

RF-Transistors and MMICs

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RF-Transistors and MMICs

MOS Field-Effect Transistors

Type	Maximum Ratings			Characteristics ($T_A = 25\text{ }^{\circ}\text{C}$)						Package
	V_{DS} V	I_D mA	P_{tot} mW	G_{ps} dB	F dB	V_{DS} V	I_D mA	f MHz	g_{fs} mS	
Tetrode										
BF 998	12	30	200	20	1.00	8	10	800	24	SOT-143
BF 998W	12	30	200	20	1.00	8	10	800	24	SOT-343
BF 1005	8	25	200	18	1.40	5	10	800	24	SOT-143
BF 1005S	8	25	200	19	1.60	5	12	800	30	SOT-143
BF 1009	12	25	200	20	1.00	9	13	800	24	SOT-143
BF 1009S	12	25	200	22	1.40	9	12	800	30	SOT-143
BF 1012	16	25	200	20	1.00	12	10	800	24	SOT-143
BF 1012S	16	25	200	22	1.40	12	12	800	30	SOT-143
▼ BF 2000	12	30	200	22	1.1	5	10	800	24	SOT-143
▼ BF 2000W	12	30	200	22	1.1	5	10	800	24	SOT-343
▼ BF 2030	14	40	200		2.0	5	10	800	31	SOT-143
▼ BF 2030W	14	40	200		2.0	5	10	800	31	SOT-343
▼ BF 2040	14	40	200		2.0	5	15	800	45	SOT-143
▼ BF 2040W	14	40	200		2.0	5	15	800	45	SOT-343
Triode										
BF 543	20	30	200	22	1.00	10	4	200	12	SOT-23
BF 999	20	30	200	25	1.00	10	10	200	16	SOT-23

▼ New type

Dual-Gate GaAs FETs

Type	Description	Characteristics ($T_A = 25\text{ }^{\circ}\text{C}$)					Package
		I_{DS} mA	V_{DS} V	f GHz	F dB	G_{ps} dB	
CF 739	Dual-Gate GaAs FET	10	2.5 - 6	1.8	1.8	17	SOT-143
CF 750	Biased Dual Gate GaAs FET for frequencies from 400 MHz to 3 GHz	2	3.8	1.8	1.9	10	SOT-143

GaAs FETs

Type	Description	Characteristics ($T_A = 25\text{ °C}$)						Package
		I_{DS} mA	V_{DS} V	f GHz	g_m mS	F dB	G_a dB	
CFY 30	Low Noise, High Gain GaAs FET	15	3.5	4	30	1.4	11.5	SOT-143
CFY 35-20	Low Noise, High Gain GaAs FET	10	2.5	12	30	1.9	8.5	MW-4
CFY 35-23	Low Noise, High Gain GaAs FET	10	2.5	12	30	2.2	8.5	MW-4

AlGaAs/GaAs HEMTs

Type	Description	Characteristics ($T_A = 25\text{ °C}$)						Package
		I_{DS} mA	V_{DS} V	f GHz	g_m mS	F dB	G_a dB	
CFY 77-08	Low Noise, High Gain HEMT for front end amplifiers up to 20 GHz	15	2	12	65	0.7	10.5	MW-4
CFY 77-10	Low Noise, High Gain HEMT for front end amplifiers up to 20 GHz	15	2	12	65	0.9	10	MW-4

GaAs Power FETs

Type	Description	Characteristics ($T_A = 25\text{ °C}$)					Package
		I_{DS} mA	V_{DS} V	f GHz	G_p dB	P_{-1dB} dBm	
CLY 2	Power Ampl. for frequencies up to 3 GHz	180	3	1.8	14.5	23.5	MW-6
CLY 5	Power Ampl. for frequencies up to 2.5 GHz	350	3	1.8	9.5	26.5	SOT-223
CLY 10	Power Ampl. for frequencies up to 2.5 GHz	700	3	1.8	8	28.5	SOT-223
CLY 15*	Power Ampl. for frequencies up to 2.5 GHz	1400	3	1.8	6	31.5	SOT-223

* Pulsed operation

GaAs Broadband Amplifiers

Type	Description	Characteristics ($T_A = 25\text{ °C}$) $V_{DS} = 4.5\text{ V}$						Package
		I_D mA	f MHz	G dB	ΔG dB	F dB	$P_{-1\text{ dB}}$ dBm	
CGY 50	Single stage MMIC amplifier 100 MHz to 3 GHz	60	200 ... 1000 800 ... 1800	10.0 8.5	0.4 1.1	3.0 3.0	16 16	SOT-143
CGY 52	Two stage MMIC amplifier	160	200 ... 1800	15.0	3.0	4.8	19	MW-7
CGY 62	Two stage MMIC amplifier	130	200 ... 1800 2500	19.0 15.0	2.0 —	3.5 —	17.5 —	MW-6

Low Noise Preamplifiers for Mobile Communications

Type	Description	Characteristics ($T_A = 25\text{ °C}$) $V_{DS} = 3\text{ V}$						Package
		I_D mA	f MHz	G_p dB	F dB	$IP3_{\text{INPUT}}$ dBm	$P_{-1\text{ dB}}$ dBm	
CGY 59	Single stage MMIC amplifier 100 MHz to 3 GHz	6	950 1850	16.5 12.0	1.3 1.7	− 4 1	5 4	MW-6
CGY 60	Single stage MMIC amplifier 100 MHz to 3 GHz with internal match to 50 Ω at 1.7 ... 2 GHz	6	950 1850	15.5 12.5	1.35 1.9	− 3.0 0	5 5	MW-6

Integrated Power Amplifiers for Mobile Communications

Type	Description	Characteristics ($T_A = 25\text{ °C}$)					Package
		I_D A	V_D V	f GHz	G_p dB	P_{Out} dBm	
▼ CGY 93P	Two stage PA for GSM applications	1.8	3.5	0.9	25.5	35.5	MW-16
CGY 94	Two stage PA for GSM or AMPS applications	1.2	3.6	0.9	23.6	33.6	MW-12
▼ CGY 96	PA for GSM900 applications	1.8	3.5	0.9	35.5	35.5	MW-16
CGY 180	PA for DECT and PCS applications	0.45	3.0	1.89	27	27	MW-12
CGY 181	PA for PCN/PCS applications	1.2	3.6	1.75	15.5	31.5	MW-12
▼ CGY 184	Four stage PA for PCN applications	1.67	3.5	1.8	34	34	MW-16
CGY 195	PA for DECT applications	0.45	3.0	1.89	18	27	SCT-595
▼ CGY 196	PA for DECT applications	0.11	3.0	1.89	32	26	SCT-598

All power amplifiers in pulsed operation mode

▼ New type

Integrated Multi Mode and Dual Band Power Amplifiers for Mobile Communications

Type	Description	Mode/Band	Characteristics ($T_A = 25\text{ }^{\circ}\text{C}$)						Package
			I_{op} A	V_D V	f MHz	G_p dB	P_{Out} dBm	PAE %	
▼ CGY 81	Tri mode PA for AMPS/ CDMA / TDMA	AMPS	—	3.5	824 - 849	24	31.5	55	MW-16
		CDMA	—	3.5	824 - 849	28	28	35	
		TDMA	—	3.5	824 - 849	27	30	40	
▼ CGY 191	Dual mode PA for CDMA /TDMA	CDMA [PCS]	—	3.5	1850 - 1910	24	29	40	MW-16
		TDMA [PCS]	—	3.5	1850 - 1910	24	29	40	
▼ CGY 0819	Dual Band Tri Mode PA for AMPS/ CDMA /TDMA	AMPS	—	3.5	824 - 849	24	31.5	55	MW-16
		CDMA	—	3.5	824 - 849	28	28	35	
		TDMA	—	3.5	824 - 849	27	30	40	
		CDMA [PCS]	—	3.5	1850 - 1910	24	29	40	
		TDMA [PCS]	—	3.5	1850 - 1910	24	29	40	
▼ CGY 0918	Dual Band PA for GSM /PCN	GSM	1.6	3.5	880 - 915	25	35	55	MW-16
		PCN	1.4	3.5	1710 - 1785	24	34	45	
▼ CGY 98	Broadband PA; Matchable for GSM / PCN	GSM	1.6	3.5	880 - 915	23	35	55	SCT-595
		PCN	1.6	3.5	1710 - 1785	19	34	45	

