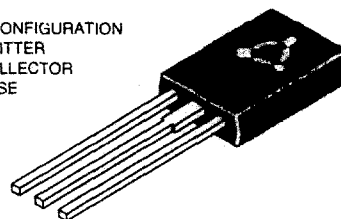


DIM	MIN.	MAX.
A	7.4	7.8
B	10.5	10.8
C	2.4	2.7
D	0.7	0.9
E	2.25 TYP.	
F	0.49	0.75
G	4.5 TYP.	
L	15.7 TYP.	
M	1.27 TYP.	
N	3.75 TYP.	
P	3.0	3.2
S	2.5 TYP.	

ALL DIMENSIONS IN MM

PIN CONFIGURATION
1. EMITTER
2. COLLECTOR
3. BASE



Maximum Ratings						Electrical Characteristics (Ta = 25°C, Unless Otherwise Specified)												
Type No.	Polarity	V _{CEO} (V) Min	V _{CE0} (V) Min	V _{EB0} (V) Min	P _D (W) @Tc=25°C	I _C (A)	I _{CEO} @ (μA) Max	V _{CE} (V)	h _{FE} @ Min	Max	I _C & (A)	V _{CE} (V)	V _{CE(SAT)} (V) Max	V _{BE(SAT)} @ (V) Max	I _C (A)	C _{ob} (pF) Typ	f _T @ (MHz) Min	I _C (A)
BD135	NPN	45	45	5	12.5	1.50	0.10	30	40	250.00	0.15	2.0	0.5		0.5			
BD135-6	NPN	45	45	5	12.5	1.50	0.10	30	40	100.00	0.15	2.0	0.5		0.5			
BD135-10	NPN	45	45	5	12.5	1.50	0.10	30	40	160.00	0.15	2.0	0.5		0.5			
BD135-16	NPN	45	45	5	12.5	1.50	0.10	30	40	250.00	0.15	2.0	0.5		0.5			
BD135-25	NPN	45	45	5	12.5	1.50	0.10	30	40	400.00	0.15	2.0	0.5		0.5			
BD136	PNP	45	45	5	12.5	1.50	0.10	30	40	250.00	0.15	2.0	0.5		0.5			
BD136-6	PNP	45	45	5	12.5	1.50	0.10	30	40	100.00	0.15	2.0	0.5		0.5			
BD136-10	PNP	45	45	5	12.5	1.50	0.10	30	40	160.00	0.15	2.0	0.5		0.5			
BD136-16	PNP	45	45	5	12.5	1.50	0.10	30	40	250.00	0.15	2.0	0.5		0.5			
BD136-25	PNP	45	45	5	12.5	1.50	0.10	30	40	400.00	0.15	2.0	0.5		0.5			
BD137	NPN	60	60	5	12.5	1.50	0.10	30	40	250.00	0.15	2.0	0.5		0.5			
BD137-6	NPN	60	60	5	12.5	1.50	0.10	30	40	100.00	0.15	2.0	0.5		0.5			
BD137-10	NPN	60	60	5	12.5	1.50	0.10	30	40	160.00	0.15	2.0	0.5		0.5			
BD137-16	NPN	60	60	5	12.5	1.50	0.10	30	40	250.00	0.15	2.0	0.5		0.5			
BD137-25	NPN	60	60	5	12.5	1.50	0.10	30	40	400.00	0.15	2.0	0.5		0.5			
BD138	PNP	60	60	5	12.5	1.50	0.10	30	40	250.00	0.15	2.0	0.5		0.5			
BD138-6	PNP	60	60	5	12.5	1.50	0.10	30	40	100.00	0.15	2.0	0.5		0.5			
BD138-10	PNP	60	60	5	12.5	1.50	0.10	30	40	160.00	0.15	2.0	0.5		0.5			
BD138-16	PNP	60	60	5	12.5	1.50	0.10	30	40	250.00	0.15	2.0	0.5		0.5			
BD138-25	PNP	60	60	5	12.5	1.50	0.10	30	40	400.00	0.15	2.0	0.5		0.5			
BD139	NPN	100	80	5	12.5	1.50	0.10	30	40	250.00	0.15	2.0	0.5		0.5			
BD139-6	NPN	100	80	5	12.5	1.50	0.10	30	40	100.00	0.15	2.0	0.5		0.5			
BD139-10	NPN	100	80	5	12.5	1.50	0.10	30	40	160.00	0.15	2.0	0.5		0.5			
BD139-16	NPN	100	80	5	12.5	1.50	0.10	30	40	250.00	0.15	2.0	0.5		0.5			
BD139-25	NPN	100	80	5	12.5	1.50	0.10	30	40	400.00	0.15	2.0	0.5		0.5			
BD140	PNP	100	80	5	12.5	1.50	0.10	30	40	250.00	0.15	2.0	0.5		0.5			
BD140-6	PNP	100	80	5	12.5	1.50	0.10	30	40	100.00	0.15	2.0	0.5		0.5			
