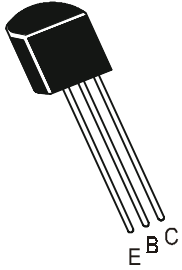


PNP SILICON PLANAR EPITAXIAL TRANSISTORS



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

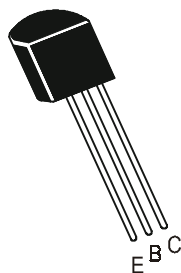
**TO-92
Plastic Package**

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	h_{FE}	$I_C=10\mu A, V_{CE}=5V$	BC212, BC213	40			
			BC214	100			
			BC212	60			
			BC213	80			
			BC214	140			600
			BC212, BC214		$I_C=100mA, V_{CE}=5V^*$		120
	BC213			140			
Collector Emitter Saturation Voltage	$V_{CE(sat)}$	$I_C=10mA, I_B=0.5mA$ $I_C=100mA, I_B=5mA^*$		0.10		V	
				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						
	f_T	$I_C=10mA, V_{CE}=5V$ $f=50MHz$		280		MHz
			BC213	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		
Small Signal Current Gain						
	$ h_{fe} $	$I_C=2mA, V_{CE}=5V$ $f=1KHz$	BC212	60		
			BC213	80		
			BC214	140		
			A	100		300
			B	200		400
			C	350		600

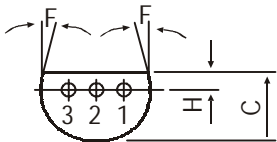
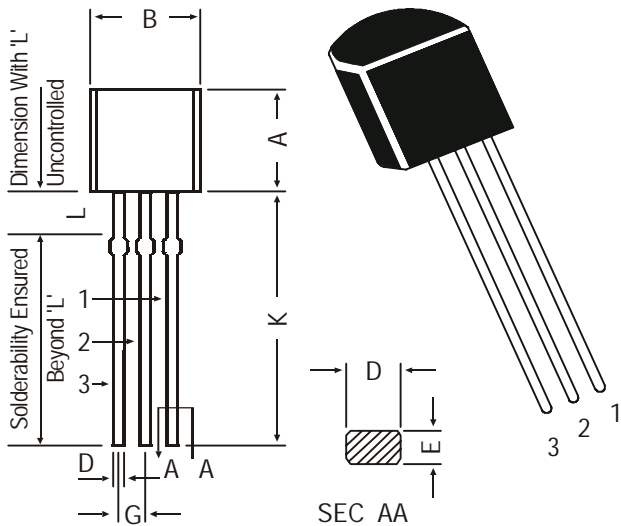
*Pulse Condition: Pulse Width 300us, Duty Cycle 2%.

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

**TO-92
Plastic Package**

TO-92 Plastic Package

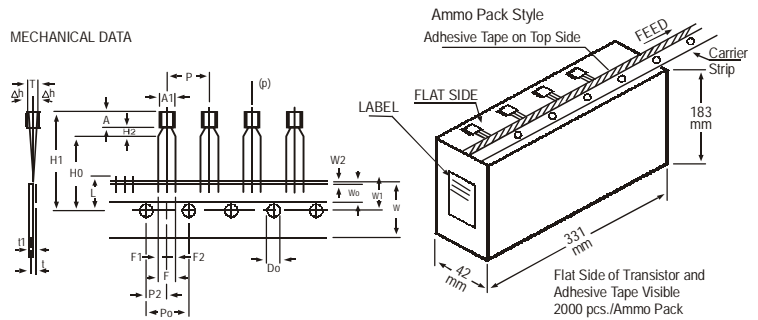
TO-92 Transistors on Tape and Ammo Pack



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			
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	AT TOP OF BODY
COMPONENT ALIGNMENT	Δh		0	1		
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		±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. HOLD-DOWN 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