

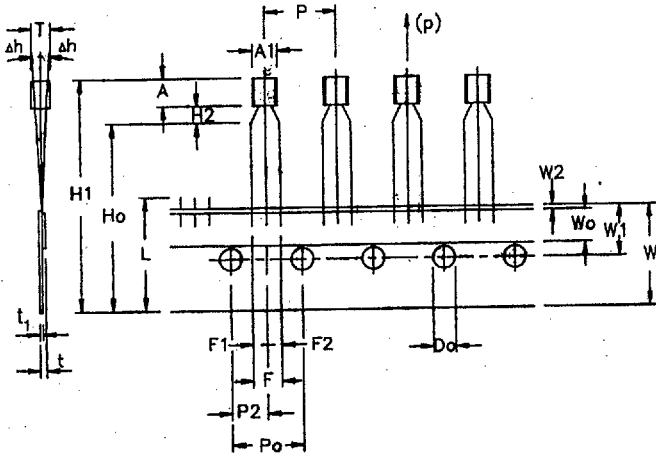
# TO-92 Plastic Package Transistors (NPN)

CDIL

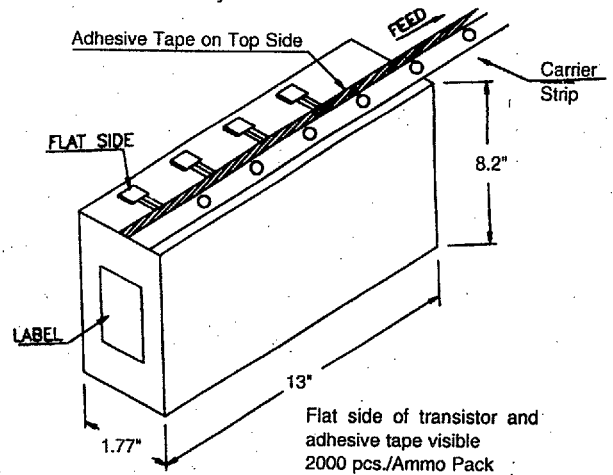
Maximum Ratings							Electrical Characteristics (Ta=25°C, Unless Otherwise Specified)																		
Type No.	V <sub>CB0</sub> (V)	V <sub>CEO</sub> (V)	V <sub>EB0</sub> (V)	P <sub>D</sub> (W)	I <sub>C</sub> (A)	I <sub>CB0</sub> (μA)	V <sub>CB</sub> (V)	I <sub>CES</sub> (μA)	V <sub>CE</sub> (V)	h <sub>FE</sub>	I <sub>C</sub> (mA)	V <sub>CE</sub> (V)	V <sub>CE(SAT)</sub> (V)	V <sub>BE(SAT)</sub> (V)	I <sub>C</sub> (mA)	C <sub>cb</sub> (pF)	f <sub>T</sub> (MHz)	I <sub>C</sub> (mA)	t <sub>off</sub> (ns)	N <sub>F</sub> (dB)	Freq (MHz)	C <sub>in</sub> (pF)	CDIL Case Style		
	Min	Min	Min	@ Tc=25°C		Max	@ (V)	Max		Min	Max		Max	Min	Max	Typ	Max	Min	Typ	Max	Max	Max	Max		
#BC184	45	30	6	0.35	0.1	0.015	30			100	0.01	5	0.6	1.2	100	5	150	10			4	0.001		TO-92-4	
										130	100	5	0.25		10										
										250	900	2	5												
#BC184B	45	30	6	0.35	0.1	0.015	30			100	0.01	5	0.6	1.2	100	5	150	10			4	0.001		TO-92-4	
										130	100	5	0.25		10										
										240	500	2	5												
#BC184C	45	30	6	0.35	0.1	0.015	30			100	0.01	5	0.6	1.2	100	5	150	10			4	0.001		TO-92-4	
										130	100	5	0.25		10										
										450	900	2	5												
#BC184L	45	30	6	0.350	0.1	0.015	30			100	0.01	5	0.25		10	5	150	280	0.5		4			TO-92-1	
										240	900	2	5	0.6	1.2	100									
										130	100	5													
#BC184LB	45	30	6	0.35	0.1	0.015	30			100	0.01	5	0.25		10	5	150	280	0.5		4			TO-92-1	
										240	500	2	5	0.6	1.2	100									
										130	100	5													
#BC184LC	45	30	6	0.35	0.1	0.015	30			100	0.01	5	0.25		10	5	150	280	0.5		4			TO-92-1	
										450	900	2	5	0.6	1.2	100									
										130	100	5													
BC208B	25	20	5	0.2		0.015	20			200	450	2	5	0.25	10	6								TO-92-4	
										40		0.01	5	0.6	100										
BC209C	25	20	5	0.2		0.015	20			420	800	2	5	0.25	10	6								TO-92-4	
										100		0.01	5	0.6	100										
BC237	\$ 50	45	6	0.35	0.1			0.015	50	120	800	2	5	0.2	0.83	10	4.5	150	300	10	10	0.001		TO-92-4	
														0.6	1.05	100									
BC237A	\$ 50	45	6	0.35	0.1			0.015	50	120	220	2	5	0.2	0.83	10	4.5	150	300	10	10	0.001		TO-92-4	
														0.6	1.05	100									