▼ New type

Variable Gain Amplifiers for Mobile Communications

Type	Description	Characteristics ($T_A = 25\text{ }^{\circ}\text{C}$)						Package
		I_D mA	V_{DS} V	f GHz	G dB	ΔG dB	P_{-1dB} dBm	
CGY 120	Variable gain amplifier for GSM/PCN applications	45	3	0.9	22	55	14	MW-6
		45	3	1.8	20	55	14	
▼ CGY 121A	Variable gain amplifier for GSM/PCN/CDMA applications	45	3	0.9	19	53	14	MW-6
		45	3	1.8	17.5	53	14	
▼ CGY 121B	Variable gain amplifier for GSM/PCN/CDMA applications	70	3	0.9	21.5	55	16	MW-6
		70	3	1.8	19.5	55	16	

▼ New type

Mixer

Type	Description	Characteristics ($T_A = 25\text{ °C}$)							Package
		I_{op} mA	V_D V	Frequency Range MHz	G_C dB	$IP3_{INPUT}$ dBm	F_{SSB} dB	P_{LO} dBm	
CF 750	General purpose dual gate GaAs FET mixer	2.5	3.8	$f_{RF, LO, IF} \leq 2000$	15	- 5	4.5	- 3	SOT-143
CMY 91	Mixer with integrated IF amplifilter	2.5	3	$f_{IF} \leq 200$ $f_{RF} \leq 2500$	9.5	0	8	- 3	MW-6
CMY 200	Ultralinear downconverter 1200 MHz to 40 MHz	50	5	$f_{IF} = 30 \dots 100$ $f_{LO} = 1000 \dots 1400$	8	21.5	8	- 5	MW-6
CMY 210	Ultralinear broadband mixer with integrated LO-buffer	7	3	$f_{LO} = 500 \dots 2500$ $f_{RF}, f_{IF} \leq 2500$	- 6.0	23	6.0	0	MW-6
▼ CMY 211	Linear mixer with integrated LO-buffer	2.5	3	$f_{LO} = 500 \dots 2500$ $f_{RF}, f_{IF} < 3500$	- 6.5	17.5	6.5	0	MW-6

▼ New type

RF-SPDT Switch

Type	Description	Characteristics ($T_A = 25\text{ °C}$)				Package
		f GHz	Insertion Loss dB	Isolation dB	P_{-1dB} dBm	
▼ CSY 240	RF-SPDT switch for mobile communication applications	0.9 1.8	0.3 0.5	28 22	30	MW-6

▼ New type

RF Transistors

Type N = NPN P = PNP		Maximum Ratings			Characteristics ($T_A = 25\text{ °C}$)										Package	Chip Code
		V_{CE0} V	I_C mA	P_{tot} mW	f_T GHz	F dB	I_C mA	V_{CE} V	f MHz	G_{ma} dB	G_{ms} dB	I_C mA	V_{CE} V	f MHz		
BF 517	N	15	25	280	2.50	3.5	2	5	800	11.0	14	5	800	800	SOT-23	17
■ BF 569	P	35	30	280	0.95	4.5	3	10	800	12.5	3	10	800	800	SOT-23	23
■ BF 660	P	30	25	280	0.70	—	—	—	—	9.2	3	10	800	800	SOT-23	24
■ BF 660W	P	30	25	280	0.70	—	—	—	—	9.2	3	10	800	800	SOT-323	24
BF 770A	N	12	50	300	6.00	2	5	8	900	13.5	30	8	900	900	SOT-23	15
BF 771	N	12	80	580	8.00	1.3	10	8	900	14.5	30	8	900	900	SOT-23	6
BF 771W	N	12	80	580	8.00	1.3	10	8	900	15.5	30	8	900	900	SOT-323	6
BF 772	N	12	80	580	8.00	1.3	10	8	900	17.5	30	8	900	900	SOT-143	6
BF 775	N	15	30	280	5.00	1.8	2	6	900	15.0	15	8	900	900	SOT-23	13

■ Not for new design

RF Transistors (cont'd)

Type N = NPN P = PNP		Maximum Ratings			Characteristics ($T_A = 25\text{ }^{\circ}\text{C}$)									Package	Chip Code
					V_{CE0} V	I_C mA	P_{tot} mW	f_T GHz	F dB	I_C mA	V_{CE} V	f MHz	G_{ma} G_{ms} dB		
BF 775A	N	16	30	280	5.80	1.45	5	8	900	16.0	15	8	900	SOT-23	14
BF 775W	N	15	30	280	5.00	1.8	2	6	900	15.5	15	8	900	SOT-323	13
BF 799	N	20	35	280	1.10	3.0	5	10	100	11.2	5	10	800	SOT-23	18
BF 799W	N	20	35	280	1.10	3.0	5	10	100	11.2	5	10	800	SOT-323	18
■ BF 840	N	40	25	280	0.38	1.7	1	10	0.1	—	—	—	—	SOT-23	19
■ BF 841	N	40	25	280	0.38	1.7	1	10	0.1	—	—	—	—	SOT-23	19
BFG 19S	N	15	100	1000	5.50	2.5	20	8	900	13.5	70	8	900	SOT-223	16
BFG 135A	N	15	150	1000	6.00	2.0	30	8	900	14.0	100	8	900	SOT-223	8
BFG 193	N	12	80	600	8.00	1.3	10	8	900	15.5	30	8	900	SOT-223	6
BFG 194	P	15	100	1000	5.00	2.8	20	8	900	11.0	70	8	900	SOT-223	22
BFG 196	N	12	100	800	7.50	1.5	20	8	900	14.0	50	8	900	SOT-223	7
BFG 235	N	15	300	2000	5.50	2.7	60	8	900	12.0	200	8	900	SOT-223	9
BFP 81	N	16	30	280	5.80	1.45	5	8	900	21.0	15	8	900	SOT-143	14
BFP 93A	N	12	50	300	6.00	2.0	5	8	900	18.0	30	8	900	SOT-143	15
BFP 136W	N	12	150	1000	5.50	3.3	30	5	1800	9.5	80	5	1800	SOT-343	8
BFP 180	N	8	4	30	7.00	2.25	1	5	1800	12.0	1	5	1800	SOT-143	1
BFP 180W	N	8	4	30	7.00	2.25	1	5	1800	11.5	1	5	1800	SOT-343	1
BFP 181	N	12	20	175	8.00	1.8	2	8	1800	16.5	5	8	1800	SOT-143	3
BFP 181R	N	12	20	175	8.00	1.8	2	8	1800	16.5	5	8	1800	SOT-143R	3
BFP 181W	N	12	20	175	8.00	1.8	2	8	1800	16.5	5	8	1800	SOT-343	3
BFP 182	N	12	35	250	8.00	1.9	3	8	1800	15.0	10	8	1800	SOT-143	4
BFP 182R	N	12	35	250	8.00	1.9	3	8	1800	15.0	10	8	1800	SOT-143R	4
BFP 182W	N	12	35	250	8.00	1.9	3	8	1800	15.5	10	8	1800	SOT-343	4
BFP 183	N	12	65	250	8.00	2.0	5	8	1800	14.0	15	8	1800	SOT-143	5
BFP 183R	N	12	65	250	8.00	2.0	5	8	1800	14.0	15	8	1800	SOT-143R	5
BFP 183W	N	12	65	450	8.00	2.0	5	8	1800	14.5	15	8	1800	SOT-343	5
BFP 193	N	12	80	580	8.00	2.1	10	8	1800	11.5	30	8	1800	SOT-143	6
BFP 193W	N	12	80	580	8.00	2.1	10	8	1800	13.0	30	8	1800	SOT-343	6
BFP 194	P	15	100	700	5.00	2.8	20	8	900	12.0	70	8	900	SOT-143	22
BFP 196	N	12	100	700	7.50	2.5	20	8	1800	10.0	50	8	1800	SOT-143	7
BFP 196W	N	12	100	700	7.50	2.5	20	8	1800	11.5	50	8	1800	SOT-343	7
BFP 280	N	8	10	80	7.50	2.0	1.5	5	1800	15.0	3	5	1800	SOT-143	2
BFP 280W	N	8	10	80	7.50	2.0	1.5	5	1800	15.0	3	5	1800	SOT-343	2

