

Maximum Ratings							Electrical Characteristics (T <sub>a</sub> =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> (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)	t <sub>on</sub> (ns)	N <sub>F</sub> (dB)	Freq (MHz)	C <sub>in</sub> (pF)	CDIL Case Style		
	Min	Min	Min	@T <sub>c</sub> =25°C		Max		Max		Min	Max	Max	Min	Max	Typ	Max	Min	Typ	Max	Max	Max		
2N3702	40	25	5	0.625	0.6	0.1	20			60	300	50	5	0.25		50	12	100				TO-92-1	
2N3905	40	40	5	0.625	0.2			*0.05	30	30		0.1	1	0.25	0.65	0.85	10	4.5	200		10	5	TO-92
										40		1	1	0.4		0.95	50						
										50	150	10	1										
										30		50	1										
										15		100	1										
2N3906	40	40	5	0.625	0.2			*0.05	30	100	300	10	1	0.25	0.65	0.85	10	4.5	250		10	4	TO-92
										60		0.1	1	0.4	0.95	50							
										80		1	1										
										60		50	1										
										30		100	1										
2N4058	30	30	6	0.625	0.05	0.1	20			100	400	0.1	5	0.7		10				5	TO-92-1		
2N4059	30	30	6	0.625	0.05	0.1	20			45	660	1	5	0.7		10					TO-92-1		
2N4061	30	30	6	0.625	0.05	0.1	20			90	330	1	5	0.7		10					TO-92-1		
2N4062	30	30	6	0.625	0.05	0.1	20			180	660	1	5	0.7		10					TO-92-1		
2N4249	60	60	5	0.625	0.05	0.01	40			100	300	0.1	5	0.25		10	10	6				TO-92	
2N4288	30	25	6	0.625	0.05	0.05	25			75		10	5	0.35		0.8	1	8	40	1			TO-92-1
										150	600	1	5										
										100		0.1	5										
2N4289	60	45	7	0.625	0.05	0.01	45			75		10	5	0.35		0.8	1	8	40	1	4		TO-92-1
										150	600	1	5										
										100		0.1	5										
2N4290	30	20	5	0.625	0.5	0.5	20			50	300	100	10	0.4		1.5	100	10	100		10		TO-92-1
										40		10	10										
										20		0.1	10										
2N4291	40	30	6	0.625	0.6	0.2	30			100	300	100	10	0.4		1.5	100	10	100		10		TO-92-1
										50		10	10										
										30		0.1	10										
2N4402	40	40	5	0.625	0.6			*0.1	35	20		500	2	0.4	0.7	0.95	150	8.5	150		20	255	TO-92
										50	150	150	2	0.75		1.3	500						
										50		10	1										
										30		1	1										
2N4403	40	40	5	0.625	0.6			*0.1	35	20		500	2	0.4	0.75	0.95	150	8.5	200		20	255	TO-92
										100	300	150	2	0.75		1.3	500						
										100		10	1										
										60		1	1										
										30		0.1	1										
2N4964		40	4	0.625	0.05	0.1	30			40	400	5	10	0.25		10	4	125	5		TO-92		
2N4965	50	50								150		10	5	0.3			10	4	40	0.5	3		TO-92
										150		1	5										
										150	500	0.1	5										
2N4971	60	40	5	0.625	0.6	0.02	50			20		500	10	0.4		1.3	150	8	200		50	100	TO-92
										40	120	150	10	1.6		2.6	500						
										35		10	10										
										25		1	10										
										20		0.1	10										
2N4972	60	40	5	0.625	0.6	0.02	50			30		500	10	0.4		1.3	150	8	200		50	100	TO-92
										100	300	150	10	1.6		2.6	500						
										75		10	10										
										50		1	10										
										35		0.1	10										

\* NOTE: I<sub>CEX</sub>

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> & (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>ob</sub> (pF)	f <sub>t</sub> (MHz)	@	I <sub>C</sub> (mA)	t <sub>on</sub> (ns)	N <sub>F</sub> (dB)	@ Freq (MHz)	C <sub>rs</sub> (pF)	CDIL Case Style
	Min	Min	Min	@Tc=25°C	Max	Max	Max	Max	Max	Min	Max	Max	Max	Max	Min	Max	Typ	Max	Min	Typ	Max	Max	Max	Max	Max
2N5142	20	20	4	0.625	0.6			0.05	12	15		300	10	0.5	1.5	50	10	100		50	200				TO-92
2N5143	20	20	4	0.625	0.6			0.05	12	15		300	10	0.5	1.5	50	10	100		50	200				TO-92
2N5221	15	15	3	0.625	0.6	0.1	10			30	600	50	10	0.5	1.1	150	15	100		20					TO-92
2N5226	25	25	4	0.625	0.6	0.3	15			30	600	50	10	0.8	1	100	20	50		20					TO-92
2N5354	25	25	4	0.625	0.6	0.1	25			40	120	50	1	0.25		50	8								TO-92-1
2N5355	25	25	4	0.625	0.6	0.1	25			100	300	50	1	0.25		50	8								TO-92-1
2N5365	40	40	4	0.625	0.6	0.1	40	0.1	40	20		300	5	0.25	1.1	50	8	250		2					TO-92-1
2N5366	40	40	4	0.625	0.6	0.1	40	0.1	40	40		300	5	0.25	1.1	50	8	250		2					TO-92-1
2N5400	130	120	5	0.5	0.6	0.1	100			40		50	5	0.2	1	10	6	100		400	10		8		TO-92
2N5401	160	150	5	0.625	0.6	0.05	120			40	180	10	5	0.5	1	50	6	100		300	10		8		TO-92
2N5447	40	25	5	0.625	0.6	0.1	20			60	300	50	5	0.25		50	12	100		50					TO-92-4
2N5448	50	30	5	0.625	0.5	0.1	20			30	150	50	5	0.25		50	12	100		50					TO-92-4
2N5817	50	40	5	0.625	0.6	0.1	25	0.5	20	25		500	2	0.75	1.2	500	15	100		50					TO-92-4
2N6519	300	300	5	0.625	0.5	0.05	250			30		10	10	0.3	0.75	10	6	40		200	10		3.5		TO-92
2N6520	350	350	5	0.625	0.5	0.05	250			45		30	10	0.35	0.85	20	6	40		200	10		3.5		TO-92
BC204	50	45	5	0.625	0.1	0.05	45			50	450	2	5	0.3		10							10		TO-92
#BC212	60	50	5	0.35	0.1	0.015	30			40		0.01	5	0.6	1.4	100	6	280		10			10	0.001	TO-92-4
#BC214C	45	30	5	0.35	0.1	0.015	30			100	600	0.01	5	0.6	1.1	100	6	200	320	10			2	0.001	TO-92-4
BC252	30	25	5	0.35	0.1		20	0.1	20	120	800	2	5	0.3		10	6	360		10			10	0.001	TO-92-4
BC252A	30	25	5	0.35	0.1		20	0.1	20	120	220	2	5	0.3		10	6	360		10			10	0.001	TO-92-4
BC252B	30	25	5	0.35	0.1		20	0.1	20	180	460	2	5	0.3		10	6	360		10			10	0.001	TO-92-4