BD140-10	PNP	100	80	5	12.5	1.50	0.10	30	40	160.00	0.15	2.0	0.5		0.5			
BD140-16	PNP	100	80	5	12.5	1.50	0.10	30	40	250.00	0.15	2.0	0.5		0.5			
BD140-25	PNP	100	80	5	12.5	1.50	0.10	30	40	400.00	0.15	2.0	0.5		0.5			
BD157	NPN	275	250	5	20.0	0.50	100.00	275	30	240.00	0.05	10.0						
BD158	NPN	325	300	5	20.0	0.50	100.00	325	30	240.00	0.05	10.0						
BD165	NPN	45	45	5	20.0	1.50	100.00	45	40		0.15	2.0	0.5		0.5		6.0	0.5
BD166	PNP	45	45	5	20.0	1.50	100.00	45	40		0.15	2.0	0.5		0.5		6.0	0.5

Maximum Ratings						Electrical Characteristics (Ta = 25°C, Unless Otherwise Specified)												
Type No.	Polarity	V _{CEO} (V) Min	V _{CE0} (V) Min	V _{EB0} (V) Min	P _D (W) @Tc=25°C	I _C (A)	I _{CBO} (μA) Max	V _{CB} (V)	η _{FE} Min	β _{DC} Max	I _C & (A)	V _{CE} (V)	V _{CE(SAT)} (V) Max	V _{BE(SAT)} (V) Max	I _C (A)	C _{ob} (pF) Typ	f _T (MHz) Min	I _C (A)
BD167	NPN	60	60	5	20.0	1.50	100.00	60	40		0.15	2.0	0.5	0.5			6.0	0.5
BD168	PNP	60	60	5	20.0	1.50	100.00	60	40		0.15	2.0	0.5	0.5			6.0	0.5
BD169	NPN	80	80	5	20.0	1.5	100.00	80	40		0.15	2.0	0.5	0.5			6.0	0.5
BD170	PNP	80	80	5	20.0	1.50	100.00	80	40		0.15	2.0	0.5	0.5			6.0	0.5
BD175 Ⓢ	NPN	45	45	5	30.0	3.00	100.00	45	40		0.15	2.0	0.8	1.0			3.0	0.25
BD175-6 Ⓢ	NPN	45	45	5	30.0	3.00	100.00	45	40	100	0.15	2.0	0.8	1.0			3.0	0.25
BD175-10 Ⓢ	NPN	45	45	5	30.0	3.00	100.00	45	63	160	0.15	2.0	0.8	1.0			3.0	0.25
BD175-16 Ⓢ	NPN	45	45	5	30.0	3.00	100.00	45	100	250	0.15	2.0	0.8	1.0			3.0	0.25
BD176 Ⓢ	PNP	45	45	5	30.0	3.00	100.00	45	40		0.15	2.0	0.8	1.0			3.0	0.25
BD176-6 Ⓢ	PNP	45	45	5	30.0	3.00	100.00	45	40	100	0.15	2.0	0.8	1.0			3.0	0.25
BD176-10 Ⓢ	PNP	45	45	5	30.0	3.00	100.00	45	63	160	0.15	2.0	0.8	1.0			3.0	0.25
BD176-16 Ⓢ	PNP	45	45	5	30.0	3.00	100.00	45	100	250	0.15	2.0	0.8	1.0			3.0	0.25
BD177 Ⓢ	NPN	60	60	5	30.0	3.00	100.00	60	40		0.15	2.0	0.8	1.0			3.0	0.25
BD177-6 Ⓢ	NPN	60	60	5	30.0	3.00	100.00	60	40	100	0.15	2.0	0.8	1.0			3.0	0.25
BD177-10 Ⓢ	NPN	60	60	5	30.0	3.00	100.00	60	63	160	0.15	2.0	0.8	1.0			3.0	0.25
BD178 Ⓢ	PNP	60	60	5	30.0	3.00	100.00	60	40		0.15	2.0	0.8	1.0			3.0	0.25
BD178-6 Ⓢ	PNP	60	60	5	30.0	3.00	100.00	60	40	100	0.15	2.0	0.8	1.0			3.0	0.25
BD178-10 Ⓢ	PNP	60	60	5	30.0	3.00	100.00	60	63	160	0.15	2.0	0.8	1.0			3.0	0.25
BD179 Ⓢ	NPN	80	80	5	30.0	3.00	100.00	80	40		0.15	2.0	0.8	1.0			3.0	0.25
BD179-6 Ⓢ	NPN	80	80	5	30.0	3.00	100.00	80	40	100	0.15	2.0	0.8	1.0			3.0	0.25
BD179-10 Ⓢ	NPN	80	80	5	30.0	3.00	100.00	80	63	160	0.15	2.0	0.8	1.0			3.0	0.25
BD180 Ⓢ	PNP	80	80	5	30.0	3.00	100.00	80	40		0.15	2.0	0.8	1.0			3.0	0.25
BD180-6 Ⓢ	PNP	80	80	5	30.0	3.00	100.00	80	40	100	0.15	2.0	0.8	1.0			3.0	0.25