■ Not for new design

RF Transistors (cont'd)

Type N = NPN P = PNP		Maximum Ratings			Characteristics ($T_A = 25\text{ }^{\circ}\text{C}$)									Package	Chip Code
					V_{CE0} V	I_C mA	P_{tot} mW	f_T GHz	F dB	I_C mA	V_{CE} V	f MHz	G_{ma} G_{ms} dB		
BFQ 19S	N	15	75	1000	5.50	2.5	20	8	900	11.5	70	8	900	SOT-89	16
BFQ 81	N	16	30	280	5.80	1.45	5	8	900	16.0	15	8	900	SOT-23	14
BFQ 193	N	12	80	600	7.50	1.3	10	8	900	14.0	30	8	900	SOT-89	6
BFR 35AP	N	15	30	280	5.00	1.8	2	6	900	15.0	15	8	900	SOT-23	13
BFR 92P	N	15	30	280	5.00	1.8	2	6	900	15.0	15	8	900	SOT-23	13
BFR 92W	N	15	30	280	5.00	1.8	2	6	900	15.5	15	8	900	SOT-323	13
BFR 93A	N	12	50	300	6.00	2.0	5	8	900	13.5	30	8	900	SOT-23	15
BFR 93AW	N	12	50	300	6.00	2.0	5	8	900	15.0	30	8	900	SOT-323	15
BFR 106	N	15	100	700	5.00	2.5	20	8	900	12.5	70	8	900	SOT-23	16
BFR 180	N	8	4	30	7.00	2.1	1	5	900	13.5	1	5	900	SOT-23	1
BFR 180W	N	8	4	30	7.00	2.1	1	5	900	13.5	1	5	900	SOT-323	1
BFR 181	N	12	20	175	8.00	1.45	2	8	900	18.0	5	8	900	SOT-23	3
BFR 181W	N	12	20	175	8.00	1.45	2	8	900	18.5	5	8	900	SOT-323	3
BFR 182	N	12	35	250	8.00	1.2	3	8	900	17.5	10	8	900	SOT-23	4
BFR 182W	N	12	35	250	8.00	1.2	3	8	900	19.0	10	8	900	SOT-323	4
BFR 183	N	12	65	450	8.00	1.2	5	8	900	16.5	15	8	900	SOT-23	5
BFR 183W	N	12	65	450	8.00	1.2	5	8	900	18.0	15	8	900	SOT-323	5
BFR 193	N	12	80	580	8.00	1.3	10	8	900	14.5	30	8	900	SOT-23	6
BFR 193W	N	12	80	580	8.00	1.3	10	8	900	15.5	30	8	900	SOT-323	6
BFR 194	P	15	100	700	5.00	2.8	20	8	900	10.0	70	8	900	SOT-23	22
BFR 280	N	8	10	80	7.50	1.5	1.5	5	900	17.0	3	5	900	SOT-23	2
BFR 280W	N	8	10	80	7.50	1.5	1.5	5	900	17.0	3	5	900	SOT-323	2
BFS 17P	N	15	25	280	2.50	3.5	2	5	800	11.0	14	5	800	SOT-23	17
BFS 17W	N	15	25	280	2.50	3.5	2	5	800	11.0	14	5	800	SOT-323	17
BFT 92	P	15	25	200	5.00	2.0	2	8	900	13.5	15	8	900	SOT-23	20
BFT 92W	P	15	25	200	5.00	2.0	2	8	900	14.0	15	8	900	SOT-323	20
BFT 93	P	12	35	300	5.50	2.7	2	8	900	11.5	30	8	900	SOT-23	21

■ Not for new design

SIEGET[®]25-RF-BIPOLAR-Transistors

Type N = NPN P = PNP		Maximum Ratings			Characteristics ($T_A = 25\text{ }^{\circ}\text{C}$)									Package		Chip Code
		V_{CE0} V	I_C mA	P_{tot} mW	f_T GHz	F_{min} dB	I_C mA	V_{CE} V	f MHz	G_{ma} G_{ms} dB	I_C mA	V_{CE} V	f MHz			
BFP 405	N	4.5	12	55	25	1.15	2	2	1800	22	5	2	1800	SOT-343	10	
BFP 420	N	4.5	35	160	25	1.05	5	2	1800	20	20	2	1800	SOT-343	11	
BFP 450	N	4.5	100	450	24	1.25	10	2	1800	14	50	2	1800	SOT-343	12	
▼ BFP 490	N	4.5	600	1000	17.5	—	—	—	1800	9.5	200	2	1800	SCT-595	—	
▼ New type																

SIEGET[®]45-RF-BIPOLAR-Transistors

Type N = NPN P = PNP		Maximum Ratings			Characteristics ($T_A = 25\text{ }^{\circ}\text{C}$)								Package	Chip Code		
					f_T	$F_{\min}$	I_C	V_{CE}	f	G_{ma} G_{ms}	I_C	V_{CE}			f	
		V_{CE0} V	I_C mA	P_{tot} mW	GHz	dB	mA	V	MHz	dB	mA	V			MHz	
▼	BFP 520	N	2.5	40	100	45	0.95	2	2	1800	23	20	2	1800	SOT-343	—
▼ New type																

RF-Dual Transistor Arrays

Type N = NPN P = PNP		Maximum Ratings			Characteristics ($T_A = 25\text{ }^{\circ}\text{C}$)									Package	Chip Code
		V_{CE0} V	I_C mA	P_{tot} mW	f_T GHz	F_{min} dB	I_C mA	V_{CE} V	f MHz	G_{ma} G_{ms} dB	I_C mA	V_{CE} V	f MHz		
BFS 480	N	8	10	80	7.50	1.5	1.5	5	900	18	3	5	900	SOT-363	2
BFS 481	N	12	20	175	8.00	1.45	2	8	900	19	5	8	900	SOT-363	3
BFS 482	N	12	20	250	8.00	1.2	3	8	900	19.5	10	8	900	SOT-363	4
BFS 483	N	12	65	450	8.00	1.2	5	8	900	19	15	8	900	SOT-363	5
BFS 17S	N	15	25	280	2.50	3.5	2	5	800	11.0	14	5	800	SOT-363	17

Si MMICs Broadband Amplifiers

Type	Maximum Ratings		Characteristics ($T_A = 25\text{ }^{\circ}\text{C}$; $V_D = 4.7\text{ V}$; $Z_O = 50\text{ }\Omega$)						Package
	I_D mA	P_{tot} mW	Gain dB	NF dB	f MHz	Gain dB	NF dB	f MHz	
BGA 310	60	250	10	6.0	100	9	6.5	1000	SOT-143
BGA 312	60	250	12	5.5	100	11	6.0	1000	SOT-143
BGA 318	60	250	18	3.5	100	16	4.0	1000	SOT-143

Si MMICs in SIEGET[®]25 Technology

Type N = NPN P = PNP	Maximum Ratings		Characteristics ($T_A = 25\text{ }^{\circ}\text{C}$; $V_D = 3.0\text{ V}$; $Z_O = 50\text{ }\Omega$)						Package
	I_D mA	P_{tot} mW	Gain dB	NF dB	f MHz	Gain dB	NF dB	f MHz	
▼ BGA 420	15	90	19	1.9	100	13	2.2	1800	SOT-343
▼ BGA 425	25	150	27	1.9	100	18.5	2.2	1800	SOT-363
▼ BGA 427	25	150	27	1.9	100	18.5	2.2	1800	SOT-343