# hFE values are hfe(min) and hfe(max) at 1.0 KHz.

Maximum Ratings						Electrical Characteristics (Ta=25°C, Unless Otherwise Specified)																		
Type No.	V <sub>CB0</sub> (V) Min	V <sub>CE0</sub> (V) Min	V <sub>EB0</sub> (V) Min	P <sub>D</sub> (W) @Tc=25°C	I <sub>C</sub> (A)	I <sub>CB0</sub> (μA) Max	V <sub>CB</sub> (V) @ (V)	I <sub>DES</sub> (μA) Max	V <sub>CE</sub> (V) @ (V)	h <sub>FE</sub> @	I <sub>C</sub> & (mA)	V <sub>CE</sub> (V)	V <sub>CE(SAT)</sub> (V) Max Min	V <sub>BE(SAT)</sub> (V) Max	I <sub>C</sub> (mA) @	C <sub>ob</sub> (pF) Typ Max	f <sub>T</sub> (MHz) @	I <sub>C</sub> (mA) @	t <sub>off</sub> (ns) Max	N <sub>F</sub> (dB) @ Freq (MHz)	C <sub>tr</sub> (pF) Max	CDIL Case Style		
BC252C	30	25	5	0.35	0.1			0.1	20	380	800	2	5	0.3 0.65	10 100	6	360	10		10	0.001		TO-92-4	
BC256	80	65	5	0.35	0.1			0.1	40	125	500	2	5	0.3 0.65	10 100	6				10	0.001		TO-92-4	
BC256A	80	65	5	0.35	0.1			0.1	40	120	220	2	5	0.3 0.65	10 100	6				10	0.001		TO-92-4	
BC257	50	45	5	0.3	0.1			0.1	20	120	460	2	5	0.2 0.6	0.8 1	10 100	6	130	10		10			TO-92-1
BC258	30	25	5	0.3	0.1			0.1	20	120	800	2	5	0.2 0.6	0.8 1	10 100	6	130	10		10			TO-92-1
BC258A	30	25	5	0.3	0.1			0.1	20	120	220	2	5	0.2 0.6	0.8 1	10 100	6	130	10		10			TO-92-1
BC258C	30	25	5	0.3	0.1			0.1	20	380	800	2	5	0.2 0.6	0.8 1	10 100	6	130	10		10			TO-92-1
BC259	30	25	5	0.3	0.05			0.1	20	180	800	2	5	0.2	0.8	10	6	130	10		4			TO-92-1
BC259C	30	25	5	0.3	0.05			0.1	20	380	800	2	5	0.2	0.8	10	6	130	10		4			TO-92-1
BC307B	50	45	5	0.35	0.1			0.015	50	200	460	2	5	0.3	10	6	280	10		10	0.001		TO-92-4	
BC309B	30	25	5	0.35	0.1			0.015	30	200	460	2	5	0.3	10	6	360	10		4			TO-92-4	
BC309C	30	25	5	0.35	0.1			0.015	30	420	800	2	5	0.3	10	6	360	10		4			TO-92-4	
BC327	50	45	5	0.625	0.8	0.1	20			100 100	630 630	100 100	1 1	0.7	500	8	100	10		4			TO-92-4	
BC327A	60	60	5	0.625	0.8	0.1	20			100 40	400 500	100 100	1 1	0.7	500	8	100	10		4			TO-92-4	
BC327-10	50	45	5	0.625	0.8	0.1	20			63 40	160 500	100 100	1 1	0.7	500	8	100	10		4			TO-92-4	
BC327-16	50	45	5	0.625	0.8	0.1	20			100 40	250 500	100 100	1 1	0.7	500	8	100	10		4			TO-92-4	
BC327-25	50	45	5	0.625	0.8	0.1	20			160 40	400 500	100 100	1 1	0.7	500	8	100	10		4			TO-92-4	
BC327-40	50	45	5	0.625	0.8	0.1	20			250 40	600 500	100 100	1 1	0.7	500	8	100	10		4			TO-92-4	
BC328A	60	60	5	0.625	0.8 <sup>1</sup>	0.1	20			100 40	400 500	100 100	1 1	0.7	500		100	10		4			TO-92-4	
BC328-10	30	25	5	0.625	0.8	0.1	20			63 40	160 500	100 100	1 1	0.7	500	8	4	100	10		4			TO-92-4
BC328-25	30	25	5	0.625	0.8	0.1	20			160 40	400 500	100 100	1 1	0.7	500	8	100	10		4			TO-92-4	
BC328-40	30	25	5	0.625	0.8	0.1	20			250 40	630 500	100 100	1 1	0.7	500	8	100	10		4			TO-92-4	
BC369	25	20	5	0.8	1	10	25			50 85 60	5 375 1000	5 10 10		0.5	1000	45	65	10					TO-92-1	
BC415	45	35	5	0.35	0.1	0.015	30			100 180	800	0.01 2	5 5	0.25	10		250	10		2			TO-92-4	
BC415B	45	35	5	0.35	0.1	0.015	30			100 180	460	0.01 2	5 5	0.25	10	2.5	250	10		2			TO-92-4	