BD180-10 Ⓢ	PNP	80	80	5	30.0	3.00	100.00	80	63	160	0.15	2.0	0.8	1.0			3.0	0.25
BD233	NPN	45	45	5	25.0	2.00	100.00	45	40		0.15	2.0	0.6	1.0			3.0	0.25
BD234	PNP	45	45	5	25.0	2.00	100.00	45	40		0.15	2.0	0.6	1.0			3.0	0.25
BD235	NPN	60	60	5	25.0	2.00	100.00	60	40		0.15	2.0	0.6	1.0			3.0	0.25
BD236	PNP	60	60	5	25.0	2.00	100.00	60	40		0.15	2.0	0.6	1.0			3.0	0.25
BD237	NPN	100	80	5	25.0	2.00	100.00	100	40		0.15	2.0	0.6	1.0			3.0	0.25
BD238	PNP	100	80	5	25.0	2.00	100.00	100	40		0.15	2.0	0.6	1.0			3.0	0.25
BD433 Ⓢ	NPN	22	22	5	36.0	4.00	100.00	22	40		0.01	5.0	0.5	2.0			3.0	0.25
BD434 Ⓢ	PNP	22	22	5	36.0	4.00	100.00	22	40		0.01	5.0	0.5	2.0			3.0	0.25
BD435 Ⓢ	NPN	32	32	5	36.0	4.00	100.00	32	40		0.01	5.0	0.5	2.0			3.0	0.25
BD436 Ⓢ	PNP	32	32	5	36.0	4.00	100.00	32	40		0.01	5.0	0.5	2.0			3.0	0.25
BD437 Ⓢ	NPN	45	45	5	36.0	4.00	100.00	45	30		0.01	5.0	0.6	2.0			3.0	0.25
BD438 Ⓢ	PNP	45	45	5	36.0	4.00	100.00	45	30		0.01	5.0	0.6	2.0			3.0	0.25
BD439 Ⓢ	NPN	60	60	5	36.0	4.00	100.00	60	20		0.01	5.0	0.8	2.0			3.0	0.25
BD440 Ⓢ	PNP	60	60	5	36.0	4.0	100.00	60	20		0.01	5.0	0.8	2.0			3.0	0.25
BD441 Ⓢ	NPN	80	80	5	36.0	4.00	100.00	80	15		0.01	5.0	0.8	2.0			3.0	0.25
BD442 Ⓢ	PNP	80	80	5	36.0	4.0	100.00	80	15		0.01	5.0	0.8	2.0			3.0	0.25
BD675 Ⓢ	NPN	45	45	5	40	4	200	45	750		1.5	3	2.5			1.5		
BD675A Ⓢ	NPN	45	45	5	40	4	200	45	750		2.0	3	2.8			2.0		
BD676 Ⓢ	PNP	45	45	5	40	4	200	45	750		1.5	3	2.5			1.5		
BD676A Ⓢ	PNP	45	45	5	40	4	200	60	750		2.0	3	2.8			2.0		
BD677 Ⓢ	NPN	60	60	5	40	4	200	60	750		1.5	3	2.5			1.5		
BD677A Ⓢ	NPN	60	60	5	40	4	200	60	750		2.0	3	2.8			2.0		
BD678 Ⓢ	PNP	60	60	5	40	4	200	60	750		1.5	3	2.5			1.5		
BD678A Ⓢ	PNP	60	60	5	40	4	200	60	750		2.0	3	2.8			2.0		
BD679 Ⓢ	NPN	80	80	5	40	4	200	80	750		1.5	3	2.5			1.5		
BD679A Ⓢ	NPN	80	80	5	40	4	200	80	750		2.0	3	2.8			2.0		
BD680 Ⓢ	PNP	80	80	5	40	4	200	80	750		1.5	3	2.5			1.5		
BD680A Ⓢ	PNP	80	80	5	40	4	200	80	750		2.0	3	2.8			2.0		
BD682 Ⓢ	NPN	100	100	5	40	4	200	100	750		1.5	3	2.5			1.5		
BF457	NPN	160	160	5	10.0*	0.10	0.05	100	25		0.03	10.0	1.0	0.03		5.5*	90.0	0.015

⊗ under development # c_{ob} max * T_c=45°C

Maximum Ratings						Electrical Characteristics (Ta = 25°C, Unless Otherwise Specified)												
Type No.	Polarity	V _{CEO} (V) Min	V _{CE0} (V) Min	V _{EB0} (V) Min	P _D (W) @ Tc=25°C	I _C (A)	I _{CEO} @ (μA) Max	V _{CB} (V)	h _{FE} @ Min	Max	I _C & (A)	V _{CE} (V)	V _{CE(SAT)} (V) Max	V _{BE(SAT)} @ (V) Max	I _C (A)	C _{ob} (pF) Typ	f _T @ (MHz) Min	I _C (A)
BF458	NPN	250	250	5	10.0*	0.10	0.05	200	25		0.03	10.0	1.0		0.03	5.5#	90.0	0.015