▼ New type

Active Bias Controller

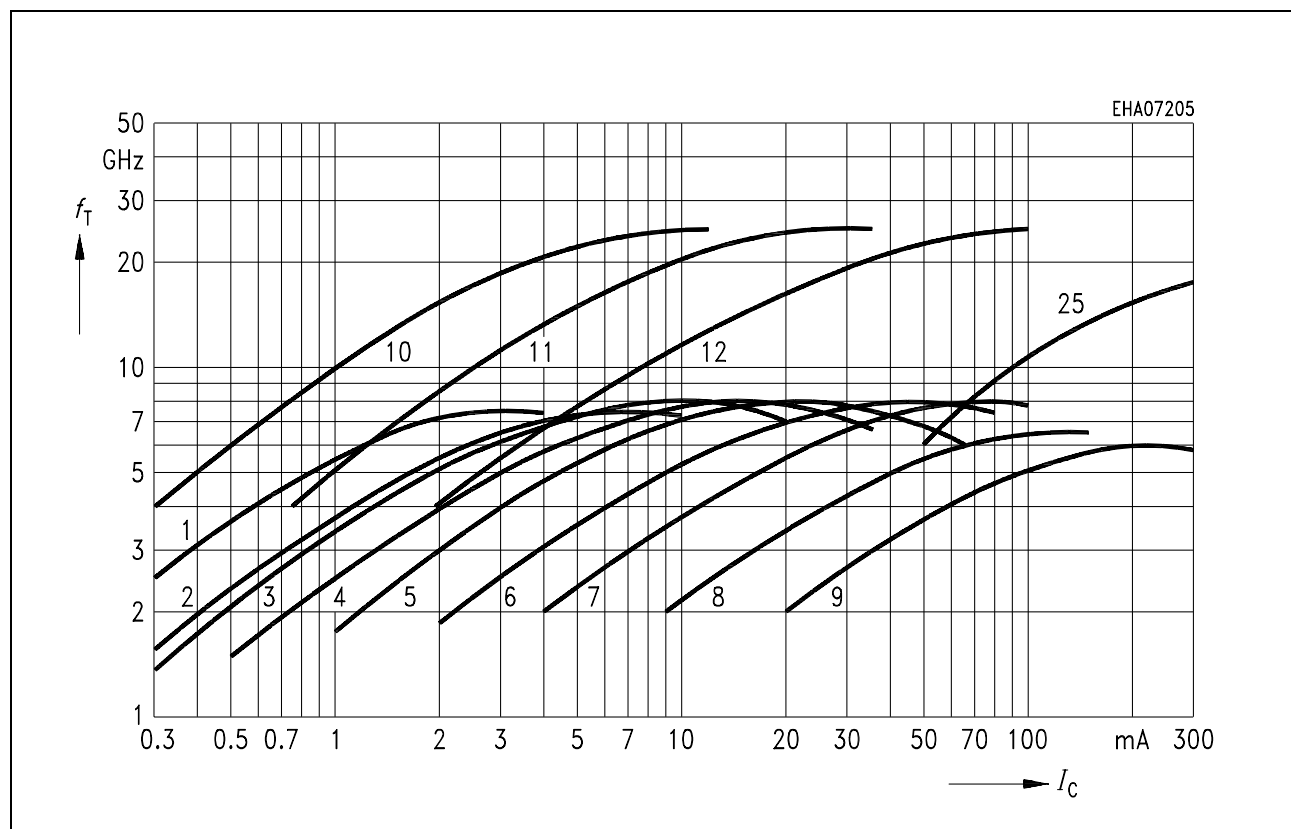
Stabilizing bias current for RF transistors, NPN transistors (I_C up to 250 mA) and FETs

Type	Maximum Ratings	DC Characteristics with stabilized NPN transistors: Relative Change of $\Delta I_C / I_C$			Package
		V_{CC} V	vs h_{FE}	vs V_S $\Delta I_C / I_C$ vs T_A	
BCR 400R	15		$0.08 \times \Delta h_{FE} / h_{FE}$	$0.15 \times \Delta V_S / V_S$ 0.2% / K	SOT-143
BCR 400W	15		$0.08 \times \Delta h_{FE} / h_{FE}$	$0.15 \times \Delta V_S / V_S$ 0.2% / K	SOT-343

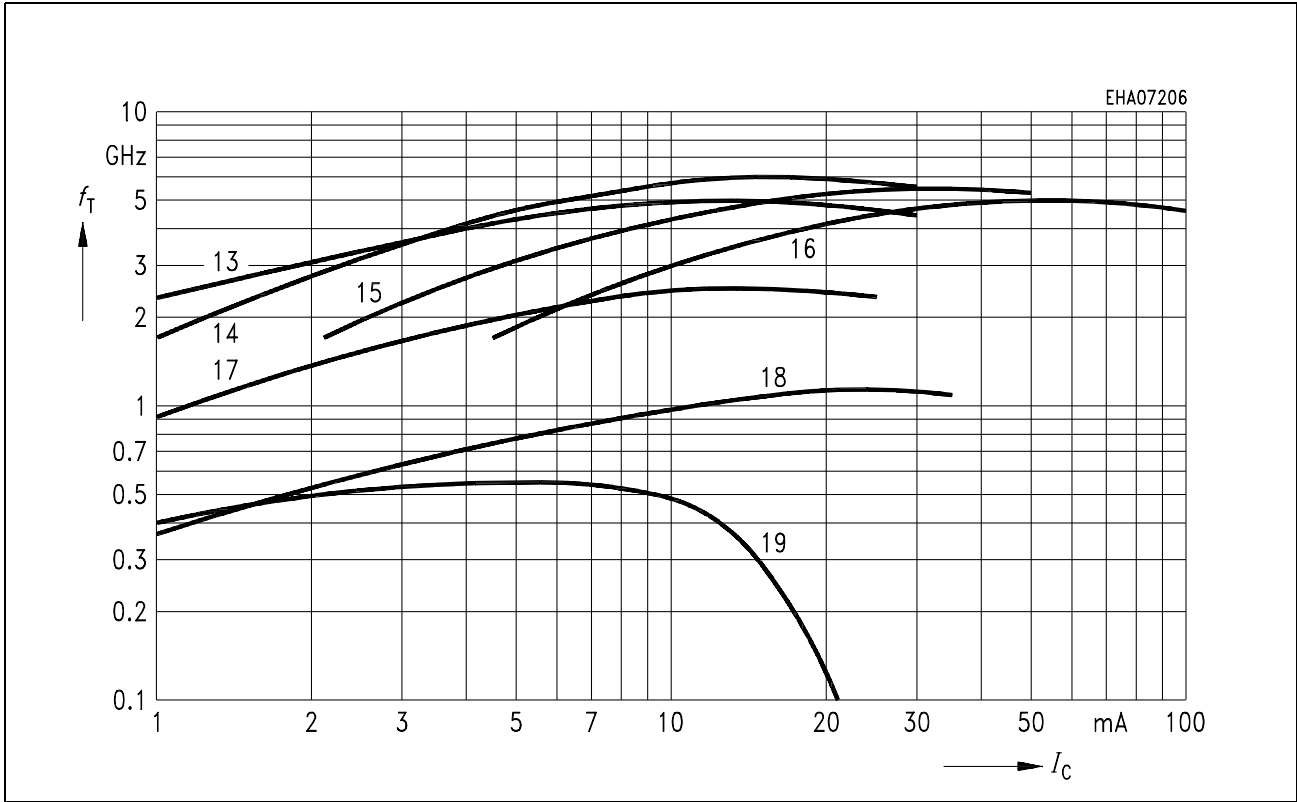
Bipolar-Transistor Characteristic Curves

The curve numbers refer to the chip codes in the preceding tables.

