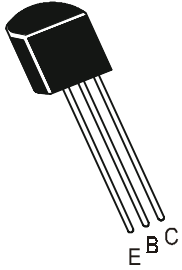


PNP SILICON PLANAR EPITAXIAL TRANSISTORS



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

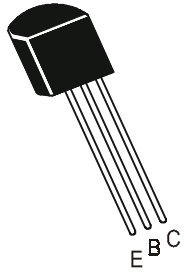
**TO-92
Plastic Package**

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		$I_C=100mA, V_{CE}=5V^*$	
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

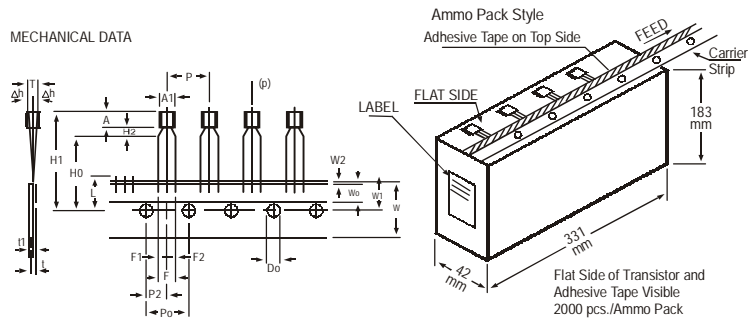
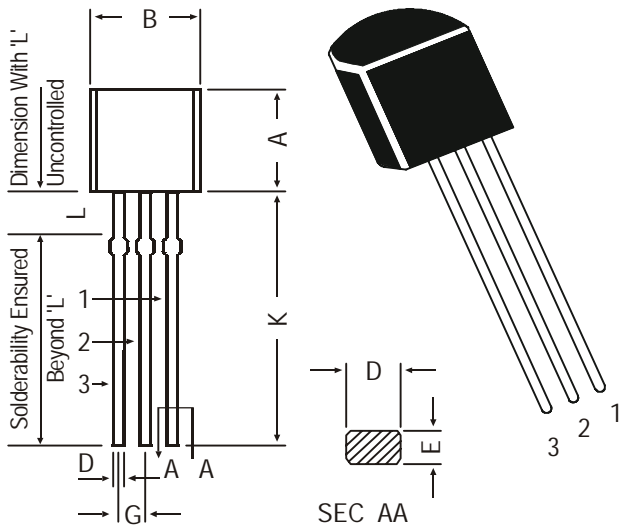
*Pulse Condition: Pulse Width 300us, Duty Cycle 2%.

**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



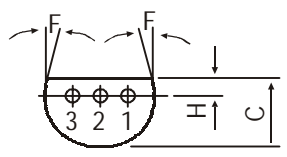
All dimensions in mm unless specified otherwise

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.

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. COLLECTOR
2. BASE
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

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