BF459	NPN	300	300	5	10.0*	0.10	0.05	250	25		0.03	10.0	1.0		0.03	5.5#	90.0	0.015
BF469	NPN	250	250	5	2.0^	0.03	0.10	200	50		0.025	20.0				1.8\$	60.0	0.01
BF470	PNP	250	250	5	2.0^	0.03	0.10	200	50		0.025	20.0				1.8\$	60.0	0.01
BF471	NPN	300	300	5	2.0^	0.03	0.05†	250	50		0.025	20.0				1.8\$	60.0	0.01
BF472	PNP	300	300	5	2.0^	0.03	0.05†	250	50		0.025	20.0				1.8\$	60.0	0.01
C42C2	NPN		30	5	12.5	3.00	10.00	40	100	220.00	0.2	1.0	0.5	1.3	1.0	100#	50.0‡	0.02
C43C2	NPN		30	5	12.5	3.00	10.00	40	40	120.00	0.2	1.0	0.5	1.3	1.0	125#	40.0‡	0.02
CSA715	PNP	35	35	5	10.0	2.50	20.00	35	60	320.00	0.50	2.0	1.0		2.0		160.0‡	0.2
CSA715B	PNP	35	35	5	10.0	2.50	20.00	35	60	120.00	0.50	2.0	1.0		2.0		160.0‡	0.2
CSA715C	PNP	35	35	5	10.0	2.50	20.00	35	100	200.00	0.50	2.0	1.0		2.0		160.0‡	0.2
CSA715D	PNP	35	35	5	10.0	2.50	20.00	35	160	320.00	0.50	2.0	1.0		2.0		160.0‡	0.2
CSA1220	PNP	120	120	5	20.0	1.20	1.00	120	60	320.00	0.30	5.0	0.7	1.3	1.0	26.0	175.0‡	0.2
CSA1220A	PNP	160	160	5	20.0	1.20	1.00	120	60	320.00	0.30	5.0	0.7	1.3	1.0	26.0	175.0‡	0.2
CSA1220AO	PNP	160	160	5	20.0	1.20	1.00	120	100	200.00	0.30	5.0	0.7	1.3	1.0	26.0	175.0‡	0.2
CSA1220AR	PNP	160	160	5	20.0	1.20	1.00	120	60	120.00	0.30	5.0	0.7	1.3	1.0	26.0	175.0‡	0.2
CSA1220AY	PNP	160	160	5	20.0	1.20	1.00	120	160	320.00	0.30	5.0	0.7	1.3	1.0	26.0	175.0‡	0.2
CSA1220O	PNP	120	120	5	20.0	1.20	1.00	120	100	200.00	0.30	5.0	0.7	1.3	1.0	26.0	175.0‡	0.2
CSA1220R	PNP	120	120	5	20.0	1.20	1.00	120	60	120.00	0.30	5.0	0.7	1.3	1.0	26.0	175.0‡	0.2
CSA1220Y	PNP	120	120	5	20.0	1.20	1.00	120	160	320.00	0.30	5.0	0.7	1.3	1.0	26.0	175.0‡	0.2
CSB631	PNP	100	100	5	8.0	1.00	1.00	50	60	320.00	0.05	5	0.4	1.2	0.5	30.0	110.0‡	0.05
CSB631D	PNP	100	100	5	8.0	1.00	1.00	50	60	120.00	0.05	5	0.4	1.2	0.5	30.0	110.0‡	0.05
CSB631E	PNP	100	100	5	8.0	1.00	1.00	50	100	200.00	0.05	5	0.4	1.2	0.5	30.0	110.0‡	0.05
CSB631F	PNP	100	100	5	8.0	1.00	1.00	50	160	320.00	0.05	5	0.4	1.2	0.5	30.0	110.0‡	0.05
CSB631K	PNP	120	120	5	8.0	1.00	1.00	50	60	320.00	0.05	5	0.4	1.2	0.5	30.0	110.0‡	0.05
CSB631KD	PNP	120	120	5	8.0	1.00	1.00	50	60	120.00	0.05	5	0.4	1.2	0.5	30.0	110.0‡	0.05
CSB631KE	PNP	120	120	5	8.0	1.00	1.00	50	100	200.00	0.05	5	0.4	1.2	0.5		110.0‡	0.05
CSB631KF	PNP	120	120	5	8.0	1.00	1.00	50	160	320.00	0.05	5	0.4	1.2	0.5	30.0	110.0‡	0.05
CSB649	PNP	180	120	5	20.0	1.5	10.00	160	60	320.00	0.15	5	1.0		0.5	27.0	140.0‡	0.15
CSB649A	PNP	180	180	5	20.0	1.5	10.00	160	60	200.00	0.15	5	1.0		0.5	27.0	140.0‡	0.15
CSB649AB	PNP	180	180	5	20.0	1.5	10.00	160	60	120.00	0.15	5	1.0		0.5	27.0	140.0‡	0.15
CSB649AC	PNP	180	180	5	20.0	1.5	10.00	160	100	200.00	0.15	5	1.0		0.5	27.0	140.0‡	0.15