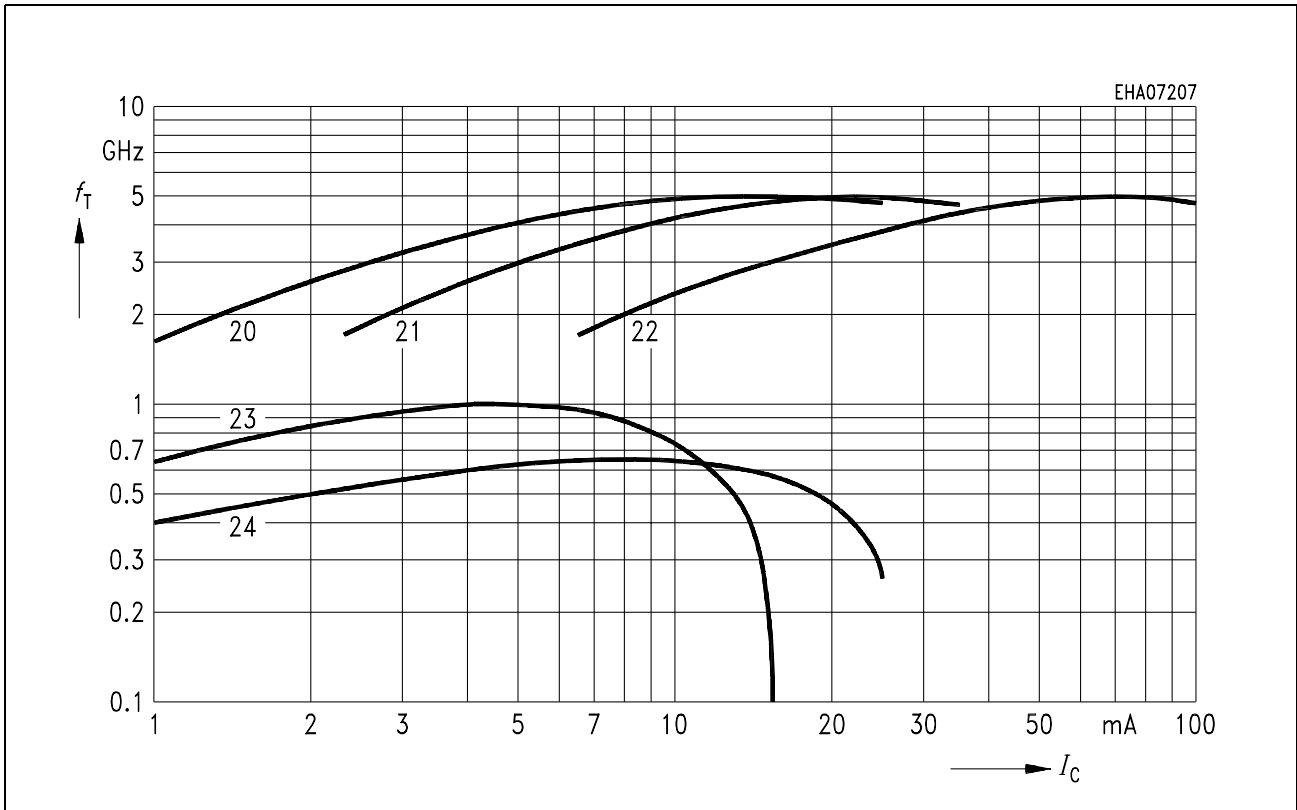
Transition frequency f_T vs. collector current I_C



NPN Types



NPN Types



PNP Types

AF-Transistors

General Purpose Transistors

Type N = NPN P = PNP		Maximum Ratings			Characteristics ($T_A = 25\text{ °C}$)									Package
		V_{CE0} V	I_{CM} mA	P_{tot} mW	f_T MHz	I_{CB0} nA	V_{CB0} V	h_{FE}	I_C mA	V_{CE} V	V_{CEsat} V	I_C mA	I_B mA	
BC 807	P	45	1000	330	200	≤ 100	25	100 - 630*	100	1	≤ 0.70	500	50	SOT-23
BC 807W	P	45	1000	250	200	≤ 100	25	100 - 630*	100	1	≤ 0.70	500	50	SOT-323
BC 808	P	25	1000	330	200	≤ 100	25	100 - 630*	100	1	≤ 0.70	500	50	SOT-23
BC 808W	P	25	1000	250	200	≤ 100	25	100 - 630*	100	1	≤ 0.70	500	50	SOT-323
BC 817	N	45	1000	330	170	≤ 100	25	100 - 630*	100	1	≤ 0.70	500	50	SOT-23
BC 817W	N	45	1000	250	170	≤ 100	25	100 - 630*	100	1	≤ 0.70	500	50	SOT-323
BC 818	N	25	1000	330	170	≤ 100	25	100 - 630*	100	1	≤ 0.70	500	50	SOT-23
BC 818W	N	25	1000	250	170	≤ 100	25	100 - 630*	100	1	≤ 0.70	500	50	SOT-323
BC 846	N	65	200	330	250	≤ 15	30	110 - 450*	2	5	≤ 0.60	100	5	SOT-23
BC 846W	N	65	200	250	250	≤ 15	30	110 - 450*	2	5	≤ 0.60	100	5	SOT-323
BC 847	N	45	200	330	250	≤ 15	30	110 - 800*	2	5	≤ 0.60	100	5	SOT-23
BC 847W	N	45	200	250	250	≤ 15	30	110 - 800*	2	5	≤ 0.60	100	5	SOT-323
BC 848	N	30	200	330	250	≤ 15	30	110 - 800*	2	5	≤ 0.60	100	5	SOT-23
BC 848W	N	30	200	250	250	≤ 15	30	110 - 800*	2	5	≤ 0.60	100	5	SOT-323
BC 856	P	65	200	330	250	≤ 15	30	125 - 475*	2	5	≤ 0.60	100	5	SOT-23
BC 856W	P	65	200	250	250	≤ 15	30	125 - 475*	2	5	≤ 0.60	100	5	SOT-323
BC 857	P	45	200	330	250	≤ 15	30	125 - 800*	2	5	≤ 0.60	100	5	SOT-23
BC 857W	P	45	200	250	250	≤ 15	30	125 - 800*	2	5	≤ 0.60	100	5	SOT-323
BC 858	P	30	200	330	250	≤ 15	30	125 - 800*	2	5	≤ 0.60	100	5	SOT-23
BC 858W	P	30	200	250	250	≤ 15	30	125 - 800*	2	5	≤ 0.60	100	5	SOT-323
BCP 51	P	45	1500	1500	125	≤ 100	30	40 - 250*	150	2	≤ 0.50	500	50	SOT-223
▼ BCP 51M	P	45	1500	1000	125	< 100	30	40 - 250*	150	2	< 0.50	500	50	SCT-595
BCP 52	P	60	1500	1500	125	≤ 100	30	40 - 250*	150	2	≤ 0.50	500	50	SOT-223
▼ BCP 52M	P	60	1500	1000	125	< 100	30	40 - 250*	150	2	< 0.50	500	50	SCT-595
BCP 53	P	80	1500	1500	125	≤ 100	30	40 - 250*	150	2	≤ 0.50	500	50	SOT-223
▼ BCP 53M	P	80	1500	1000	125	< 100	30	40 - 250*	150	2	< 0.50	500	50	SCT-595
BCP 54	N	45	1500	1500	100	≤ 100	30	40 - 250*	150	2	≤ 0.50	500	50	SOT-223
▼ BCP 54M	N	45	1700	1000	100	< 100	30	40 - 250*	150	2	< 0.50	500	50	SCT-595
BCP 55	N	60	1500	1500	100	≤ 100	30	40 - 250*	150	2	≤ 0.50	500	50	SOT-223
▼ BCP 55M	N	60	1700	1500	100	< 100	30	40 - 250*	150	2	< 0.50	500	50	SCT-595
BCP 56	N	80	1500	1500	100	≤ 100	30	40 - 250*	150	2	≤ 0.50	500	50	SOT-223
▼ BCP 56M	N	80	1700	1500	100	< 100	30	40 - 250*	150	2	< 0.50	500	50	SCT-595

▼ New type

General Purpose Transistors (cont'd)

