

# TO-92 Plastic Package Transistors (NPN)

Maximum Ratings								Electrical Characteristics (Ta=25°C, Unless Otherwise Specified)														
Type No.	V <sub>CBO</sub> (V)	V <sub>CEO</sub> (V)	V <sub>EBO</sub> (V)	P <sub>D</sub> (W)	I <sub>C</sub> (A)	I <sub>CBO</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> & V <sub>CE</sub>	V <sub>CE(SAT)</sub> (V)	V <sub>BE(SAT)</sub> (V)	I <sub>C</sub> (mA)	C <sub>ob</sub> (pF)	f <sub>t</sub> (MHz)	t <sub>off</sub> (ns)	N <sub>F</sub> (dB)	Freq (MHz)	C <sub>19</sub> (pF)	CDIL Case Style	
	Min	Min	Min	@ Tc=25°C	Max	Max	Max	Max	Min	Max	Min	Max	Min	Max	Typ	Min	Typ	Max	Max	Max	Max	
BF195	30	20	5	0.4	0.03	0.1	20			36	125	1	10		0.3				3.5			TO-92-2
BF196	40	30	4	0.4	0.03	0.1	40			26	4	10										TO-92-2
BF197	40	25	4	0.35	0.1	0.1	40			36	7	10			1100							TO-92-2
BF198	40	30	4	0.625		0.1	40			26	4	10										TO-92-2
BF199	40	25	4	0.35	0.1	0.1	20			40	7	10				400						TO-92-2
BF224	45	30	4	0.35	0.05	0.1	20			30	7	10	0.15	10		300	600		2.5			TO-92-2
BF237	45	30	4	0.35	0.1	0.1	20						0.25	10								TO-92-2
BF238	45	30	4	0.35	0.1	0.1	20						0.25	10								TO-92-2
BF240	40	40	4	0.35	0.03	0.1	20			65	220	1	10									TO-92-2
BF241	40	40	4	0.35	0.03	0.1	20			35	125	1	10									TO-92-2
BF254	30	20	5	0.35	0.1	0.1	10			65	220	1	10			260						TO-92-2
BF254-3	30	20	5	0.35	0.1	0.1	10			65	125	1	10			260						TO-92-2
BF254-4	30	20	5	0.35	0.1	0.1	10			100	220	1	10			260						TO-92-2
BF255	30	20	5	0.4	0.03	0.1	20			36	125	1	10	0.65	0.74	1	0.3			3.5		TO-92-2
BF391	200	200	6	0.625	0.5	0.1	160			25	1	10	2	2	20	50				2		TO-92
BF392	250	250	6	0.625	0.5	0.1	200			25	1	10	2	2	20	50				2		TO-92
BF393	300	300	6	0.625	0.5	0.1	200			25	1	10	2	2	20	50				2		TO-92
BF420	300	300	5	0.8	0.5	0.01	200			50	25	20	0.5	2	20	60				1.6		TO-92-1
BF422	250	250	5	0.8	0.5	0.01	200			50	25	20	0.5	2	20	60				1.6		TO-92-1
BF494	30	20	5	0.3	0.03	0.1	20			67	220	1	10	1.5		120	260			1		TO-92-2
BF494A	30	20	5	0.3	0.03	0.1	20			200	500	1	10	1.5		120	260			1		TO-92-2
BF494B	30	20	5	0.3	0.03	0.1	20			100	220	1	10	1.5		120	260			1		TO-92-2
BF495	30	20	5	0.3	0.03	0.1	20			35	125	1	10	1.5		120	260			1		TO-92-2
BF495C	30	20	5	0.3	0.03	0.1	20			67	125	1	10	1.5		120	260			1		TO-92-2
BF495D	30	20	5	0.3	0.03	0.1	20			35	76	1	10	1.5		120	260			1		TO-92-2
BF496	30	20	3	0.3	0.02	0.5	20			15	2	10				550						TO-92
BF959	30	20	3	0.625	0.1	0.1	20			35	5	10	1	1	30	700				0.7		TO-92-2
BSY95A	20	15	5	0.625	0.2	0.05	16			30	200	1	0.4	0.35	0.67	0.87	10					TO-92