CSB649B	PNP	180	120	5	20.0	1.5	10.00	160	60	120.00	0.15	5	1.0		0.5	27.0	140.0‡	0.15
CSB649C	PNP	180	120	5	20.0	1.5	10.00	160	100	200.00	0.15	5	1.0		0.5	27.0	140.0‡	0.15
CSB649D	PNP	180	120	5	20.0	1.5	10.00	160	160	320.00	0.15	5	1.0		0.5	27.0	140.0‡	0.15
CSB744	PNP	70	45	5	10.0	3.00	10.00	45	60	320.00	0.50	5.0	2.0	2.0	1.5	60.0	45.0‡	0.1
CSB744A	PNP	70	60	5	10.0	3.00	10.00	45	60	320.00	0.50	5.0	2.0	2.0	1.5	60.0	45.0‡	0.1
CSB744AO	PNP	70	60	5	10.0	3.00	10.00	45	100	200.00	0.50	5.0	2.0	2.0	1.5	60.0	45.0‡	0.1
CSB744AR	PNP	70	60	5	10.0	3.00	10.00	45	60	120.00	0.50	5.0	2.0	2.0	1.5	60.0	45.0‡	0.1
CSB744AY	PNP	70	60	5	10.0	3.00	10.00	45	160	320.00	0.50	5.0	2.0	2.0	1.5	60.0	45.0‡	0.1
CSB744O	PNP	70	45	5	10.0	3.00	10.00	45	100	200.00	0.50	5.0	2.0	2.0	1.5	60.0	45.0‡	0.1
CSB744R	PNP	70	45	5	10.0	3.00	10.00	45	60	120.00	0.50	5.0	2.0	2.0	1.5	60.0	45.0‡	0.1
CSB744Y	PNP	70	45	5	10.0	3.00	10.00	45	160	320.00	0.50	5.0	2.0	2.0	1.5	60.0	45.0‡	0.1
CSB772	PNP	30	40	5	10.0	3.00	1.00	30	60	400.00	1.00	2.0	0.5	2.0	2.0	55.0	80.0‡	0.1
CSB772E	PNP	40	30	5	10.0	3.00	1.00	30	200	400.00	1.00	2.0	0.5	2.0	2.0	55.0	80.0‡	0.1
CSB772P	PNP	30	40	5	10.0	3.00	1.00	30	160	320.00	1.00	2.0	0.5	2.0	2.0	55.0	80.0‡	0.1
CSB772Q	PNP	30	40	5	10.0	3.00	1.00	30	100	200.00	1.00	2.0	0.5	2.0	2.0	55.0	80.0‡	0.1
CSB772R	PNP	30	40	5	10.0	3.00	1.00	30	60	120.00	1.00	2.0	0.5	2.0	2.0	55.0	80.0‡	0.1
CSB1065	PNP	60	50	5	10.0	3.00	1.00	40	56	390.00	0.50	3.0	1.0	1.5	2.0	50.0	70.0‡	0.5
CSB1065N	PNP	60	50	5	10.0	3.00	1.00	40	56	120.00	0.50	3.0	1.0	1.5	2.0	50.0	70.0‡	0.5
CSB1065P	PNP	60	50	5	10.0	3.00	1.00	40	82	180.00	0.50	3.0	1.0	1.5	2.0	50.0	70.0‡	0.5
CSB1065Q	PNP	60	50	5	10.0	3.00	1.00	40	120	270.00	0.50	3.0	1.0	1.5	2.0	50.0	70.0‡	0.5
CSB1065R	PNP	60	50	5	10.0	3.00	1.00	40	180	390.00	0.50	3.0	1.0	1.5	2.0	50.0	70.0‡	0.5
CSB1086	PNP	120	120	5	10.0	1.50	1.00	100	56	390.00	0.10	5.0	2.0	1.5	1.0	30.0	50.0‡	0.1

^ Tc=110°C # = C_{ob} Max ‡ = f_T Typ \$ c_{re} max

Maximum Ratings						Electrical Characteristics (Ta = 25°C, Unless Otherwise Specified)												
Type No.	Polarity	V _{CBO} (V) Min	V _{CEO} (V) Min	V _{EBO} (V) Min	P _D (W) @ Tc=25°C	I _C (A)	I _{CBO} (μA) Max	V _{CB} (V)	h _{FE} Min	h _{FE} Max	I _C & (A)	V _{CE} (V)	V _{CE(SAT)} (V) Max	V _{BE(SAT)} (V) Max	I _C (A)	C _{ob} (pF) Typ	f _t (MHz) Min	I _C (A)
CSB1086A	PNP	160	160	5	10.0	1.50	1.00	150	56	270.00	0.10	5.0	2.0	1.5	1.0	30.0	30.0 [†]	0.1
CSB1086AN	PNP	160	160	5	10.0	1.50	1.00	150	56	120.00	0.10	5.0	2.0	1.5	1.0	30.0	30.0 [†]	0.1