Type N = NPN P = PNP		Maximum Ratings			Characteristics ($T_A = 25\text{ }^{\circ}\text{C}$)									Package
		V_{CE0} V	I_{CM} mA	P_{tot} mW	f_T MHz	I_{CB0} nA	V_{CB0} V	h_{FE}	I_C mA	V_{CE} V	V_{CEsat} V	I_C mA	I_B mA	
BCP 68	N	20	2000	1500	100	≤ 100	25	85 - 400*	500	1	≤ 0.50	1000	100	SOT-223
BCP 69	P	20	2000	1500	100	≤ 100	25	85 - 400*	500	1	≤ 0.50	1000	100	SOT-223
▼ BCP 70M	P	32	3000	1700	100	≤ 100	30	85 - 475*	500	1	≤ 0.4	2000	200	SCT-595
▼ BCP 71M	P	—	3000	1700	—	—	—	—	—	—	—	—	—	SCT-595
▼ BCP 72M	P	10	3000	1700	100	≤ 100	8	85 - 475*	500	1	≤ 0.3	2000	200	SCT-595
BCW 60	N	32	200	330	250	≤ 20	32	120 - 630*	2	5	≤ 0.25	10	0.25	SOT-23
BCW 61	P	32	200	330	250	≤ 20	32	120 - 630*	2	5	≤ 0.25	10	0.25	SOT-23
BCW 65	N	32	1000	330	170	≤ 20	32	100 - 630*	100	1	≤ 0.70	500	50	SOT-23
BCW 66	N	45	1000	330	170	≤ 20	45	100 - 630*	100	1	≤ 0.70	500	50	SOT-23
BCW 67	P	32	1000	330	200	≤ 20	32	100 - 630*	100	1	≤ 0.70	500	50	SOT-23
BCW 68	P	45	1000	330	200	≤ 20	45	100 - 630*	100	1	≤ 0.70	500	50	SOT-23
BCX 41	N	125	1000	330	100	≤ 100	100	≥ 63	100	1	≤ 0.90	300	30	SOT-23
BCX 42	P	125	1000	330	150	≤ 100	100	≥ 63	100	1	≤ 0.90	300	30	SOT-23
BCX 51	P	45	1500	1000	125	≤ 100	30	40 - 250*	150	2	≤ 0.50	500	50	SOT-89
BCX 52	P	60	1500	1000	125	≤ 100	30	40 - 250*	150	2	≤ 0.50	500	50	SOT-89
BCX 53	P	80	1500	1000	125	≤ 100	30	40 - 250*	150	2	≤ 0.50	500	50	SOT-89
BCX 54	N	45	1500	1000	100	≤ 100	30	40 - 250*	150	2	≤ 0.50	500	50	SOT-89
BCX 55	N	60	1500	1000	100	≤ 100	30	40 - 250*	150	2	≤ 0.50	500	50	SOT-89
BCX 56	N	80	1500	1000	100	≤ 100	30	40 - 250*	150	2	≤ 0.50	500	50	SOT-89
BCX 68	N	20	2000	1000	100	≤ 100	25	85 - 400*	500	1	≤ 0.50	1000	100	SOT-89
BCX 69	P	20	2000	1000	100	≤ 100	25	85 - 400*	500	1	≤ 0.50	1000	100	SOT-89
BCX 70	N	45	200	330	250	≤ 20	45	120 - 630*	2	5	≤ 0.25	10	0.25	SOT-23
BCX 71	P	45	200	330	250	≤ 20	45	120 - 630*	2	5	≤ 0.25	10	0.25	SOT-23
BDP 947	N	45	5000	1500	100	100	45	40 - 475	500	1	≤ 0.8	2000	200	SOT-223
BDP 948	P	45	5000	1500	100	100	45	40 - 475	500	1	≤ 0.8	2000	200	SOT-223
BDP 949	N	60	5000	1500	100	100	60	40 - 475	500	1	≤ 0.8	2000	200	SOT-223
BDP 950	P	60	5000	1500	100	100	60	40 - 475	500	1	≤ 0.8	2000	200	SOT-223
BDP 951	N	80	5000	1500	100	100	80	40 - 475	500	1	≤ 0.8	2000	200	SOT-223
BDP 952	P	80	5000	1500	100	100	80	40 - 475	500	1	≤ 0.8	2000	200	SOT-223
BDP 953	N	100	5000	1500	100	100	100	40 - 475	500	1	≤ 0.8	2000	200	SOT-223
BDP 954	P	100	5000	1500	100	100	100	40 - 475	500	1	≤ 0.8	2000	200	SOT-223
BDP 955	N	120	5000	1500	100	100	120	40 - 475	500	1	≤ 0.8	2000	200	SOT-223
BDP 956	P	120	5000	1500	100	100	120	40 - 475	500	1	≤ 0.8	2000	200	SOT-223
SMBTA 05	N	60	500	330	100	≤ 100	60	≥ 100	100	1	≤ 0.25	100	10	SOT-23

▼ New type

General Purpose Transistors (cont'd)

Type N = NPN P = PNP		Maximum Ratings			Characteristics ($T_A = 25\text{ }^{\circ}\text{C}$)									Package	
					V_{CE0} V	I_{CM} mA	P_{tot} mW	f_T MHz	I_{CB0} nA	V_{CB0} V	h_{FE}	I_C mA	V_{CE} V		V_{CEsat} V
▼	SMBTA 06	N	80	500	330	100	≤ 100	80	≥ 100	100	1	≤ 0.25	100	10	SOT-23
	SMBTA 06M	N	80	500	330	100	≤ 100	80	≥ 100	100	1	≤ 0.25	100	10	SCT-595
	SMBTA 20	N	40	200	330	125	≤ 100	30	40 - 400	5	10	≤ 0.25	10	1	SOT-23
	SMBTA 55	P	60	500	330	100	≤ 100	60	≥ 100	100	1	≤ 0.25	100	10	SOT-23
	SMBTA 56	P	80	500	330	100	≤ 100	80	≥ 100	100	1	≤ 0.25	100	10	SOT-23
▼	SMBTA 56M	P	80	500	330	100	≤ 100	80	≥ 100	100	1	≤ 0.25	100	10	SCT-595
	SMBTA 70	P	40	200	330	125	≤ 100	30	40 - 400	5	10	≤ 0.25	10	1	SOT-23

* Available in h_{FE} subgroups

▼ New type

Type N = NPN P = PNP		Maximum Ratings			Characteristics ($T_A = 25\text{ }^{\circ}\text{C}$)									Package
		V_{CE0} V	I_{CM} mA	P_{tot} mW	f_T MHz	I_{CB0} nA	V_{CB0} V	h_{FE}	I_C mA	V_{CE} V	V_{CEsat} V	I_C mA	I_B mA	

Double Transistor Arrays

▼	BC 846PN	N/P	65	200	330	250	≤ 15	30	110 - 450*	2	5	≤ 0.60	100	5	SOT-363
▼	BC 846S	N	65	200	330	250	≤ 15	30	110 - 450*	2	5	≤ 0.60	100	5	SOT-363
	BC 847PN	N/P	45	200	250	250	≤ 15	30	290	2	5	≤ 0.60	100	5	SOT-363
	BC 847S	N	45	200	250	250	≤ 15	30	290	2	5	≤ 0.60	100	5	SOT-363
▼	BC 856S	P	65	200	330	250	≤ 15	30	125 - 475*	2	5	≤ 0.60	100	5	SOT-363
	BC 857S	P	45	200	250	250	≤ 15	30	290	2	5	≤ 0.60	100	5	SOT-363
▼	SMBT 3904S	N	40	200	250	300	≤ 50	30	100 - 300	10	1	≤ 0.30	50	5	SOT-363
▼	SMBT 3904PN	N/P	40	200	250	250	≤ 50	30	100 - 300	10	1	≤ 0.4	50	5	SOT-363
▼	SMBT 3906S	P	40	200	250	250	≤ 50	30	100 - 300	10	1	≤ 0.4	50	5	SOT-363

▼ New type

Type N = NPN P = PNP	Maximum Ratings			Characteristics ($T_A = 25\text{ °C}$)									Package
	V_{CE0} V	I_{CM} mA	P_{tot} mW	f_T MHz	I_{CB0} nA	V_{CB0} V	h_{FE}	I_C mA	V_{CE} V	V_{CEsat} V	I_C mA	I_B mA	

Double Transistors

BCV 61	N	30	200	300	250	≤ 15	30	110 - 800*	2	5	≤ 0.60	100	5	SOT-143
BCV 62	P	30	200	300	250	≤ 15	30	125 - 800*	2	5	≤ 0.65	100	5	SOT-143