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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)	I <sub>CE</sub> (mA)	I <sub>on</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	@ (V)	Min	Max	Max	Min	Max	Typ	Max	Min	Max	Max	Max	Max	Max	
BC416	50	45	5	0.35	0.1	0.015	30			120	800	2	5	0.25	10	2.5	250	10		2			TO-92-4
BC446	60	60	5	0.625	0.3	0.1	40			50	460	2	5	0.25	100		100	50					TO-92-4
										50	10	5											
										50	100	5											
BC446A	60	60	5	0.625	0.3	0.1	40			120	220	2	5	0.25	100		100	50					TO-92-4
										100	10	5											
										60	100	5											
BC446B	60	60	5	0.625	0.3	0.1	40			180	460	2	5	0.25	100		100	50					TO-92-4
										160	10	5											
										90	100	5											
BC448	80	80	5	0.625	0.3	0.1	60			50	460	2	5	0.25	100		100	50					TO-92-4
										50	10	5											
										50	100	5											
BC448B	80	80	5	0.625	0.1	0.1	60			460	2	5		0.25	100		100	50					TO-92-4
										160	10	5											
										90	100	5											
BC450A	100	100	5	0.625	0.3	0.1	80			120	220	2	5	0.25	100		100	50					TO-92-4
										100	10	5											
										60	100	5											
BC450B	100	100	5	0.625	0.3	0.1	80			180	460	2	5	0.25	100		100	50					TO-92-4
										160	10	5											
										90	100	5											
BC486	45	45	4	0.625	1	0.1	30			40	10	2		0.5	1.2	500	9	150	50				TO-92-4
										60	400	100	2										
										15	1000	5											
BC486A	45	45	4	0.625	1	0.1	30			40	10	2		0.5	1.2	500	9	150	50				TO-92-4
										100	250	100	2										
										15	1000	5											
BC486B	45	45	4	0.625	1	0.1	30			40	10	2		0.5	1.2	500	9	150	50				TO-92-4
										160	400	100	2										
										15	1000	5											
BC486L	45	45	4	0.625	1	0.1	30			40	10	2		0.5	1.2	500	9	150	50				TO-92-4
										60	150	100	2										
										15	1000	5											
BC488A	60	60	4	0.625	1	0.1	40			40	10	2		0.5	1.2	500	9	150	50				TO-92-4
										100	250	100	2										
										15	1000	5											
BC488L	60	60	4	0.625	1	0.1	40			40	10	2		0.5	1.2	500	9	150	500				TO-92-4
										60	150	100	2										
										15	1000	5											
BC556A	80	65	5	0.625	0.1			0.1	40	120	220	2	5	0.3	10	6	150	200	10	10	0.001		TO-92-4
										0.65				100									
BC556B	80	65	5	0.625	0.1			0.1	40	180	460	2	5	0.3	10	6	150	200	10	10	0.001		TO-92-4
										0.65				100									
BC557	50	45	5	0.5	0.1			0.1	20	120	800	2	5	0.3	10	6	150	200	10	10	0.001		TO-92-4
										0.65				100									
BC557A	50	45	5	0.5	0.1			0.1	20	120	220	2	5	0.3	10	6	150	200	10	10	0.001		TO-92-4
										0.65				100									
BC557B	50	45	5	0.5	0.1			0.1	20	180	400	2	5	0.3	10	6	150	200	10	10	0.001		TO-92-4
										0.65				100									

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Type No.	V <sub>CB0</sub> (V) Min	V <sub>CE0</sub> (V) Min	V <sub>EBO</sub> (V) Min	P <sub>D</sub> (W) @Tc=25°C	I <sub>C</sub> (A)	I <sub>CB0</sub> (μA) Max	V <sub>CB</sub> (V) @ I <sub>C</sub>	I <sub>CES</sub> (μA) Max	V <sub>CE</sub> (V) @ I <sub>CES</sub>	h <sub>FE</sub>	@ I <sub>C</sub> & V <sub>CE</sub>	I <sub>C</sub> (mA)	V <sub>CE</sub> (V)	V <sub>CE(SAT)</sub> (V) Max	V <sub>BE(SAT)</sub> (V) Max	I <sub>C</sub> (mA) @ V <sub>CE(SAT)</sub>	C <sub>ob</sub> (pF) Typ	f <sub>T</sub> (MHz) Min	@ I <sub>C</sub> & V <sub>CE</sub>	I <sub>C</sub> (mA)	t <sub>oh</sub> (ns) Max	N <sub>F</sub> (dB) Max	@ Freq (MHz)	C <sub>re</sub> (pF) Max	CDIL Case Style
BC557C	50	45	5	0.5	0.1			0.1	20	420	800	2	5	0.3 0.65		10 100	6	150	200	10		10	0.001		TO-92-4
BC558	30	30	5	0.5	0.1			0.1	20	120	800	2	5	0.3 0.65		10 100	6	150	200	10		10	0.001		TO-92-4
BC558B	30	30	5	0.5	0.1			0.1	20	180	460	2	5	0.3 0.65		10 100	6	150	200	10		10	0.001		TO-92-4
BC559	30	30	5	0.5	0.1	0.15	30			125	800	2	5	0.3 0.65		10 100	6	150	200	10		4	0.001		TO-92-4
BC559B	30	30	5	0.5	0.1	0.15	30			220	475	2	5	0.3 0.65		10 100	6	150	200	10		4	0.001		TO-92-4
BC559C	30	30	5	0.5	0.1	0.15	30			420	800	2	5	0.3 0.65		10 100	6	150	200	10		4	0.001		TO-92-4
BC636	45	45	5	0.8	1.0	0.1	30			25		5	2	0.5		500		50		10					TO-92-1
BC636-10	45	45	5	0.8	1.0	0.1	30			25		5	2	0.5		500	9	150							TO-92-1
BC638	60	60	5	0.8	1.0	0.1	30			25		5	2	0.5		500		50		10					TO-92-1
BC638-10	60	60	5	0.8	1.0	0.1	30			25		5	2	0.5		500	9	150		50					TO-92-1
BC638-16	60	60	5	0.8	1.0	0.1	30			25		5	2	0.5		500	9	150		50					TO-92-1
BC640	80	80	5	0.8	1.0	0.1	30			25		5	2	0.5		500		50		10					TO-92-1
BC640-10	80	80	5	0.8	1.0	0.1	30			25		5	2	0.5		500	9	150		50					TO-92-1
BC640-16	80	80	5	0.8	1.0	0.1	30			25		5	2	0.5		500	9	150		50					TO-92-1
BCX78	32	32	5	0.625	0.1			0.01	32	120	630	2	5	0.6	1	100		4.5				6	0.001		TO-92-4
BCX78-7	32	32	5	0.625	0.1			0.01	32	120	220	2	5	0.6	1	100		4.5				6	0.001		TO-92-4
BCX78-8	32	32	5	0.625	0.1			0.01	32	40		0.01	5	0.6	1	100		4.5				6	0.001		TO-92-4

