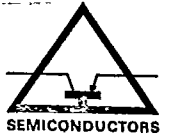


T-31-15



# SILICON TRANSISTORS

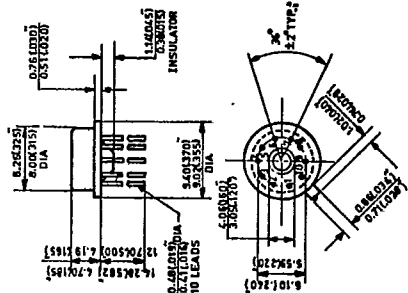
NPN PNP			Maximum Ratings				Electrical Characteristics At T <sub>J</sub> =25°C						
TYPE			V <sub>CB0</sub>	V <sub>CE0</sub>	V <sub>EB0</sub>	I <sub>c</sub>	h <sub>FE</sub> @ V <sub>CE</sub> =5 V I <sub>C</sub> =2 mA min/max	V <sub>CE(sat)</sub> @ I <sub>C</sub> =10 mA I <sub>B</sub> =0.5 mA max V	f <sub>T</sub> typ MHz	I <sub>CB0</sub> typ nA	C <sub>ob</sub> typ pF	NF @ 1 KHz max dB	
P <sub>D</sub> =0.25 W @ T <sub>a</sub> =25°C Case: SOT-25	P <sub>D</sub> =0.25 W @ T <sub>a</sub> =25°C Case: TO-92	P <sub>D</sub> =0.2 W @ T <sub>a</sub> =25°C Case: TO-106											
BC147	147	EBC147	50	45	6	200	110/450	0.25	300	15	25	10	
BC147A	147A	EBC147A	50	45	6	200	110/220	0.25	300	15	2.5	10	
BC147B	147B	EBC147B	50	45	6	200	200/450	0.25	300	15	2.5	10	
BC148	148	EBC148	30	20	5	200	110/800	0.25	300	15	2.5	10	
BC148A	148A	EBC148A	30	20	5	200	110/220	0.25	300	15	2.5	10	
BC148B	148B	EBC148B	30	20	5	200	200/450	0.25	300	15	2.5	10	
BC148C	148C	EBC148C	30	20	5	200	420/800	0.25	300	15	2.5	10	
BC149	149	EBC149	30	20	5	200	200/800	0.25	300	15	2.5	4	
BC149B	149B	EBC149B	30	20	5	200	200/450	0.25	300	15	2.5	4	
BC149C	149C	EBC149C	30	20	5	200	420/800	0.25	300	15	2.5	4	
BC157	157	EBC157	50	45	5	200	75/260*	0.3	150	100	4	10	
BC157A	157A	EBC157A	50	45	5	200	125/260*	0.3	150	100	4	10	
BC157B	157B	EBC157B	50	45	5	200	240/500*	0.3	150	100	4	10	
BC158	158	EBC158	30	25	5	200	125/500*	0.3	150	100	4	10	
BC158A	158A	EBC158A	30	25	5	200	125/260*	0.3	150	100	4	10	
BC158B	158B	EBC158B	30	25	5	200	240/500*	0.3	150	100	4	10	
BC159	159	EBC159	25	20	5	200	125/500*	0.3	150	100	4	4	
BC159A	159A	EBC159A	25	20	5	200	125/260*	0.3	150	100	4	4	
BC159B	159B	EBC159B	25	20	5	200	240/500*	0.3	150	100	4	4	