CSB1086AP	PNP	160	160	5	10.0	1.50	1.00	150	82	180.00	0.10	5.0	2.0	1.5	1.0	30.0	30.0 [†]	0.1
CSB1086AQ	PNP	160	160	5	10.0	1.50	1.00	150	120	270.00	0.10	5.0	2.0	1.5	1.0	30.0	30.0 [†]	0.1
CSB1086N	PNP	120	120	5	10.0	1.50	1.00	100	56	120.00	0.10	5.0	2.0	1.5	1.0	30.0	50.0 [†]	0.1
CSB1086P	PNP	120	120	5	10.0	1.50	1.00	100	82	180.00	0.10	5.0	2.0	1.5	1.0	30.0	50.0 [†]	0.1
CSB1086Q	PNP	120	120	5	10.0	1.50	1.00	100	120	270.00	0.10	5.0	2.0	1.5	1.0	30.0	50.0 [†]	0.1
CSB1086R	PNP	120	120	5	10.0	1.50	1.00	100	180	390.00	0.10	5.0	2.0	1.5	1.0	30.0	50.0 [†]	0.1
CSC1162	NPN	35	35	5	10.0	2.50	20.00	35	60	320.00	0.50	2.0	1.0		2.0		180.0 [†]	0.2
CSC1162B	NPN	35	35	5	10.0	2.50	20.00	35	60	120.00	0.50	2.0	1.0		1.0		180.0 [†]	0.2
CSC1162C	NPN	35	35	5	10.0	2.50	20.00	35	100	200.00	0.50	2.0	1.0		1.0		180.0 [†]	0.2
CSC1162D	NPN	35	35	5	10.0	2.50	20.00	35	160	320.00	0.50	2.0	1.0		1.0		180.0 [†]	0.2
CSC2371	NPN	300	300	7	10.0	0.10	0.10	200	40	250.00	0.01	10.0	1.5		0.03	3.0	50.0	0.01
CSC2371K	NPN	300	300	7	10.0	0.10	0.10	200	160	250.00	0.01	10.0	1.5		0.03	3.0 [#]	50.0	0.01
CSC2371L	NPN	300	300	7	10.0	0.10	0.10	200	100	200.00	0.01	10.0	1.5		0.03	3.0 [#]	50.0	0.01
CSC2371M	NPN	300	300	7	10.0	0.10	0.10	200	60	120.00	0.01	10.0	1.5		0.03	3.0 [#]	50.0	0.01
CSC2371N	NPN	300	300	7	10.0	0.10	0.10	200	40	80.00	0.01	10.0	1.5		0.03	3.0 [#]	50.0	0.01
CSC2611	NPN	300	300	5	1.25	0.10	1.00 ^{**}	250	30	200.00	0.02	20.0	1.5		0.02	4.0 [#]	50.0	0.02
CSC2688	NPN	300	300	5	10.0	0.20	0.10	200	40	250.00	0.01	10.0	1.5		0.05	3.0 [§]	50.0	0.01
CSC2688G	NPN	300	300	5	10.0	0.20	0.10	200	160	250.00	0.01	10.0	1.5		0.05	3.0 [§]	50.0	0.01
CSC2688O	NPN	300	300	5	10.0	0.20	0.10	200	60	120.00	0.01	10.0	1.5		0.05	3.0 [§]	50.0	0.01
CSC2688R	NPN	300	300	5	10.0	0.20	0.10	200	40	80.00	0.01	10.0	1.5		0.05	3.0 [§]	50.0	0.01
CSC2688Y	NPN	300	300	5	10.0	0.20	0.10	200	100	200.00	0.01	10.0	1.5		0.05	3.0 [§]	50.0	0.01
CSC2690	NPN	120	120	5	20.0	1.20	1.00	120	60	320.00	0.30	5.0	0.7	1.3	1.0	19.0	155.0 [†]	0.2
CSC2690A	NPN	160	160	5	20.0	1.20	1.00	120	60	320.00	0.30	5.0	0.7	1.3	1.0	19.0	155.0 [†]	0.2
CSC2690AO	NPN	160	160	5	20.0	1.20	1.00	120	100	200.00	0.30	5.0	0.7	1.3	1.0	19.0	155.0 [†]	0.2
CSC2690AR	NPN	160	160	5	20.0	1.20	1.00	120	60	120.00	0.30	5.0	0.7	1.3	1.0	19.0	155.0 [†]	0.2
CSC2690AY	NPN	160	160	5	20.0	1.20	1.00	120	160	320.00	0.30	5.0	0.7	1.3	1.0	19.0	155.0 [†]	0.2
CSC2690O	NPN	120	120	5	20.0	1.20	1.00	120	100	200.00	0.30	5.0	0.7	1.3	1.0	19.0	155.0 [†]	0.2
CSC2690R	NPN	120	120	5	20.0	1.20	1.00	120	60	120.00	0.30	5.0	0.7	1.3	1.0	19.0	155.0 [†]	0.2
CSC2690Y	NPN	120	120	5	20.0	1.20	1.00	120	160	320.00	0.30	5.0	0.7	1.3	1.0	19.0	155.0 [†]	0.2