Maximum Ratings						Electrical Characteristics (Ta=25°C, Unless Otherwise Specified)																	
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)	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>on</sub> (ns)	N <sub>F</sub> (dB)	Freq (MHz)	C <sub>m</sub> (pF)	CDIL Case Style		
	Min	Min	Min	@ Tc=25°C	Max	Max	Max	Max	Min	Max	Max	Max	Min	Max	Typ	Max	Min	Max	Max	Max	Max		
BCX78-9	32	32	5	0.625	0.1			0.01	32	75	0.01 5	0.6	1	100	4.5				6	0.001		TO-92-4	
										250	460 2 5												
										160	630 10 1												
										60	100 1												
BCX78-10	32	32	5	0.625	0.1			0.01	32	100	0.01 5	0.6	1	100	2.6 4.5	200	10	800	6	0.001		TO-92-4	
										380	630 2 5												
										240	1000 10 1												
										60	100 2												
BCX79	45	45	5	0.625	0.1			0.01	45	80	1000 10 1	0.6	1	100	4.5				6	0.001		TO-92-4	
										40	100 1												
										120	630 2 5												
										20	0.01 5												
BCX79-7	45	45	5	0.625	0.1			0.01	45	120	220 2 5	0.6	1	100	4.5				6	0.001		TO-92-4	
										80	10 1												
										40	100 1												
										20	0.01 5												
BCX79-8	45	45	5	0.625	0.1			0.01	45	120	400 10 1	0.6	1	100	4.5				6	0.001		TO-92-4	
										45	100 1												
										40	0.01 5												
										180	310 2 5												
BF421	300	300	5	0.8	0.5	0.01	200			50	25 20	0.5	2	20		60	10				2.8	TO-92-1	
BF423	250	250	5	0.8	0.5	0.01	200			50	25 20	0.5	2	20		60	10				2.8	TO-92-1	
C100	60	50	5	0.5	1	0.05	40			50	280 150 1	0.6		150								TO-92-4	
CC327	50	45	5	0.625	0.8	0.1	20			40	500 1	0.7		500	8	100	10					TO-92-1	
										100	600 100 1												
CC327-16	50	45	5	0.625	0.8	0.1	20			40	500 1	0.7		500	8	100	10					TO-92-1	
										100	250 100 1												
CC327-40	50	45	5	0.625	0.8	0.1	20			40	500 1	0.7		500	8	100	10					TO-92-1	
										250	600 100 1												
CC328	30	25	5	0.625	0.8	0.1	20			40	500 1	0.7		500	8	100	10					TO-92-1	
										100	600 100 1												
CC328-16	30	25	5	0.625	0.8	0.1	20			40	500 1	0.7		500	8	100	10					TO-92-1	
										100	250 100 1												
CC328-40	30	25	5	0.625	0.8	0.1	20			40	500 1	0.7		500	8	100	10					TO-92-1	
										250	600 100 1												
CD423	250	250	5	0.8	0.5	0.01	200			50	25 20	0.5		20		60	10				2.8	TO-92	
CD638	60	60	5	0.8	0.5	0.1	30			25	5 2	0.5		500	9	150	50					TO-92-4	
										40	160 150 2												
										25	500 2												
CD8550B	30	25	6	1.0	2	0.5	20			85	160 100 1	0.5	1.3	800	35	100	100					TO-92	
										40	800 1												
CD8550C	30	25	6	1.0	2	0.5	20			120	200 100 1	0.5	1.2	800	35	100	100					TO-92	
										40	800 1												
CD8550D	30	25	6	1.0	2	0.5	20			160	300 100 1	0.5	1.3	800	35	100	100					TO-92	
										40	800 1												
CD9012	40	30	5	0.625	0.5	0.1	25			64	465 50 1	0.2	1	150	10	200	50		6	0.001		TO-92	
												0.6	1.2	500									

\$ V<sub>CES</sub>

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>	β	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)	β	I <sub>C</sub> (mA)	t <sub>on</sub> (ns)	N <sub>F</sub> (dB)	@ Freq (MHz)	C <sub>re</sub> (pF)	CDIL Case Style
	Min	Min	Min	@ Tc=25°C		Max	@ (V)	Max	@ (V)	Min	Max			Max	Min	Max	Typ	Max	Typ	Max	Max	Max	Max	Max	
CD9012D	40	30	5	0.625	0.5	0.1	25			64	91	50	1	0.2 0.6	1 1.2	150 500	10	200		50		6	0.001		TO-92
CD9012E	40	30	5	0.625	0.5	0.1	25			78	112	50	1	0.2 0.6	1 1.2	150 500	10	200		50		6	0.001		TO-92
CD9012F	40	30	5	0.625	0.5	0.1	25			96	135	50	1	0.2 0.6	1 1.2	150 500	10	200		50		6	0.001		TO-92
CD9012G	40	30	5	0.625	0.5	0.1	25			118	166	50	1	0.2 0.8	1 1.2	150 500	10	200		50		6	0.001		TO-92
CD9012H	40	30	5	0.625	0.5	0.1	25			144	202	50	1	0.2 0.6	1 1.2	150 500	12	200		100		6	0.001		TO-92
CD9012I	40	30	5	0.625	0.5	0.1	25			180	350	50	1	0.2 0.6	1 1.2	150 500	10	200		50		6	0.001		TO-92
CD9012J	40	30	5	0.625	0.5	0.1	25			278	465	50	1	0.2 0.6	1 1.2	150 500	10	200		50		6	0.001		TO-92
CD9015	50	50	5	0.625	0.1	0.05	50			60	1000	1	5		1	100	3.5	125		10		4	0.001		TO-92
CD9015A	50	50	5	0.625	0.1	0.05	50			60	150	1	5		1	100	3.5	125		10		4	0.001		TO-92
CD9015B	50	50	5	0.625	0.1	0.05	50			100	300	1	5		1	100	6	125		10		4	0.001		TO-92
CD9015C	50	50	5	0.625	0.1	0.05	50			200	600	1	5		1	100	6	125		10		4	0.001		TO-92
CD9015D	50	50	5	0.625	0.1	0.05	50			400	1000	1	5		1	100	6	125		10		4	0.001		TO-92
CD9015D1	50	50	5	0.625	0.1	0.05	50			400	630	1	5		1	100	6	125		10	6	4	0.001		TO-92
CD9015D2	50	50	5	0.625	0.1	0.05	50			570	840	1	5		1	100	6	125		10		4	0.001		TO-92
CD9015D3	50	50	5	0.625	0.1	0.05	50			760	1000	1	5		1	100	6	125		10		4	0.001		TO-92
CD9015E	50	50	5	0.625	0.1	0.05	50			800		1	5		1	100	6	200		10		4	0.001		TO-92
CDN369	25	20	5	0.625	1	0.05	25			50 85 60		5 375 1000	10 1 1	0.2		1000									TO-92
CIL188	25	15	6	0.625	0.7	10	25			70 100 50		5 300 1000	10 1 1	0.5		1000									TO-92-4
CIL369	25	20	5	0.625	1	10	25			50 85 60		5 375 1000	10 1 1	0.5		1000	45		60	10					TO-92
CIL1115D	50	50	6	0.3	0.15	0.1	50			90 25	180 150	1 6	6 6	0.3	1.1	100	4	7	200		10		20		TO-92-1
CIL1115E	50	50	6	0.3	0.15	0.1	50			150 25	300 150	1 6	6 6	0.3	1.1	100	4	7	200		10		20		TO-92-1
CIL1115F	50	50	6	0.3	0.15	0.1	50			250 25	500 150	1 6	6 6	0.3	1.1	100	4	7	200		10		20		TO-92-1
CIL1115G	50	50	6	0.3	0.15	0.1	50			400 25	800 150	1 6	6 6	0.3	1.1	100	4	7	200		10		20		TO-92-1