\* Small signal current gain at 1 KHz

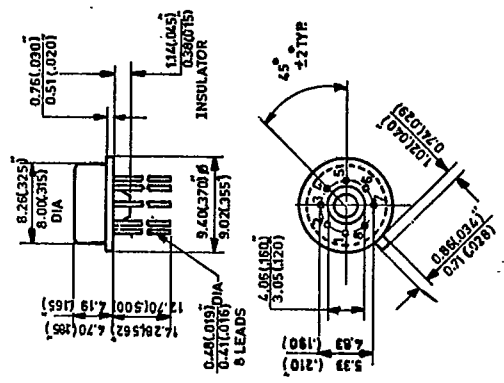
		Maximum Ratings				Electrical Characteristics At T <sub>J</sub> =25°C							Case
TYPE NPN PNP	P <sub>D</sub> T <sub>a</sub> =25°C W	V <sub>CB0</sub> V	V <sub>CE0</sub> V	V <sub>EB0</sub> V	I <sub>c</sub> mA	h <sub>FE</sub> @ V <sub>CE</sub> =5V I <sub>C</sub> =2 mA min	h <sub>FE</sub> @ V <sub>CE</sub> =5V I <sub>C</sub> =2 mA max	V <sub>CE(sat)</sub> @ I <sub>C</sub> =10 mA I <sub>B</sub> =0.5 mA max V	f <sub>T</sub> (typ) MHz	I <sub>CB0</sub> (typ) nA	C <sub>ob</sub> (typ) pF	N <sub>F</sub> max dB	
BC182	0.3	60	50	5	100	125 *	500 *	0.25	150	15	5	10	TO-92
BC182A	0.3	60	50	5	100	125 *	260 *	0.25	150	15	5	10	TO-92
BC182B	0.3	60	50	5	100	240 *	500 *	0.25	150	15	5	10	TO-92
BC183	0.3	45	30	5	100	125 *	900 *	0.25	150	15	5	10	TO-92
BC183A	0.3	45	30	5	100	125 *	260 *	0.25	150	15	5	10	TO-92
BC183B	0.3	45	30	5	100	240 *	500 *	0.25	150	15	5	10	TO-92
BC183C	0.3	45	30	5	100	450 *	900 *	0.25	150	15	5	10	TO-92
BC184	0.3	45	30	5	100	240 *	900 *	0.25	150	15	5	10	TO-92
BC184B	0.3	45	30	5	100	240 *	500 *	0.25	150	15	5	10	TO-92
BC184C	0.3	45	30	5	100	450 *	900 *	0.25	150	15	5	10	TO-92
BC212	0.3	60	50	5	200	60 *	400 *	0.25	200	15	10	10	TO-92
BC212A	0.3	60	50	5	200	100 *	300 *	0.25	200	15	10	10	TO-92
BC212B	0.3	60	50	5	200	200 *	400 *	0.25	200	15	10	10	TO-92
BC213	0.3	45	30	5	200	80 *	600 *	0.25	200	15	10	10	TO-92
BC213A	0.3	45	30	5	200	100 *	300 *	0.25	200	15	10	10	TO-92
BC213B	0.3	45	30	5	200	200 *	400 *	0.25	200	15	10	10	TO-92
BC213C	0.3	45	30	5	200	350 *	600 *	0.25	200	15	10	10	TO-92
BC214	0.3	45	30	5	200	140 *	600 *	0.25	200	15	10	4	TO-92
BC214A	0.3	45	30	5	200	100 *	300 *	0.25	200	15	10	4	TO-92
BC214B	0.3	45	30	5	200	200 *	400 *	0.25	200	15	10	4	TO-92
BC214C	0.3	45	30	5	200	350 *	600 *	0.25	200	15	10	4	TO-92
BC237	0.3	50	45	6	100	125 *	500 *	0.25	150	50	4.5	10	TO-92
BC237A	0.3	50	45	6	100	125 *	260 *	0.25	150	50	4.5	10	TO-92
BC237B	0.3	50	45	6	100	240 *	500 *	0.25	150	50	4.5	10	TO-92
BC238	0.3	30	20	5	100	125 *	900 *	0.25	150	50	4.5	10	TO-92
BC238A	0.3	30	20	5	100	125 *	260 *	0.25	150	50	4.5	10	TO-92
BC238B	0.3	30	20	5	100	240 *	500 *	0.25	150	50	4.5	10	TO-92
BC238C	0.3	30	20	5	100	450 *	900 *	0.25	150	50	4.5	10	TO-92
BC239	0.3	30	20	5	100	240 *	900 *	0.25	150	50	4.5	10	TO-92
BC239B	0.3	30	20	5	100	240 *	500 *	0.25	150	50	4.5	10	TO-92
BC239C	0.3	30	20	5	100	450 *	900 *	0.25	150	50	4.5	10	TO-92



