

New Jersey Semi-Conductor Products, Inc.

20 STERN AVE.
SPRINGFIELD, NEW JERSEY 07081
U.S.A.

TELEPHONE: (973) 376-2922
(212) 227-6005
FAX: (973) 376-8960

BC171, A, B
BC172, A, B, C
BC174, A, B

TO-92
Plastic Package

Amplifier Transistors

ABSOLUTE MAXIMUM RATINGS ($T_a=25^\circ\text{C}$ unless specified otherwise)

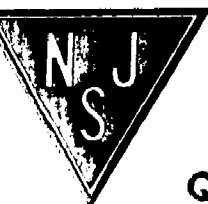
DESCRIPTION	SYMBOL	BC174	BC171	BC172	UNIT
Collector Emitter Voltage	V_{CEO}	65	45	25	V
Collector Base Voltage	V_{CBO}	80	50	30	V
Emitter Base Voltage	V_{EBO}	6			V
Collector Current Continuous	I_C	100			mA
Total Device Dissipation @ $T_a=25^\circ\text{C}$	P_D	350			mW
Derate Above 25°C		2.8			mW/ $^\circ\text{C}$
Total Device Dissipation @ $T_c=25^\circ\text{C}$	P_D	1.0			W
Derate Above 25°C		8.0			mW/ $^\circ\text{C}$
Operating And Storage Junction Temperature Range	T_j, T_{stg}	-55 to +150			$^\circ\text{C}$

THERMAL RESISTANCE

Junction to ambient	$R_{th(j-a)}$	357	$^\circ\text{C/W}$
Junction to case	$R_{th(j-c)}$	125	$^\circ\text{C/W}$

ELECTRICAL CHARACTERISTICS ($T_a=25^\circ\text{C}$ unless specified otherwise)

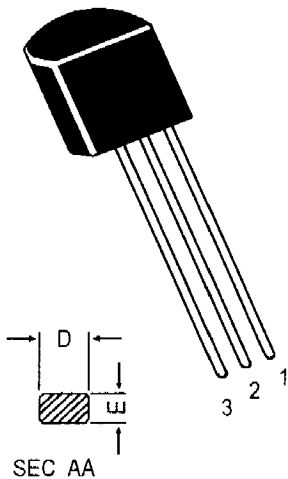
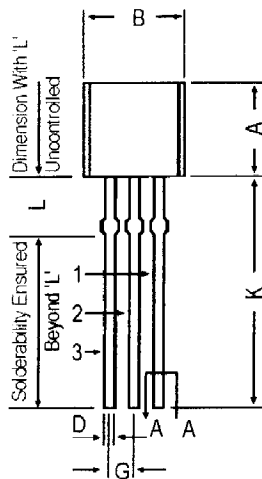
DESCRIPTION	SYMBOL	TEST CONDITION	VALUE			UNIT
			MIN	TYP	MAX	
Collector Emitter Breakdown Voltage	BV_{CEO}	$I_C=2\text{mA}, I_B=0$				
BC174			65			V
BC171			45			V
BC172			25			V
Emitter Base Breakdown Voltage	BV_{EBO}	$I_E=100\mu\text{A}, I_C=0$				
ALL			6			V
Collector Cut off Current	I_{CES}					
BC174		$V_{CE}=70\text{V}, V_{BE}=0$			15	nA
BC171		$V_{CE}=50\text{V}, V_{BE}=0$			15	nA
BC172		$V_{CE}=35\text{V}, V_{BE}=0$			15	nA
		$V_{CE}=30\text{V}, V_{BE}=0, T_a=125^\circ\text{C}$			4	μA



NJ Semi-Conductors reserves the right to change test conditions, parameters limits and package dimensions without notice information furnished by NJ Semi-Conductors is believed to be both accurate and reliable at the time of going to press. However NJ Semi-Conductors assumes no responsibility for any errors or omissions discovered in its use. NJ Semi-Conductors encourages customers to verify that datasheets are current before placing orders.

Quality Semi-Conductors

DESCRIPTION	SYMBOL	TEST CONDITION	VALUE			UNIT
			MIN	TYP	MAX	
DC Current Gain	h_{FE}	$V_{CE}=5V, I_C=10\mu A$				
BC171A, 2A, 4A				90		
BC171B, 2B, 4B				150		
BC172C				270		
		$V_{CE}=5V, I_C=2mA$				
BC174			120		450	
BC171			120		800	
BC172			120		800	
BC171A, 2A, 4A			120		220	
BC171B, 2B, 4B			180		460	
BC172C			380		800	
		$V_{CE}=5V, I_C=100mA$				
BC171A, 2A, 4A				120		
BC171B, 2B, 4B				180		
BC172C				300		
Base Emitter Saturation Voltage	$V_{BE(sat)}$	$I_C=10mA, I_B=0.5mA$		0.7		V
Collector Emitter Saturation Voltage	$V_{CE(sat)}$	$I_C=10mA, I_B=0.5mA$			0.25	V
		$I_C=100mA, I_B=5mA$			0.60	V
Base Emitter on Voltage	$V_{BE(on)}$	$I_C=2mA, V_{CE}=5V$	0.55		0.70	V
DYNAMIC CHARACTERISTICS						
Transition Frequency	f_T	$I_C=10mA, V_{CE}=5V$				
BC171		$f=100MHz$	150			MHz
BC172			150			
BC174			150			
Output Capacitance	C_{ob}	$I_E=0, V_{CB}=10V$			4.50	pF
		$f=1MHz$				
Input Capacitance	C_{ib}	$I_C=0, V_{EB}=0.5V$		10		pF
		$f=1MHz$				
Small Signal Current Gain	$ h_{fe} $	$V_{CE}=5V, I_C=2mA$				
BC171, 2, 4		$f=1KHz$	125		900	
BC171A, 2A, 4A,			125		260	
BC171B, 2B, 4B			240		500	
BC172C			450		900	
Noise Figure	NF	$V_{CE}=5V, I_C=0.2mA$			10	dB
BC171		$R_S=2K\Omega, f=1KHz, f=200Hz$			10	
BC172					10	
BC174						



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		CUMULATIVE PITCH ERROR 1.0 mm/20 PITCH TO BE MEASURED AT BOTTOM OF CLINCH
BODY HEIGHT	A	4.8		5.2		
BODY THICKNESS	T	3.9		4.2		
PITCH OF COMPONENT	P		12.7		±1	
FEED HOLE PITCH	Po		12.7		±0.3	
FEED HOLE CENTRE TO COMPONENT CENTRE	P2		6.35		±0.4	AT TOP OF BODY
DISTANCE BETWEEN OUTER LEADS	F		5.08		+0.6 -0.2	
COMPONENT ALIGNMENT	Ah		0	1		
TAPE WIDTH	W		18		±0.5	
HOLD-DOWN TAPE WIDTH	Wo		6		±0.2	
HOLE POSITION	W1		9		+0.7 -0.5	H 0.3 - 0.6
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	H 0.3 - 0.6
TOTAL TAPE THICKNESS	t			12		
LEAD - TO - LEAD DISTANCE	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.

PIN CONFIGURATION

1. EMITTER
2. BASE
3. COLLECTOR