Maximum Ratings						Electrical Characteristics (Ta=25°C, Unless Otherwise Specified)																	
Type No.	V <sub>CB0</sub> (V)	V <sub>CE0</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>	β	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)	t <sub>imp</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	@ (V)	Min	Max		Max	Min	Max	Typ	Max	Min	Typ	Max	Max	Max	
CO38P	300	300	5	0.8	0.5	0.1	240	0.2	250	25	200	0.02 0.5	0.5	0.8	1								TO-92-1
CP4	12	12	5	0.4	0.15	1	10			50	700	2 5	0.25		10								TO-92-4
CP500	25	25	5	0.3	0.5	0.2	25			50	300	10 6	0.35		50	6	150						TO-92
CP501	35	35	5	0.3	0.5	0.2	35			50	300	10 6	0.25		50	6	150						TO-92
CP502	35	35	5	0.3	0.5	0.2	35			20		0.1 6	0.25		50	6	150						TO-92
										100	300	10 6		0.65	1.0	10							
										50		50 6											
CP503	45	45	5	0.3	0.5	0.2	45			50	300	10 6	0.35		50	6	150						TO-92
														0.65	1.0	10							
CP504	70	70	5	0.3	0.5	0.2	70			50	300	10 6	0.6		50	6	150						TO-92
														0.65	1.0	10							
CP550	60	45	5	0.75	1	0.1	45			100	300	150 10	0.25		150	25	150						TO-92
										15		1000 10											
CP551	80	60	5	0.75	1	0.1	60			50	150	150 10	0.35		150	25	150						TO-92
										10		1000 10											
CP552	100	80	5	0.75	1	0.1	80			40	150	150 10	0.25		150	12	150						TO-92
										10		1000 10											
CP553	120	100	5	0.75	1	0.1	100			40	200	150 10	0.25		150	12	150						TO-92
										10		1000 10											
CP749	35	25	5	0.75	2	0.1	30			70		50 2	0.3		1000	100	100						TO-92
										100	300	1000 2	0.6		2000								
										75		2000 2											
										10		6000 2											
CP750	60	45	5	0.75	2	0.1	45			70		50 2	0.3		1000	30	100						TO-92
										100	300	500 2	0.5		2000								
										80		1000 2											
										40		2000 2											
CP751	80	60	5	0.75	2	0.1	60			70		50 2	0.3		1000	30	100						TO-92
										100	300	500 2	0.5		2000								
										80		1000 2											
										40		2000 2											
CP752	100	80	5	0.75	2	0.1	80			70		50 2	0.3		1000	30	100						TO-92
										100	300	500 2	0.5		2000								
										55		1000 2											
										25		2000 2											
CP753	120	100	5	0.75	2	0.1	100			70		50 2	0.3		1000	30	100						TO-92
										100	300	500 2	0.5		2000								
										55		1000 2											
										25		2000 2											
CP754	125	125	5	0.75	1	0.1	100			50		10 5	0.5		500	20	30						TO-92
										50		500 5	0.5		1000								
										20		1000 5											
CP755	150	150	5	0.75	1	0.1	125			50		10 5	0.5		500	20	30						TO-92
										50		500 5	0.5		1000								
										20		1000 5											



Maximum Ratings						Electrical Characteristics (Ta=25°C, Unless Otherwise Specified)																
Type No.	V <sub>CB0</sub> (V)	V <sub>CEO</sub> (V)	V <sub>EBO</sub> (V)	P <sub>D</sub> (W)	I <sub>C</sub> (A)	I <sub>CB0</sub> (μA)	V <sub>CB</sub> (V)	I <sub>CE3</sub> (μA)	V <sub>CE</sub> (V)	h <sub>FE</sub>	β	I <sub>C</sub> & I <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)	N <sub>F</sub> (dB)	Freq (MHz)	C <sub>re</sub> (pF)	CDIL Case Style	
	Min	Min	Min	@ Tc=25°C	(A)	Max	@ (V)	Max	@ (V)	Min	Max	I <sub>C</sub> & I <sub>CE</sub> (mA)	Max	Min	Max	Typ	Max	Min	Typ	Max	Max	Max
CP756	200	200	5	0.75	0.5	0.1	160			40	10	5	0.5	1.0	100	20	30					TO-92
CP757	300	300	5	0.75	0.5	0.1	200			40	10	5	0.5	1.0	100	20	30					TO-92
CP788B	15	15	5	0.75	3.0	0.1	10			500	1500	10	2		1000							TO-92
CSA562	35	30	5	0.5	0.5	0.1	35			70	240	100	1	0.25	100	13		200		20		TO-92-1
CSA562O	35	30	5	0.5	0.5	0.1	35			70	140	100	1	0.25	100	13		200		20		TO-92-1
CSA562Y	35	30	5	0.5	0.5	0.1	35			120	240	100	1	0.25	100	13		200		20		TO-92-1
CSA643	40	20	5	0.5	0.5	0.1	25			40	400	100	1	0.4	1.3	500						TO-92
CSA643G	40	20	5	0.5	0.5	0.1	25			200	400	100	1	0.4	1.3	500						TO-92
CSA643O	40	20	5	0.5	0.5	0.1	25			70	140	100	1	0.4	1.3	500						TO-92
CSA643R	40	20	5	0.5	0.5	0.1	25			40	80	100	1	0.4	1.3	500						TO-92
CSA643Y	40	20	5	0.5	0.5	0.1	25			120	240	100	1	0.4	1.3	500						TO-92
CSA673	35	35	4	0.4	0.5	0.5	20			60	320	10	3	0.6		150						TO-92-1
CSA673B	35	35	4	0.4	0.5	0.5	20			60	120	10	3	0.6		150						TO-92-1
CSA673C	35	35	4	0.4	0.5	0.5	20			100	200	10	3	0.6	0.87	150						TO-92-1
CSA673D	35	35	4	0.4	0.5	0.5	20			160	320	10	3	0.6	0.87	150						TO-92-1
CSA708	80	60	8	0.8	0.7	0.1	60			40	240	50	2	0.7	1.1	500	13		50		50	TO-92
CSA708O	80	60	8	0.8	0.7	0.1	60			70	140	50	2	0.7	1.1	500	13		50		50	TO-92
CSA708R	80	60	8	0.8	0.7	0.1	60			40	80	50	2	0.7	1.1	500	13		50		50	TO-92
CSA708Y	80	60	8	0.8	0.7	0.1	60			120	240	50	2	0.7	1.1	500	13		50		50	TO-92
CSA719	30	25	5	0.625	0.5	0.1	20			85	340	150	10	0.6	1.5	300	15		200		50	TO-92-1
CSA719Q	30	25	5	0.625	0.5	0.1	20			85	170	150	10	0.6	1.5	300	15		200		50	TO-92-1
CSA719R	30	25	5	0.625	0.5	0.1	20			120	240	150	10	0.6	1.5	300	15		200		50	TO-92-1
CSA719S	30	25	5	0.625	0.5	0.1	20			170	300	150	10	0.6	1.5	300	15		200		50	TO-92-1
CSA720	60	50	5	0.625	0.5	0.1	20			85	340	150	10	0.6	1.5	300	15		200		50	TO-92-1
CSA720Q	60	50	5	0.625	0.5	0.1	20			85	170	150	10	0.6	1.5	300	15		200		50	TO-92-1