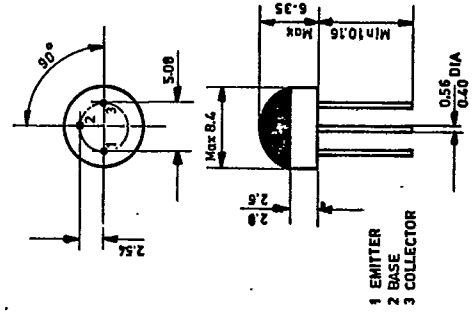
TO-96



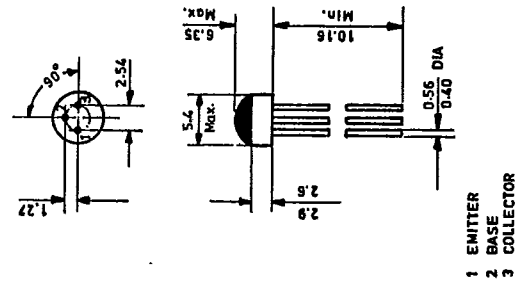
TO-99



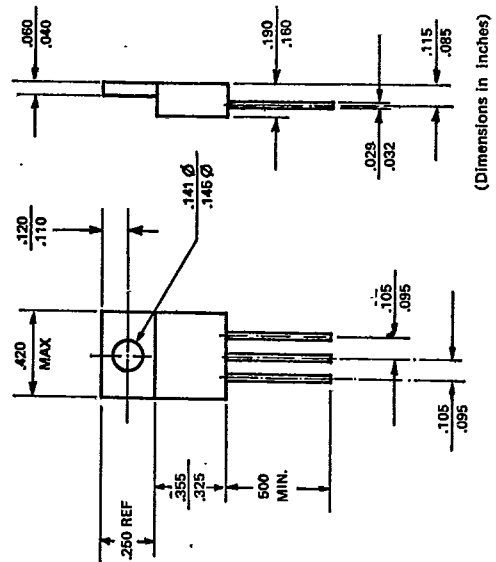
TO-105



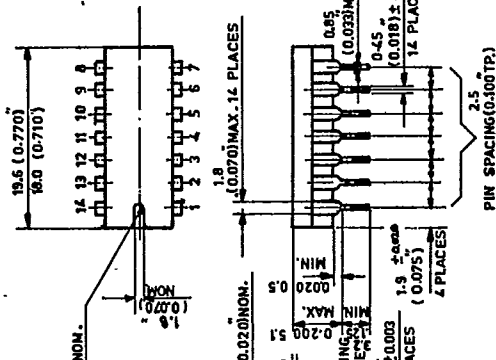
TO-106



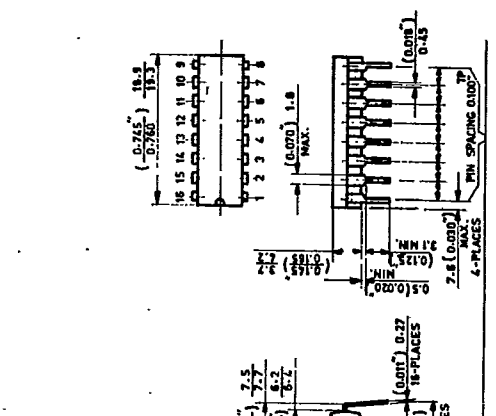
TO-220



14 pin DIP



16 pin DIP



Note : Dimensions in mm unless otherwise specified