CSC3619	NPN	300	300		1.5 [@]	0.10	1.00	240	30	200.00	0.02	10.0	1.0	1.0	0.01	3.0 [#]	50.0	0.02
CSC4217D	NPN	300	300	6	8.0	0.2	0.01	200	60	120.00	0.01	10	0.6	1.0	0.02	3.5	70.0 [†]	0.1
CSD600	NPN	100	100	5	8.0	1.00	1.00	50	60	320.00	0.05	5	0.4	1.2	0.5	20.0	130.0 [†]	0.05
CSD600D	NPN	100	100	5	8.0	1.00	1.00	50	60	120.00	0.05	5	0.4	1.2	0.5	20.0	130.0 [†]	0.05
CSD600E	NPN	100	100	5	8.0	1.00	1.00	50	100	200.00	0.05	5	0.4	1.2	0.5	20.0	130.0 [†]	0.05
CSD600F	NPN	100	100	5	8.0	1.00	1.00	50	160	320.00	0.05	5	0.4	1.2	0.5	20.0	130.0 [†]	0.05
CSD600K	NPN	120	120	5	8.0	1.00	1.00	50	60	320.00	0.05	5	0.4	1.2	0.5	20.0	130.0 [†]	0.05
CSD600KD	NPN	120	120	5	8.0	1.00	1.00	50	60	120.00	0.05	5	0.4	1.2	0.5	20.0	130.0 [†]	0.05
CSD600KE	NPN	120	120	5	8.0	1.00	1.00	50	100	200.00	0.05	5	0.4	1.2	0.5	20.0	130.0 [†]	0.05
CSD600KF	NPN	120	120	5	8.0	1.00	1.00	50	160	320.00	0.05	5	0.4	1.2	0.5	20.0	130.0 [†]	0.05
CSD669	NPN	180	120	5	20.0	1.5	10.00	160	60	320.00	0.15	5	1		0.5	14.0	140.0 [†]	0.15
CSD669A	NPN	180	180	5	20.0	1.5	10.00	160	60	200.00	0.15	5	1		0.5	14.0	140.0 [†]	0.15
CSD669AB	NPN	180	180	5	20.0	1.5	10.00	160	60	120.00	0.15	5	1		0.5	14.0	140.0 [†]	0.15
CSD669AC	NPN	180	180	5	20.0	1.5	10.00	160	100	200.00	0.15	5	1		0.5	14.0	140.0 [†]	0.15
CSD669B	NPN	180	120	5	20.0	1.5	10.00	160	60	120.00	0.15	5	1		0.5	14.0	140.0 [†]	0.15
CSD669C	NPN	180	120	5	20.0	1.5	10.00	160	100	200.00	0.15	5	1		0.5	14.0	140.0 [†]	0.15
CSD669D	NPN	180	120	5	20.0	1.5	10.00	160	160	320.00	0.15	5	1		0.5	14.0	140.0 [†]	0.15
CSD794	NPN	70	45	5	10.0	3.00	1.00	45	60	320.00	0.50	5.0	2.0	2.0	1.5	40.0	60.0 [†]	0.1
CSD794A	NPN	70	60	5	10.0	3.00	1.00	45	60	320.00	0.50	5.0	2.0	2.0	1.5	40.0	60.0 [†]	0.1
CSD794AO	NPN	70	60	5	10.0	3.00	1.00	45	100	200.00	0.50	5.0	2.0	2.0	1.5	40.0	60.0 [†]	0.1
CSD794AR	NPN	70	60	5	10.0	3.00	1.00	45	60	120.00	0.50	5.0	2.0	2.0	1.5	40.0	60.0 [†]	0.1
CSD794AY	NPN	70	60	5	10.0	3.00	1.00	45	160	320.00	0.50	5.0	2.0	2.0	1.5	40.0	60.0 [†]	0.1
CSD794O	NPN	70	45	5	10.0	3.00	1.00	45	100	200.00	0.50	5.0	2.0	2.0	1.5	40.0	60.0 [†]	0.1
CSD794R	NPN	70	45	5	10.0	3.00	1.00	45	60	120.00	0.50	5.0	2.0	2.0	1.5	40.0	60.0 [†]	0.1

= C_{ob} Max † = ft Typ @ Tc=25°C § cre max ** I_{CEO}

Maximum Ratings						Electrical Characteristics (T _a = 25°C, Unless Otherwise Specified)												
Type No.	Polarity	V _{CBO} (V) Min	V _{CEO} (V) Min	V _{EB0} (V) Min	P _D (W) @ T _C =25°C	I _C (A)	I _{CBO} @ (μA) Max	V _{CB} (V)	h _{FE} Min	h _{FE} @ Max	I _C & (A)	V _{CE} (V)	V _{CE(SAT)} (V) Max	V _{BE(SAT)} @ (V) Max	I _C (A)	C _{ob} (pF) Typ	f _t @ (MHz) Min	I _C (A)