# TO-92 Plastic Package Transistors (PNP)

**CDL**

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 <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)	Q @ Freq (MHz)	C <sub>in</sub> (pF)	CDIL Case Style	
	Min	Min	Min	@ Tc=25°C	Max	Max	Max	Max	Max	Min	Max	Min	Max	Max	Min	Max	Max	Typ	Max	Min	Typ	Max	Max	Max	Max	Max	Max
CSA720R	60	50	5	0.625	0.5	0.1	20			120	170	150	10	0.6		1.5	300	15		200							TO-92-1
CSA720S	60	50	5	0.625	0.5	0.1	20			40	340	150	10	0.6		1.5	500	15		200							TO-92-1
CSA733	60	50	5	0.5	0.1	0.1	60			90	600	1	6	0.3			100	6		50			20	0.001		TO-92-1	
CSA733K	60	50	5	0.5	0.1	0.1	60			300	600	1	6	0.3			100	6		50			20	0.001		TO-92-1	
CSA733P	60	50	5	0.5	0.1	0.1	60			200	400	1	6	0.3			100	6		50			20	0.001		TO-92-1	
CSA733Q	60	50	5	0.5	0.1	0.1	60			135	270	1	6	0.3			100	6		50			20	0.001		TO-92-1	
CSA733R	60	50	5	0.5	0.1	0.1	60			90	180	1	6	0.3			100	6		50			20	0.001		TO-92-1	
CSA928A	30	30	5	1	1.5	0.1	30			100	320	500	2	2			1500	30		120						TO-92-1	
CSA928AO	30	30	5	1	1.5	0.1	30			100	200	500	2	2			1500	30		120						TO-92-1	
CSA928AY	30	30	5	1	1.5	0.1	30			160	320	500	2	2			1500	30		120						TO-92-1	
CSA933	50	40	5	0.3	0.1	0.5	30			120	560	1	6	0.5		1.1	50	4	7	140			10			TO-92-1	
CSA933A	60	50	6	0.3	0.15	0.1	60			120	560	1	6	0.5			50	5		140						TO-92-1	
CSA933AQ	60	50	6	0.3	0.15	0.1	60			120	270	1	6	0.5			50	5		140						TO-92-1	
CSA933AR	60	50	6	0.3	0.15	0.1	60			180	390	1	6	0.5			50	5		140						TO-92-1	
CSA933AS	60	50	6	0.3	0.15	0.1	60			270	560	1	6	0.5			50	5		140						TO-92-1	
CSA950	35	30	5	0.6	0.8	0.1	35			100	320	100	1	0.7			500	19		120						TO-92-1	
CSA950O	35	30	5	0.6	0.8	0.1	35			35	700	1	1													TO-92-1	
CSA950Y	35	30	5	0.6	0.8	0.1	35			100	200	100	1	0.7			500	19		120						TO-92-1	
CSA950Y	35	30	5	0.6	0.8	0.1	35			35	700	1	1													TO-92-1	
CSA970	120	120	5	0.3	0.1	0.1	120			200	700	2	6	0.3			10	4		100			2	0.001		TO-92-1	
CSA970BL	120	120	5	0.3	0.1	0.1	120			350	700	2	6	0.3			10	4		100			2	0.001		TO-92-1	
CSA984D	100	80	5	0.6	0.5	1	40			60	120	50	5	0.6		1.2	400	9		120						TO-92-1	
CSA984E	100	80	5	0.6	0.5	1	40			35	400	5	5													TO-92-1	
CSA984F	100	80	5	0.6	0.5	1	40			100	200	50	5	0.6		1.2	400	9		120						TO-92-1	
CSA984F	100	80	5	0.6	0.5	1	40			35	400	5	5													TO-92-1	
CSA984K	100	80	5	0.6	0.5	1	40			160	320	50	5	0.6		1.2	400	9		120						TO-92-1	
CSA984K	100	80	5	0.6	0.5	1	40			35	400	5	5	0.6 <sup>o</sup>													TO-92-1
CSA984KD	100	80	5	0.6	0.5	1	40			60	120	50	5	0.6		1.2	400	9		120						TO-92-1	
CSA984KD	100	80	5	0.6	0.5	1	40			35	400	5	5														TO-92-1
CSA984KE	100	80	5	0.6	0.5	1	40			100	200	50	5	0.6		1.2	400	9		120						TO-92-1	
CSA984KE	100	80	5	0.6	0.5	1	40			35	400	5	5														TO-92-1
CSA984KF	100	80	5	0.6	0.5	1	40			160	320	50	5	0.6		1.2	400	9		120						TO-92-1	
CSA984KF	100	80	5	0.6	0.5	1	40			35	400	5	5														TO-92-1
CSA988	120	120	5	0.5	0.05	0.05	120			150		0.1	6	0.3		1.0	10	3		50						TO-92-1	
CSA988	120	120	5	0.5	0.05	0.05	120			200	800	1	6														TO-92-1



