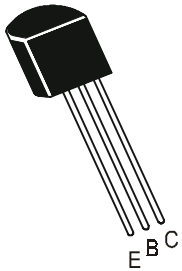


PNP SILICON PLANAR EPITAXIAL TRANSISTORS



**BC212, BC212A, BC212B
BC213, BC213A, BC213B,
BC213C
BC214, BC214B, BC214C**

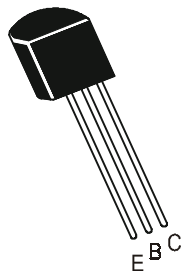
**TO-92
Plastic Package**

Silicon Small Signal General Purpose Amplifier

ABSOLUTE MAXIMUM RATINGS (Ta=25°C unless specified otherwise)

DESCRIPTION	SYMBOL	BC212	BC213	BC214	UNITS
Collector Emitter Voltage	V_{CEO}	50	30	30	V
Collector Base Voltage	V_{CBO}	60	45	45	V
Emitter Base Voltage	V_{EBO}		5		V
Collector Current Continuous	I_C		100		mA
Power Dissipation @ Ta=25°C	P_D		350		mW
Derate Above 25°C			2.8		mW/°C
Power Dissipation @ Tc=25°C	P_D		1		W
Derate Above 25°C			8		mW/°C
Operating And Storage Junction Temperature Range	T_j, T_{stg}		-55 to +150		°C
THERMAL RESISTANCE					
Junction to ambient	$R_{th(j-a)}$		357		°C/W
Junction to case	$R_{th(j-c)}$		125		°C/W

PNP SILICON PLANAR EPITAXIAL TRANSISTORS



**BC212, BC212A, BC212B
BC213, BC213A, BC213B,
BC213C
BC214, BC214B, BC214C**

**TO-92
Plastic Package**

ELECTRICAL CHARACTERISTICS (Ta=25°C Unless Specified Otherwise)

DESCRIPTION	SYMBOL	TEST CONDITION	MIN	TYP	MAX	UNITS
Collector Emitter Voltage	V_{CEO}	$I_C=2mA, I_B=0$				
BC212			50			V
BC213, BC214			30			V
Collector Base Voltage	V_{CBO}	$I_C=10\mu A, I_E=0$				
BC212			60			V
BC213, BC214			45			V
Emitter Base Voltage	V_{EBO}	$I_E=10\mu A, I_C=0$	5			V
Collector Cut off Current	I_{CBO}	$V_{CB}=30V, I_E=0$			15	nA
Emitter Cut off Current	I_{EBO}	$V_{EB}=4V, I_C=0$			15	nA
DC Current Gain						
BC212, BC213	h_{FE}	$I_C=10\mu A, V_{CE}=5V$	40			
BC214			100			
BC212		$I_C=2mA, V_{CE}=5V$	60			
BC213			80			
BC214			140		600	
BC212, BC214		$I_C=100mA, V_{CE}=5V^*$		120		
BC213				140		
Collector Emitter Saturation Voltage	$V_{CE(sat)}$	$I_C=10mA, I_B=0.5mA$		0.10		V
		$I_C=100mA, I_B=5mA^*$		0.25	0.6	V
Base Emitter Saturation Voltage	$V_{BE(sat)}$	$I_C=100mA, I_B=5mA^*$		1.00	1.4	V
Base Emitter On Voltage	$V_{BE(on)}$	$I_C=2mA, V_{CE}=5V$	0.6	0.62	0.72	V

ELECTRICAL CHARACTERISTICS (Ta=25°C Unless Specified Otherwise)

DESCRIPTION	SYMBOL	TEST CONDITION	MIN	TYP	MAX	UNITS
DYNAMICS CHARACTERISTICS						
Transition Frequency						
BC212	f_T	$I_C=10mA, V_{CE}=5V$		280		MHz
BC213		$f=50MHz$		360		MHz
BC214				320		MHz
Output Capacitance	C_{ob}	$V_{CB}=10V, I_E=0$			6	pF
Noise Figure						
BC212, BC213	NF	$I_C=200\mu A, V_{CE}=5V$ $R_S=2KW, f=1KHz$ $f=200Hz$			10	dB
BC214	NF	$I_C=200\mu A, V_{CE}=5V$ $R_S=2KW, f=30Hz$ to 15KHz			2	dB
Small Signal Current Gain						
BC212	$ h_{fe} $	$I_C=2mA, V_{CE}=5V$	60			
BC213		$f=1KHz$	80			
BC214			140			
A			100		300	
B			200		400	
C			350		600	