CSD794Y	NPN	70	45	5	10.0	3.00	1.00	45	160	320.00	0.50	5.0	2.0	2.0	1.5	40.0	60.0 [‡]	0.1
CSD882	NPN	40	30	5	10.0	3.00	1.00	30	60	400.00	1.00	2.0	0.5	2.0	2.0	45.0	90.0 [‡]	0.1
CSD882E	NPN	40	30	5	10.0	3.00	1.00	30	200	400.00	1.00	2.0	0.5	2.0	2.0	45.0	90.0 [‡]	0.1
CSD882P	NPN	40	30	5	10.0	3.00	1.00	30	160	320.00	1.00	2.0	0.5	2.0	2.0	45.0	90.0 [‡]	0.1
CSD882Q	NPN	40	30	5	10.0	3.00	1.00	30	100	200.00	1.00	2.0	0.5	2.0	2.0	45.0	90.0 [‡]	0.1
CSD882R	NPN	40	30	5	10.0	3.00	1.00	30	60	120.00	1.00	2.0	0.5	2.0	2.0	45.0	90.0 [‡]	0.1
CSD1506	NPN	60	50	5	10.0	3.00	1.00	40	56	390.00	0.5	3.0	1.0	1.5	2.0	40.0	90.0 [‡]	0.5
CSD1506N	NPN	60	50	5	10.0	3.00	1.00	40	56	120.00	0.5	3.0	1.0	1.5	2.0	40.0	90.0 [‡]	0.5
CSD1506P	NPN	60	50	5	10.0	3.00	1.00	40	82	180.00	0.5	3.0	1.0	1.5	2.0	40.0	90.0 [‡]	0.5
CSD1506Q	NPN	60	50	5	10.0	3.00	1.00	40	120	270.00	0.5	3.0	1.0	1.5	2.0	40.0	90.0 [‡]	0.5
CSD1506R	NPN	60	50	5	10.0	3.00	1.00	40	180	390.00	0.5	3.0	1.0	1.5	2.0	40.0	90.0 [‡]	0.5
CSD1563	NPN	120	120	5	10.0	1.50	1.00	100	56	390.00	0.1	5.0	2.0	1.5	1.0	20.0	80.0 [‡]	0.1
CSD1563AN	NPN	160	160	5	10.0	1.50	1.00	100	56	120.00	0.1	5.0	2.0	1.5	1.0	20.0	80.0 [‡]	0.1
CSD1563AP	NPN	160	160	5	10.0	1.50	1.00	100	82	180.00	0.1	5.0	2.0	1.5	1.0	20.0	80.0 [‡]	0.1
CSD1563AQ	NPN	160	160	5	10.0	1.50	1.00	100	120	270.00	0.1	5.0	2.0	1.5	1.0	20.0	80.0 [‡]	0.1
CSD1563N	NPN	120	120	5	10.0	1.50	1.00	100	56	120.00	0.1	5.0	2.0	1.5	1.0	20.0	80.0 [‡]	0.1
CSD1563P	NPN	120	120	5	10.0	1.50	1.00	100	82	180.00	0.1	5.0	2.0	1.5	1.0	20.0	80.0 [‡]	0.1
CSD1563Q	NPN	120	120	5	10.0	1.50	1.00	100	120	270.00	0.1	5.0	2.0	1.5	1.0	20.0	80.0 [‡]	0.1
CSD1563R	NPN	120	120	5	10.0	1.50	1.00	100	180	390.00	0.1	5.0	2.0	1.5	1.0	20.0	80.0 [‡]	0.1
MJE170	PNP	80	40	7	12.5	3.00	0.10	60	50	250.00	0.10	1.0	0.3		0.5	60.0 [‡]	50.0	0.1
MJE171	PNP	80	60	7	12.5	3.00	0.10	80	50	250.00	0.10	1.0	0.3		0.5	60.0 [‡]	50.0	0.1
MJE172	PNP	100	80	7	12.5	3.00	0.10	100	50	250.00	0.10	1.0	0.3		0.5	60.0 [‡]	50.0	0.1
MJE180	NPN	60	40	7	12.5	3.00	0.10	60	50	250.00	0.10	1.0	0.3		0.5	40.0 [‡]	50.0	0.1
MJE181	NPN	80	60	7	12.5	3.00	0.10	80	50	250.00	0.10	1.0	0.3		0.5	40.0 [‡]	50.0	0.1
MJE182	NPN	100	80	7	12.5	3.00	0.10	100	50	250.00	0.10	1.0	0.3		0.5	40.0 [‡]	50.0	0.1
MJE270	NPN	100	100	5	15.0	2.00	300.00	100	500		0.02	3.0	2.0		0.02		6.0	0.05
MJE271	PNP	100	100	5	15.0	2.00	300.00	100	500		0.02	3.0	2.0		0.02		6.0	0.05
MJE340	NPN		300	3	20.0	0.50	100.00	300	30	240.00	0.05	10.0						
MJE350	PNP		300	3	20.0	0.50	100.00	300	30	240.00	0.05	10.0						

#=C_{ob} Max ‡=ft Typ