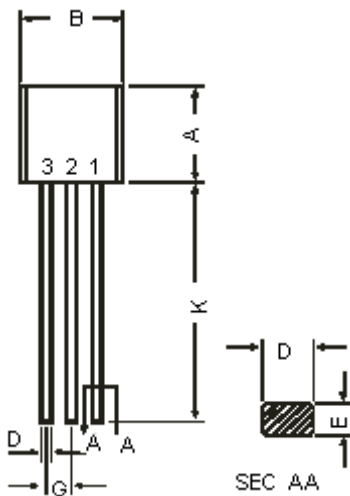
## General Purpose Transistor



### Features:

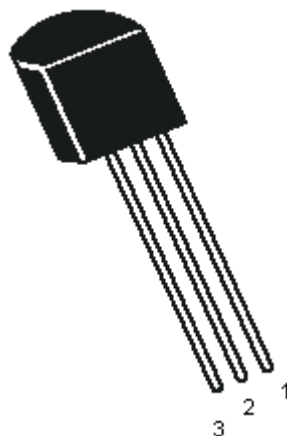
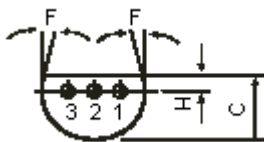
- High performance, low frequency devices.
- NPN/PNP Silicon Planar Epitaxial Transistors.
- Driver Stages of Audio Amplifier Application.

### TO-92 Plastic Package



Dimensions	Minimum	Maximum
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°	
G	1.14	1.40
H		1.53
K	12.70	-

Dimensions : Millimetres



### Pin Configuration:

1. Base
2. Collector
3. Emitter



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### Absolute Maximum Ratings ( $T_a = 25^\circ\text{C}$ )

Parameter	Symbol	BC635	BC640	Unit
Collector-Base Voltage	$V_{CBO}$	45	80	V
Collector-Emitter Voltage	$V_{CEO}$			
Emitter-Base Voltage	$V_{EBO}$	5.0		
Collector Current Continuous	$I_C$	1.0		A
Power Dissipation at $T_a = 25^\circ\text{C}$ Derate Above $25^\circ\text{C}$	$P_D$	800		mW
Power Dissipation at $T_C = 25^\circ\text{C}$ Derate Above $25^\circ\text{C}$		6.4		mW/ $^\circ\text{C}$
Operating and Storage Junction Temperature Range	$T_j, T_{stg}$	-55 to +150		$^\circ\text{C}$
<b>Thermal Resistance</b>				
From Junction to Case	$R_{th(j-c)}$	45		$^\circ\text{C/W}$
From Junction to Ambient	$R_{th(j-a)}$	156		

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

Parameter	Symbol	Test Condition	BC635	BC640	Unit
Collector-Emitter Voltage	$V_{CEO}^*$	$I_C = 10\text{mA}, I_B = 0$	>45	>80	V
Collector-Base Voltage	$V_{CBO}$	$I_C = 100\mu\text{A}, I_E = 0$			
Emitter-Base Voltage	$V_{EBO}$	$I_E = 10\mu\text{A}, I_C = 0$	>5.0		
Collector-Cut off Current	$I_{CBO}$	$V_{CB} = 30\text{V}, I_E = 0$	<100		nA
		$T_a = 125^\circ\text{C}$ $V_{CB} = 30\text{V}, I_E = 0$	<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		
DC Current Gain	$h_{FE}^*$	$I_C = 5\text{mA}, V_{CE} = 2\text{V}$ $I_C = 150\text{mA}, V_{CE} = 2\text{V}$ Group-10 Group-16 $I_C = 500\text{mA}, V_{CE} = 2\text{V}$	>25		-
			40 - 250	40 - 160	
			63 - 160		
			100 - 250		
			>25		

### Dynamic Characteristics

Transistors Frequency	$f_T$	$I_C = 50\text{mA}, V_{CE} = 2\text{V}, f = 100\text{MHz}$	200 (Typical)	150 (Typical)	MHz
Output Capacitance	$C_{ob}$	$V_{CB} = 10\text{V}, f = 1\text{MHz}$	7.0 (Typical)	9.0 (Typical)	pF
Input Capacitance	$C_{ib}$	$V_{BE} = 0.5\text{V}, I_C = 0, f = 1\text{MHz}$	50 (Typical)	110 (Typical)	

\*Pulse Test : Pulse Width = 300 $\mu\text{s}$ , Duty Cycle = 2%



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### Specifications

$V_{CE0}$ maximum (V)	$I_C$ maximum (A)	$h_{FE}$ minimum at $I_C = 150\text{mA}$	$V_{CE(Sat)}$ maximum (V) at $I_C = 500\text{mA}$	Package and Pin Out	Type	Part Number
45	1.0	40	0.5	TO-92	NPN	BC635
80					PNP	BC640

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### Notes:

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