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)	η <sub>FE</sub> %	I <sub>C</sub> & V <sub>CE</sub> (mA, V)	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)	Q 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	Min	Typ	Max	Max	Max	Max	
CSA988E	120	120	5	0.5	0.05	0.05	120			150	0.1 6	0.3	1.0	10	3	50	1					TO-92-1
CSA988F	120	120	5	0.5	0.05	0.05	120			150	0.1 6	0.3	1.0	10	3	50	1					TO-92-1
CSA988P	120	120	5	0.5	0.05	0.05	120			150	0.1 6	0.3	1.0	10	3	50	1					TO-92-1
CSA1015	50	50	5	0.4	0.15	0.1	50			70	400 2 6	0.3	1.1	100	7	80	1	10	0.001			TO-92-1
CSA1015GR	50	50	5	0.4	0.15	0.1	50			200	400 2 6	0.3	1.1	100	7	80	1	10	0.001			TO-92-1
CSA1015O	50	50	5	0.4	0.15	0.1	50			70	140 2 6	0.3	1.1	100	7	80	1	10	0.001			TO-92-1
CSA1015Y	50	50	5	0.4	0.15	0.1	50			120	240 2 6	0.3	1.1	100	7	80	1	10	0.001			TO-92-1
CSA1029	30	30	5	0.625	0.1	0.5	18			100	500 2 12	0.2		10	4	200	2					TO-92-1
CSA1048	50	50	5	0.2	0.15	0.1	50			70	400 2 6	0.25		100	7	80	1	10				TO-92-1
CSA1048GR	50	50	5	0.2	0.15	0.1	50			200	400 2 6	0.25		100	7	80	1	10				TO-92-1
CSA1048O	50	50	5	0.2	0.15	0.1	50			70	140 2 6	0.25		100	7	80	1	10				TO-92-1
CSA1048Y	50	50	5	0.2	0.15	0.1	50			120	240 2 6	0.25		100	7	80	1	10				TO-92-1
CSA1266	50	50	5	0.625	0.15	0.1	50			70	400 2 6	0.3	1.1	100	4	7	80	1	10			TO-92-1
CSA1266GR	50	50	5	0.625	0.15	0.1	50			200	400 2 6	0.3	1.1	100	4	7	80	1	10			TO-92-1
CSA1266O	50	50	5	0.625	0.15	0.1	50			70	140 2 6	0.3	1.1	100	4	7	80	1	10			TO-92-1
CSA1266Y	50	50	5	0.625	0.15	0.1	50			120	240 2 6	0.3	1.1	100	4	7	80	1	10			TO-92-1
CSA1267	50	50	5	0.4	0.15	0.1	50			70	400 2 6	0.3		100	4	7	80	1	10			TO-92-1
CSA1267GR	50	50	5	0.4	0.15	0.1	50			200	400 2 6	0.3		100	4	7	80	1	10			TO-92-1
CSA1267O	50	50	5	0.4	0.15	0.1	50			70	140 2 6	0.3		100	4	7	80	1	10			TO-92-1
CSA1267Y	50	50	5	0.4	0.15	0.1	50			120	240 2 6	0.3		100	4	7	80	1	10			TO-92-1
CSB564A	30	25	5	0.8	1	0.1	30			70	400 100 1	0.5	1.2	1000	18	110	10					TO-92-1
CSB564AG	30	25	5	0.8	1	0.1	30			200	400 100 1	0.5	1.2	1000	18	110	10					TO-92-1
CSB564AO	30	25	5	0.8	1	0.1	30			70	140 100 1	0.5	1.2	1000	18	110	10					TO-92-1
CSB564AY	30	25	5	0.8	1	0.1	30			120	240 100 1	0.5	1.2	1000	18	110	10					TO-92-1
CSB737	50	40	5	0.25	0.3	0.5	30			120	560 10 6	0.5		50		100	10					TO-92-1
CSB737Q	50	40	5	0.25	0.3	0.5	30			120	270 10 6	0.5		50		100	10					TO-92-1
CSB737R	50	40	5	0.25	0.3	0.5	30			180	390 10 6	0.5		50		100	10					TO-92-1
CSB737S	50	40	5	0.25	0.3	0.5	30			270	560 10 6	0.5		50		100	10					TO-92-1
CSB1426	20	20	5	0.75	3	0.1	20			82	390 100 2	0.5		2000	35	240	500					TO-92-1

Maximum Ratings							Electrical Characteristics (Ta=25°C, Unless Otherwise Specified)																		
Type No.	V <sub>CB0</sub> (V) Min	V <sub>CEO</sub> (V) Min	V <sub>EB0</sub> (V) Min	P <sub>D</sub> (W) @ Tc=25°C	I <sub>C</sub> (A)	I <sub>CB0</sub> (μA) Max	V <sub>CB</sub> (V) @ I <sub>C</sub>	I <sub>CES</sub> (μA) Max	V <sub>CE</sub> (V) @ I <sub>CES</sub>	h <sub>FE</sub>	β	I <sub>C</sub> & V <sub>CE</sub> (mA) (V)	V <sub>CE(SAT)</sub> (V) Max	V <sub>BE(SAT)</sub> (V) Max	I <sub>C</sub> (mA) @ V <sub>BE(SAT)</sub>	C <sub>ob</sub> (pF) Typ	f <sub>T</sub> (MHz) Min	β	I <sub>C</sub> (mA) @ f <sub>T</sub>	t <sub>on</sub> (ns) Max	N <sub>F</sub> (dB) Max	θ Freq (MHz)	C <sub>in</sub> (pF) Max	CDIL Case Style	
CSB1426P	20	20	5	0.75	3	0.1	20			82	180	100 2	0.5		2000	35	240		500						TO-92-1
CSB1426Q	20	20	5	0.75	3	0.1	20			120	270	100 2	0.5		2000	35	240		500						TO-92-1
CSB1426R	20	20	5	0.75	3	0.1	20			180	390	100 2	0.5		2000	35	240		500						TO-92-1
MPS751	80	60	5	0.625	2	0.1	80			75		50 2	0.5		2000	75	50								TO-92
										75		500 2	0.3	1.2	1000										
										75		1000 2													
										40		2000 2													
MPS2907	60	40	5	0.625	0.6	0.02	50	*0.05	30	35		0.1 10	0.4		1.3 150	8	200		50	100					TO-92
										50		1 10	1.6		2.6 500										
										75		10 10													
										100	300	150 10													
										30		500 10													
MPS2907A	60	60	5	0.625	0.6	0.01	50	*0.05	30	75		0.1 10	0.4		1.3 150	8	200		50	100					TO-92
										100		1 10	1.6		2.6 500										
										100		10 10													
										100	300	150 10													
										50		500 10													
MPS3638	25	25	4	0.625	0.5			0.035	15	20		300 2	0.25		1.1 50	20	100		50	170					TO-92
										30		50 1	1	0.8	2 300										
										20		10 10													
MPS3638A	25	25	4	0.625	0.5			0.035	15	20		300 2	0.25		1.1 50	10	150		50	170					TO-92
										100		50 1	1	0.8	2 300										
										100		10 10													
										80		1 10													
MPS3644	45	45	5	0.625	0.6			0.035	30	20		300 2	0.25		1 50	8	200		20	100					TO-92
										100	300	150 10	0.4		1.3 150										
										80	240	50 1	1	0.8	2 300										
										100		10 10													
										80		1 10													
										40		0.1 10													
MPS3645	60	60	5	0.625	0.6			0.035	50	20		300 2	0.25		1 50	8	200		20	100					TO-92
										100	300	150 10	0.4		1.3 150										
										80	240	50 1	1	0.8	2 300										
										100		10 10													
										80		1 10													
										40		0.1 10													
MPS3703	50	30	5	0.625	0.6	0.1	20			30	150	50 5	0.25		50	12	100		50						TO-92
MPS4354	60	60	5	0.625	0.5	0.05	50			30		500 10	0.15		0.9 150	30	100		500 50	400	3	0.001			TO-92
										40		100 10	0.5		1.1 500										
										50	500	10 10													
										40		1 10													
										25		0.1 10													
MPS4356	80	80	5	0.625	0.5	0.05	50			30		500 10	0.15		0.9 150	30	100		500 50	400	3	0.001			TO-92
										40		100 10	0.5		1.1 500										
										50	250	10 10													
										40		1 10													
										25		0.1 10													
MPS6516	40	40	4	0.625	0.1	0.05	30			50	100	2 10	0.5		50	4									TO-92
										30		100 10													
MPS6518	40	40	4	0.625	0.1	0.05	30			150	300	2 5	0.5		50	4									TO-92
										90		100 5													
MPS6523	25	25	4	0.625	0.1	0.05	20			300	600	2 10	0.5		50	3.5	4					3			TO-92
										150		0.1 10													