Low-Noise Transistors

BC 849	N	30	200	330	250	≤ 15	30	200 - 800*	2	5	≤ 0.25	10	0.5	SOT-23
BC 849W	N	30	200	250	250	≤ 15	30	200 - 800*	2	5	≤ 0.25	10	0.5	SOT-323
BC 850	N	45	200	330	250	≤ 15	30	200 - 800*	2	5	≤ 0.25	10	0.5	SOT-23
BC 850W	N	45	200	250	250	≤ 15	30	200 - 800*	2	5	≤ 0.25	10	0.5	SOT-323
BC 859	P	30	200	330	250	≤ 15	30	125 - 800*	2	5	≤ 0.3	10	0.5	SOT-23
BC 859W	P	30	200	250	250	≤ 15	30	125 - 800*	2	5	≤ 0.3	10	0.5	SOT-323
BC 860	P	45	200	330	250	≤ 15	30	220 - 800*	2	5	≤ 0.3	10	0.5	SOT-23
BC 860W	P	45	200	250	250	≤ 15	30	220 - 800*	2	5	≤ 0.3	10	0.5	SOT-323
BCW 60FF,FN	N	32	200	330	250	≤ 20	32	250 - 630*	2	5	≤ 0.25	10	0.25	SOT-23
BCW 61FF,FN	P	32	200	330	250	≤ 20	32	250 - 630*	2	5	≤ 0.25	10	0.25	SOT-23
SMBT 5086	P	50	50	330	40	≤ 50	35	≥ 150	10	5	≤ 0.30	10	1	SOT-23
SMBT 5087	P	50	50	330	40	≤ 50	35	≥ 250	10	5	≤ 0.30	10	1	SOT-23
SMBT 6428	N	50	200	330	100	≤ 10	30	≥ 250	10	5	≤ 0.2	10	0.5	SOT-23
SMBT 6429	N	45	200	330	100	≤ 10	30	≥ 500	10	5	≤ 0.2	10	0.5	SOT-23

* Available in h_{FE} subgroups

Digital Transistors

Type N = NPN P = PNP		Maximum Ratings				Resistance Value		Characteristics ($T_A = 25\text{ }^{\circ}\text{C}$)				Package
		V_{CE0}	$V_{i(on)}$	I_C	P_{tot}	R_1	R_2	f_T	$h_{FE(min.)}$	$V_{i(on) min}$	$V_{i(off) max}$	
		V	V	mA	mW	k Ω	k Ω	MHz 10 mA/5 V	$I_C = 5\text{ mA}$ $V_{CE} = 5\text{ V}$	2 mA/ 0.3 V	100 mA/ 5 V	
BCR 108	N	50	10	100	200	2.2	47.0	170	70	0.5	0.8	SOT-23
BCR 108W	N	50	10	100	250	2.2	47.0	170	70	0.5	0.8	SOT-323
BCR 112	N	50	15	100	200	4.7	4.7	140	20	1.0	1.5	SOT-23
BCR 116	N	50	15	100	200	4.7	47.0	160	70	0.5	0.8	SOT-23
BCR 116 W	N	50	15	100	250	4.7	47.0	160	70	0.5	0.8	SOT-323
BCR 119	N	50	15	100	200	4.7	–	150	120	0.5	0.8	SOT-23
BCR 133	N	50	20	100	330	10.0	10.0	130	30	1.0	1.5	SOT-23
BCR 133W	N	50	20	100	250	10.0	10.0	130	30	1.0	1.5	SOT-323
BCR 135	N	50	20	100	200	10.0	47.0	150	70	0.5	1.0	SOT -23
BCR 135W	N	50	20	100	250	10.0	47.0	150	70	0.5	1.0	SOT-323
BCR 141	N	50	30	100	200	22.0	22.0	130	50	1.0	1.5	SOT-23
BCR 141W	N	50	30	100	250	22.0	22.0	130	50	1.0	1.5	SOT-323
BCR 142	N	50	30	100	200	22.0	47.0	150	70	1.5	1.2	SOT-23
BCR 142W	N	50	30	100	250	22.0	47.0	150	70	1.5	1.2	SOT-323
BCR 146	N	50	50	70	200	47.0	22.0	150	50	1.5	2.6	SOT-23
BCR 146W	N	50	50	70	250	47.0	22.0	150	50	1.5	2.6	SOT-323
BCR 148	N	50	50	70	200	47.0	47.0	100	70	1.0	1.5	SOT-23
BCR 148W	N	50	50	70	250	47.0	47.0	100	70	1.0	1.5	SOT-323
BCR 158	P	50	10	100	200	2.2	47.0	200	70	0.5	0.8	SOT-23
BCR 158W	P	50	10	100	250	2.2	47.0	200	70	0.5	0.8	SOT-323
BCR 162	P	50	15	100	200	4.7	4.7	200	20	1.0	1.5	SOT-23
BCR 166	P	50	15	100	200	4.7	47.0	160	70	0.5	0.8	SOT-23
BCR 166W	P	50	15	100	250	4.7	47.0	160	70	0.5	0.8	SOT-323
BCR 169	P	50	15	100	200	4.7	–	200	120	0.5	0.8	SOT-23
BCR 183	P	50	20	100	200	10.0	10.0	200	30	1.0	1.5	SOT-23
BCR 185	P	50	20	100	200	10.0	47.0	200	70	0.5	1.0	SOT-23
BCR 185W	P	50	20	100	250	10.0	47.0	200	70	0.5	1.0	SOT-323
BCR 191	P	50	30	100	200	22.0	22.0	200	50	1.0	1.5	SOT-23
BCR 192	P	50	30	100	330	22.0	47.0	200	70	1.5	1.2	SOT-23
BCR 196	P	50	50	70	200	47.0	22.0	150	50	1.5	2.6	SOT-23
BCR 196W	P	50	50	70	200	47.0	22.0	150	50	1.5	2.6	SOT-323
BCR 198	P	50	50	70	200	47.0	47.0	190	70	1.0	1.5	SOT-23
BCR 198W	P	50	50	70	250	47.0	47.0	190	70	1.0	1.5	SOT-323
BCR 503	N	50	12	500	330	2.2	2.2	100	40	1.0	1.5	SOT-23

Digital Transistors (cont'd)

Type N = NPN P = PNP		Maximum Ratings				Resistance Value		Characteristics ($T_A = 25\text{ }^{\circ}\text{C}$)				Package
		V_{CE0}	$V_{i\text{ (on)}}$	I_C	P_{tot}	R_1	R_2	f_T	$h_{FE\text{ (min.)}}$	$V_{i\text{ (on) min}}$	$V_{i\text{ (off) max}}$	
		V	V	mA	mW	k Ω	k Ω	MHz 10 mA/5 V	$I_C = 5\text{ mA}$ $V_{CE} = 5\text{ V}$	2 mA/ 0.3 V	100 mA/ 5 V	
BCR 505	N	50	12	500	330	2.2	10.0	100	70	0.5	1.0	SOT-23
BCR 512	N	50	30	500	330	4.7	4.7	100	60	1.0	1.5	SOT-23
BCR 519	N	50	30	500	330	4.7	—	100	120	0.5	0.8	SOT-23
BCR 521	N	50	10	500	330	1.0	1.0	100	20	1.0	1.5	SOT-23
BCR 523	N	50	12	500	330	1.0	10.0	100	70	0.4	1.0	SOT-23
BCR 533	N	50	40	500	330	10.0	10.0	100	70	1.1	1.5	SOT-23
BCR 553	P	50	12	500	330	2.2	2.2	150	40	1.0	1.5	SOT-23
BCR 555	P	50	12	500	330	2.2	10.0	100	70	0.5	1.0	SOT-23
BCR 562	P	50	30	500	330	4.7	4.7	150	60	1.0	1.5	SOT-23
BCR 569	P	50	30	500	330	4.7	—	150	120	0.5	0.8	SOT-23
BCR 571	P	50	10	500	330	1.0	1.0	150	20	1	1.5	SOT-23
BCR 573	P	50	12	500	330	1.0	10.0	100	70	0.7	1.0	SOT-23
BCR 583	P	50	40	500	330	10.0	10.0	150	70	1.1	1.5	SOT-23