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Type No.	V <sub>CBO</sub> (V)	V <sub>CEO</sub> (V)	V <sub>EB0</sub> (V)	P <sub>D</sub> (W)	I <sub>C</sub> (A)	I <sub>CBO</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> & V <sub>CE</sub> (mA)	V <sub>CE(SAT)</sub> (V)	V <sub>BE(SAT)</sub> (V)	I <sub>C</sub> (mA)	C <sub>ob</sub> (pF)	f <sub>T</sub> (MHz)	I <sub>off</sub> (nA)	N <sub>F</sub> (dB)	C <sub>in</sub> (pF)	CDIL Case Style				
	Min	Min	Min	@Tc=25°C	Max	Max	Max	Max	Min												Max	Max	Min	Max
CC2369	40	15	5	0.625	0.2	0.4	20			40	120	10	1	0.25	0.7	0.85	10	4	500	10		TO-92-1		
CC337	50	45	5	0.625	0.8	0.1	20			40	500	1	1	0.7			500	5	200	10		TO-92-1		
CC337-16	50	45	5	0.625	0.8	0.1	20			40	500	1	1	0.7			500	5	200	10		TO-92-1		
CC337-25	50	45	5	0.625	0.8	0.1	20			40	500	1	1	0.7			500	5	200	10		TO-92-1		
CC337-40	50	45	5	0.625	0.8	0.1	20			40	500	1	1	0.7			500	5	200	10		TO-92-1		
CC338	25	25	5	0.625	0.8	0.1	20			40	500	1	1	0.7			500	5	200	10		TO-92-1		
CC338-16	30	25	5	0.625	0.8	0.1	20			40	500	1	1	0.7			500	5	200	10		TO-92-1		
CC338-25	30	25	5	0.625	0.8	0.1	20			40	500	1	1	0.7			500	5	200	10		TO-92-1		
CC338-40	30	25	5	0.625	0.5	0.1	20			40	500	1	1	0.7			500	5	200	10		TO-92-1		
CD50	500	400	5	0.625	0.3			0.5	400	30	150	100	10	1			100					TO-92-1		
CD635	45	45	5	0.8	0.5	0.1	30			25	5	2	2	0.5			500	7	200	50		TO-92-4		
CD637	60	60	5	0.8	0.5	0.1	30			25	5	2	2	0.5			500	7	200	50		TO-92-4		
CD639	80	80	5	0.8	0.5	0.1	30			25	5	2	2	0.5			500	7	200	50		TO-92-4		
CD8050B	30	25	5	1.0	2	0.5	20			85	160	100	1	0.5			1.25	500	20	150	100		TO-92	
CD8050C	30	25	5	1.0	2	0.5	20			120	200	100	1	0.5			1.25	500	20	150	100		TO-92	
CD8050D	30	25	5	1.0	2	0.5	20			160	300	100	1	0.5			1.25	500	20	150	100		TO-92	
CD9011	18	18	3	0.625	0.1	0.05	18			29	273	1	5	0.2			0.85	10	3.5	250	10	4	TO-92	
CD9011D	18	18	3	0.625	0.1	0.05	18			29	44	1	5	0.2			0.85	10	3.5	250	10	4	0.001	TO-92
CD9011E	18	18	3	0.625	0.1	0.05	18			40	59	1	5	0.2			0.85	10	3.5	250	10	4	0.001	TO-92
CD9011F	18	18	3	0.625	0.1	0.05	18			54	80	1	5	0.2			0.85	10	3.5	250	10	4	0.001	TO-92
CD9011G	18	18	3	0.625	0.1	0.05	18			72	108	1	5	0.2			0.85	10	3.5	250	10	4	0.001	TO-92
CD9011H	18	18	3	0.625	0.1	0.05	18			97	146	1	5	0.2			0.85	10	3.5	250	10	4	0.001	TO-92
CD9011I	18	18	3	0.625	0.1	0.05	18			132	198	1	5	0.2			0.85	10	3.5	250	10	4	0.001	TO-92
CD9011J	18	18	3	0.625	0.1	0.05	18			182	273	1	5	0.2			0.85	10	3.5	250	10	4	0.001	TO-92
CD9013	40	30	5	0.625	0.5	0.1	25			64	275	50	1	0.2			1	150	10	200	50	6	0.001	TO-92
CD9013D	40	30	5	0.625	0.5	0.1	25			64	91	50	1	0.2			1	150	10	200	50	6	0.001	TO-92