BC237B	\$ 50	45	6	0.35	0.1			0.015	50	200	460	2	5	0.2	0.83	10	4.5	150	300	10	10	0.001		TO-92-4	
														0.6	1.05	100									
BC238B	\$ 30	25	5	0.35	0.1			0.015	30	200	460	2	5	0.2	0.83	10	4.5	150	300	10	10	0.001		TO-92-4	
														0.8	1.05	100									
BC317	50	45	6	0.35	0.15	0.03	20			110	450	2	5	0.6		100	4				6	0.001		TO-92	
BC317A	50	45	6	0.35	0.15	0.03	20			110	220	2	5	0.6		100	4				6	0.001		TO-92	
BC319	30	20	5	0.625	0.1	0.03	20			40		0.01	5	0.2	0.77	10	4				4			TO-92	
										200	800	2	5	0.5		100									
										240	900	2	5												
BC320	50	45	6	0.625	0.15	0.03	20			110	450	2	5	0.5		100	3	4	250	10	6			TO-92	
BC320A	50	45	6	0.625	0.15	0.03	20			110	220	2	5	0.5		100	3	4	250	10	6			TO-92	
BC320B	50	45	5	0.625	0.15	0.03	20			40		0.01	5	0.5		100	3	4	250	10	6			TO-92	
										200	450	2	5												
BC337	50	45	5	0.625	0.8	0.1	20	0.1	45	100	630	100	1	0.7		500	5		200	10				TO-92-4	
										40		500	1												
BC337-16	50	45	5	0.625	0.8	0.1	20	0.1	45	100	250	100	1	0.7		500	5		200	10		35		TO-92-4	
										40		500	1												
BC337-25	50	45	5	0.625	0.8	0.1	20			160	400	100	1	0.7		500	5		200	10				TO-92-4	
										40		500	1												
BC337A	60	60	5	0.625	0.8	0.1	20			100	400	100	1	0.7		500	5		200	10		35		TO-92-4	
										40		500	1												

\$ V<sub>CES</sub>  
# hFE values are hFE(min) & hFE(max) at 100 KHz.

MECHANICAL DATA



Ammo Pack Style



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		
Distance between Outer Leads	F		5.08		±0.6		
Component Alignment	Δh		0	1	-0.2		
Tape Width	W		18		±0.5		
Hold-Down Tape Width	Wo		6		±0.2		
Hole Position	W1		9		±0.7		
Hold-Down Tape Position	W2		0.5		±0.2		
Lead Wire Clinch Height	Ho		16		±0.5		
Component Height	H1			32.25		At Top of Body	
Length of Snipped leads	L			11.0			
Feed Hole Diameter	Do		4		±0.2		
Total Tape Thickness	t			1.2			
Lead-to-Lead Distance	F1,F2		2.54		±0.4		
Clinch Height	H2			3	-0.1		
Pull-out Force	(p)	6N					
							t <sub>1</sub> 0.3-0.6

Dimensions in m.m.

- 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 permitted.
  5. A tape trailer, having at least three feed holes is required after the last component.
  6. Splices shall not interfere with the sprocket feed holes.