\* I<sub>CEX</sub>

Maximum Ratings							Electrical Characteristics (Ta=25°C, Unless Otherwise Specified)																			
Type No.	V <sub>CBO</sub> (V) Min	V <sub>CEO</sub> (V) Min	V <sub>EB0</sub> (V) Min	P <sub>D</sub> (W) @ Tc=25°C	I <sub>C</sub> (A)	I <sub>CBO</sub> (μA) Max	V <sub>CB</sub> (V) @ I <sub>C</sub>	I <sub>CES</sub> (μA) Max	V <sub>CE</sub> (V) @ I <sub>CES</sub>	h <sub>FE</sub>	β	I <sub>C</sub> & V <sub>CE</sub> (mA) (mA)	V <sub>CE(SAT)</sub> (V) Max	V <sub>BE(SAT)</sub> (V) Min	I <sub>C</sub> (mA) Max	C <sub>ob</sub> (pF) Typ	f <sub>t</sub> (MHz) Min	f <sub>t</sub> (MHz) Typ	f <sub>t</sub> (MHz) Max	I <sub>C</sub> (mA)	t <sub>off</sub> (ns) Max	N <sub>F</sub> (dB) Max	@ Freq (MHz)	C <sub>ob</sub> (pF) Max	CDIL Case Style	
MPS6533	40	40	4	0.625	0.6	0.05	30			25	500	10	0.5	1	100	8										TO-92
MPS6535	30	30	4	0.625	0.6	0.1	20			40	120	100	0.5		1.2	100	8									TO-92
MPS8598	60	60	6	0.625	0.5	0.1	60			30	10	1	0.4		100	8	150			10					TO-92	
MPS8599	80	80	5	0.625	0.5	0.1	80			100	300	1	0.4		100	8	150			10					TO-92	
MPSA55	60	60	4	0.625	0.5	0.1	60			100	10	1	0.25		100		50			100					TO-92	
MPSA56	80	80	4	0.625	0.5	0.1	80			100	10	1	0.25		100		50			100					TO-92	
MPSA70		40	4	0.625	0.1	0.1	30			100	100	1	0.25		100		50			100					TO-92	
MPSA92	300	300	5	0.625	0.5	0.25	200			40	400	5	0.25		10	4	125			5					TO-92	
P2N2907	60	40	5	0.625	0.6	0.02	50			25		1	0.5	0.9	20	6	50			10			100		TO-92-4	
PN2906	60	40	5	0.625	0.6	0.02	50			40	300	150	0.4	1.3	150	8	200			50			100		TO-92	
PN2906A	60	60	5	0.625	0.6	0.01	50			50	500	10	0.4	1.3	150	8	200			50	100				TO-92	
PN2907A	60	60	5	0.625	0.6	0.02	50			40	120	150	1.6	2.6	500		200			50					TO-92	
PN3638	25	25	4	0.625	0.6			0.035	15	20	300	2	0.25	1.1	50	10	150			50	170				TO-92	
PN3644	45	45	5	0.625	0.6			0.035	30	20	300	2	0.25	1	50	8	200			20	100				TO-92	
PN3645	60	60	5	0.625	0.6			0.035	50	100	300	150	0.4	1.3	150	8	200			20	100				TO-92	

Maximum Ratings						Electrical Characteristics (Ta=25°C, Unless Otherwise Specified)																	
Type No.	V <sub>CEO</sub> (V)	V <sub>CE0</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)	I <sub>c</sub> (mA)	t <sub>on</sub> (ns)	N <sub>F</sub> (dB)	Freq (MHz)	C <sub>in</sub> (pF)	CDIL Case Style	
	Min	Min	Min	@ Tc=25°C	Max	Max	Max	Max	Min	Max	Min	Max	Max	Max	Typ	Max	Min	Typ	Max	Max	Max	Max	
PN4142	60	40	5	0.625	0.6					20	500	10	0.4	1.3	150	8	200	50	100				TO-92
										20	150	1	1.6	2.6	500								
										40	120	150	10										
										35		10	10										
										25		1	10										
										20		0.1	10										
PN4143	60	40	5	0.625	0.6					30	500	10	0.4	1.3	150	8	200	50	100				TO-92
										50	150	1	1.6	2.6	500								
										100	300	150	10										
										75		10	10										
										50		1	10										
										35		0.1	10										
PN4248	40	40	5	0.625	0.05	0.01	40			50	0.1	5	0.25	0.9	10	6	50	1000	1				TO-92
										50	10	5											
										50	1	5											
PN4249	60	60	5	0.625	0.05	0.01	40			100	300	0.1	5	0.25	0.9	10	6	100	550	1			TO-92
										100	1	5											
										100	10	5											
PN4250	40	40	5	0.625	0.05	0.01	40			250	700	0.1	5	0.25	0.9	10	6	250	800	1	2		TO-92
										250	1	5											
										250	10	5											
PN4250A	60	60	5	0.625	0.05	0.01	50			250	700	0.1	5	0.25		6	250	800	1	2		TO-92	
PN4354	60	60	5	0.625	0.5	0.05	50			30	500	10	0.15	0.9	150	30	100	500	50	400	3		TO-92
										40	100	10	0.5	1.1	500								
										50	500	10	10										
										40		1	10										
										25		0.1	10										
PN4355	60	60	5	0.625	0.5	0.05	50			75	500	10	0.15	0.9	150	30	100	500	50	400	3		TO-92
										75	100	10	0.5	1.1	500								
										100	400	10	10										
										75		1	10										
										60		0.1	10										
PN4356	80	80	5	0.625	0.5	0.05	50			30	500	10	0.15	0.9	150	30	100	500	50	400	3		TO-92
										40	100	10	0.5	1.1	500								
										50	250	10	10										
										40		1	10										
										25		0.1	10										
PN5142	20	20	4	0.625	0.6			0.05	12	15	300	10	0.5	1.5	50	10	100	50	200				TO-92
										30	50	1	0.2	0.8	2.5								
PN5143	20	20	4	0.625	0.1			0.05	12	15	300	10	0.5	1.5	50	10	100	50	200				TO-92
										30	50	1	0.2	0.8	2.5								
PN5447	40	25	5	0.625	0.5	0.1	20			60	300	50	5	0.25		12	100	50				TO-92	
TIS91	40	40	5	0.625	0.6	0.1	20			100	300	50	2	0.25	0.6	1	50						TO-92-1
TIS93	40	40	5	0.625	0.6	0.1	20			100	300	50	2	0.25	0.6	1	50						TO-92-4