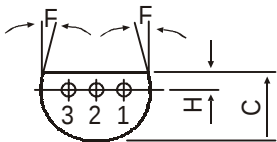
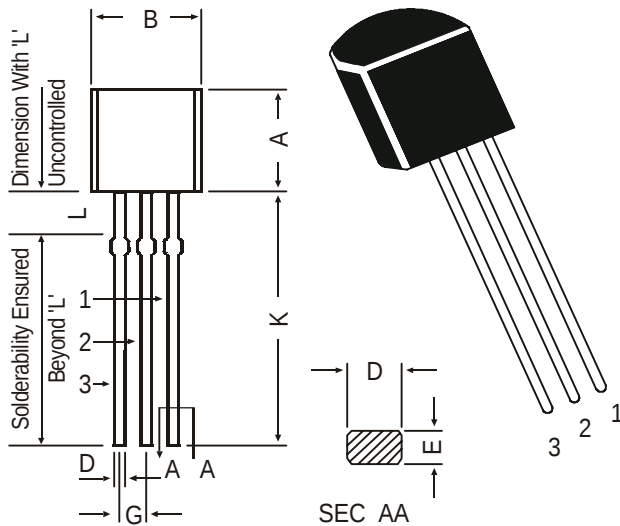
***Pulse Condition: Pulse Width 300us, Duty Cycle 2%.**

**BC212, BC212A, BC212B
BC213, BC213A, BC213B,
BC213C
BC214, BC214B, BC214C**

**TO-92
Plastic Package**

TO-92 Plastic Package

TO-92 Transistors on Tape and Ammo Pack

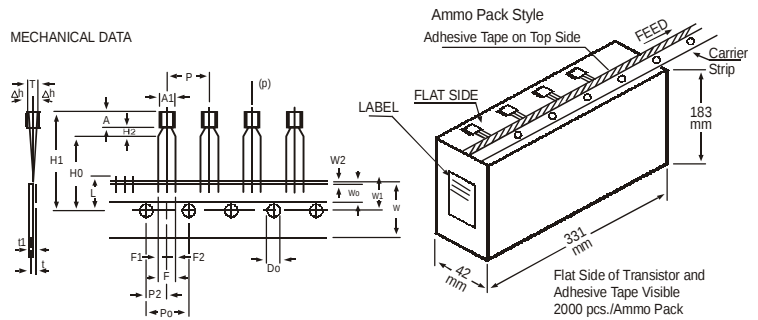


PIN CONFIGURATION

1. COLLECTOR
2. BASE
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 dimensions in mm.



All dimensions in mm unless specified otherwise

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	
FEED HOLE PITCH	P0		12.7		±0.3	
FEED HOLE CENTRE TO COMPONENT CENTRE	P2		6.35		±0.4	
DISTANCE BETWEEN OUTER LEADS	F		5.08		+0.6 -0.2	
COMPONENT ALIGNMENT	Δh		0	1		
TAPE WIDTH	W		18		±0.5	
HOLD-DOWN TAPE WIDTH	W0		6		±0.2	
HOLE POSITION	W1		9		+0.7 -0.5	
HOLD-DOWN TAPE POSITION	W2		0.5		±0.2	
LEAD WIRE CLINCH HEIGHT	H0		16		±0.5	
COMPONENT HEIGHT	H1			23.25		
LENGTH OF SNIPPED LEADS	L			11.0		
FEED HOLE DIAMETER	D0		4		±0.2	
TOTAL TAPE THICKNESS	t			1.2		±1 0.3 - 0.6
LEAD - TO - LEAD DISTANCE F1,	F2		2.54		+0.4 -0.1	
CLINCH HEIGHT	H2			3		
PULL - OUT FORCE	(P)	6N				

NOTES

1. MAXIMUM ALIGNMENT DEVIATION BETWEEN LEADS NOT TO BE GREATER THAN 0.2 mm.
2. MAXIMUM NON-CUMULATIVE VARIATION BETWEEN TAPE FEED HOLES SHALL NOT EXCEED 1 mm IN 20 PITCHES.
3. HOLDDOWN TAPE NOT TO EXCEED BEYOND THE EDGE(S) OF CARRIER TAPE AND THERE SHALL BE NO EXPOSURE OF ADHESIVE.
4. NO MORE THAN 3 CONSECUTIVE MISSING COMPONENTS ARE PERMITTED.
5. A TAPE TRAILER, HAVING AT LEAST THREE FEED HOLES ARE REQUIRED AFTER THE LAST COMPONENT.
6. SPLICES SHALL 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

Disclaimer

The product information and the selection guides facilitate selection of the CDIL's Discrete Semiconductor Device(s) best suited for application in your product(s) as per your requirement. It is recommended that you completely review our Data Sheet(s) so as to confirm that the Device(s) meet functionality parameters for your application. The information furnished in the Data Sheet and on the CDIL Web Site/CD is believed to be accurate and reliable. CDIL however, does not assume responsibility for inaccuracies or incomplete information. Furthermore, CDIL does not assume liability whatsoever, arising out of the application or use of any CDIL product; neither does it convey any license under its patent rights nor rights of others. These products are not designed for use in life saving/support appliances or systems. CDIL customers selling these products (either as individual Discrete Semiconductor Devices or incorporated in their end products), in any life saving/support appliances or systems or applications do so at their own risk and CDIL will not be responsible for any damages resulting from such sale(s).

CDIL strives for continuous improvement and reserves the right to change the specifications of its products without prior notice.



CDIL is a registered Trademark of

Continental Device India Limited

C-120 Naraina Industrial Area, New Delhi 110 028, India.

Telephone + 91-11-579 6150 Fax + 91-11-579 9569, 579 5290

e-mail sales@cdil.com www.cdil.com