Double Digital Transistors Array

Type N = NPN P = PNP	Maximum Ratings				Resistance Value		Characteristics ($T_A = 25^\circ\text{C}$)				Package
	V_{CE0}	$V_{i(on)}$	I_C	P_{tot}	R_1	R_2	f_T/MHz	$h_{FE(min.)}$	$V_{i(on)min}$	$V_{i(off)max}$	
	V	V	mA	mW	k Ω	k Ω	10 mA /5 V	$I_C = 5\text{ mA}$ $V_{CE} = 5\text{ V}$	2 mA/ 0.3 V	100 μA / 5 V	
BCR 08 PN N/P	50	10	100	250	2.2	47.0	170	70	0.5	0.8	SOT-363
BCR 10 PN N/P	50	25	100	250	10.0	10.0	130	30	1.0	1.5	SOT-363
BCR 22 PN N/P	50	30	100	250	22.0	22.0	130	50	1.0	1.5	SOT-363
BCR 35 PN N/P	50	20	100	250	10	47.0	150	70	0.5	1.0	SOT-363
BCR 48 PN N/P	50	50/10	100	250	2.2/47	47/47	100	70	1	1.5	SOT-363
BCR 108 S N	50	10	100	250	2.2	47.0	170	70	0.5	0.8	SOT-363
BCR 119 S N	50	15	100	250	4.7	—	150	120	0.5	0.8	SOT-363
BCR 133 S N	50	20	100	250	10.0	10.0	130	30	1.0	1.5	SOT-363
BCR 135 S N	50	20	100	250	10.0	47.0	150	70	0.5	1.0	SOT-363
BCR 141 S N	50	30	100	250	22.0	22.0	130	50	1.0	1.5	SOT-363
BCR 148 S N	50	50	100	250	47.0	47.0	100	70	1.0	1.5	SOT-363
BCR 169 S P	50	15	100	250	4.7	—	200	120	0.5	0.8	SOT-363
BCR 183 S P	50	20	100	250	10.0	10.0	200	30	1.0	1.5	SOT-363
BCR 185 S P	50	20	100	250	10.0	47.0	200	70	0.5	1.0	SOT-363
BCR 191S P	50	30	100	250	22.0	22.0	200	50	1.0	1.5	SOT-363
BCR 198 S P	50	50	100	250	47.0	47.0	190	70	1.0	1.5	SOT-363

Switching Transistors

Type N = NPN P = PNP		Maximum Ratings			Characteristics ($T_A = 25\text{ °C}$)									Package
		V_{CE0} V	I_{CM} mA	P_{tot} mW	f_T MHz	I_{CB0} nA	V_{CB0} V	h_{FE}	I_C mA	V_{CE} V	V_{CEsat} V	I_C mA	I_B mA	
BSS 63	P	100	1000	330	150	≤ 100	80	≥ 30	10	5	≤ 0.25	25	2.50	SOT-23
BSS 64	N	80	1000	330	100	≤ 100	80	80	10	1	≤ 0.70	4	0.40	SOT-23
BSS 79	N	40	1000	330	250	≤ 10	60	40 - 300*	150	10	≤ 1.30	500	50	SOT-23
BSS 80	P	40	1000	330	250	≤ 10	50	40 - 300*	150	10	≤ 1.60	500	50	SOT-23
BSS 81	N	35	1000	330	250	≤ 10	60	40 - 300*	150	10	≤ 1.30	500	50	SOT-23
BSS 82	P	60	1000	330	250	≤ 10	50	40 - 300*	150	10	≤ 1.60	500	50	SOT-23
PZT 2222	N	30	600	1500	200	≤ 20	50	100 - 300	150	10	≤ 0.40	150	15	SOT-223
PZT 2222A	N	40	600	1500	200	≤ 10	50	100 - 300	150	10	≤ 0.30	150	15	SOT-223
PZT 2907	P	40	600	1500	200	≤ 20	50	100 - 300	150	10	≤ 0.40	150	15	SOT-223
PZT 2907A	P	60	600	1500	200	≤ 10	50	100 - 300	150	10	≤ 0.40	150	15	SOT-223
PZT 3904	N	40	200	1500	300	≤ 50	30	100 - 300	10	1	≤ 0.30	50	5	SOT-223
PZT 3906	P	40	200	1500	250	≤ 50	30	100 - 300	10	1	≤ 0.40	50	5	SOT-223
SMBT 2222	N	30	600	330	250	≤ 10	50	100 - 300	150	10	≤ 0.40	150	15	SOT-23
SMBT 2222A	N	40	600	330	300	≤ 10	60	100 - 300	150	10	≤ 0.30	150	15	SOT-23
SMBT 2907	P	40	600	330	200	≤ 20	50	100 - 300	150	10	≤ 0.40	150	15	SOT-23
SMBT 2907A	P	60	600	330	200	≤ 10	50	100 - 300	150	10	≤ 0.40	150	15	SOT-23
SMBT 3904	N	40	200	330	300	≤ 50	30	100 - 300	10	1	≤ 0.30	50	5	SOT-23
SMBT 3906	P	40	200	330	250	≤ 50	30	100 - 300	10	1	≤ 0.40	50	5	SOT-23
SMBT 4124	N	25	200	330	300	≤ 50	20	120 - 360	2	1	≤ 0.30	50	5	SOT-23
SMBT 4126	P	25	200	330	250	≤ 50	20	120 - 360	2	1	≤ 0.40	50	5	SOT-23
SXT 2222A	N	40	600	1000	300	≤ 10	60	100 - 300	150	10	≤ 0.30	150	15	SOT-89
SXT 2907A	P	60	600	1000	200	≤ 10	60	100 - 300	150	10	≤ 0.40	150	15	SOT-89
SXT 3904	N	40	200	1000	300	≤ 50	30	100 - 300	10	1	≤ 0.30	50	5	SOT-89
SXT 3906	P	40	200	1000	250	≤ 50	30	100 - 300	10	1	≤ 0.40	50	5	SOT-89

Darlington Transistors

Type N = NPN P = PNP		Maximum Ratings			Characteristics ($T_A = 25\text{ }^{\circ}\text{C}$)									Package
					V_{CE0} V	I_{CM} mA	P_{tot} mW	f_T MHz	I_{CB0} nA	V_{CB0} V	h_{FE}	I_C mA	V_{CE} V	
BCP 28	P	30	800	1500	200	≤ 100	30	≥ 20000	100	5	≤ 1.0	100	0.1	SOT-223
BCP 29	N	30	800	1500	200	≤ 100	30	≥ 20000	100	5	≤ 1.0	100	0.1	SOT-223
BCP 48	P	60	800	1500	200	≤ 100	60	≥ 10000	100	5	≤ 1.0	100	0.1	SOT-223
BCP 49	N	60	800	1500	200	≤ 100	60	≥ 10000	100	5	≤ 1.0	100	0.1	SOT-223
BCV 26	P	30	800	360	200	≤ 100	30	≥ 20000	100	5	≤ 1.0	100	0.1	SOT-23
BCV 27	N	30	800	360	170	≤ 100	30	≥ 20000	100	5	≤ 1.0	100	0.1	SOT-23
BCV 28	P	30	800	1000	200	≤ 100	30	≥ 20000	100	5	≤ 1.0	100	0.1	SOT-89
BCV 29	N	30	800	1000	150	≤ 100	30	≥ 20000	100	5	≤ 1.0	100	0.1	SOT89
BCV 46	P	60	800	360	200	≤ 100	60	≥ 10000	100	5	≤ 1.0	100	0.1	SOT-23
BCV 47	N	60	800	360	170	≤ 100	60	≥ 10000	100	5	≤ 1.0	100	0.1	SOT23
BCV 48	P	60	800	1000	200	≤ 100	60	≥ 10000	100	5	≤ 1.0	100	0.1	SOT-89
BCV 49	N	60	800	1000	150	≤ 100	60	≥ 10000	100	5	≤ 1.0	100	0.1	SOT-89
BSP 50	N	45	2000	1500	200	≤ 100	60	≥ 2000	500	10	≤ 1.8	1000	1.0	SOT-223
BSP 51	N	60	2000	1500	200	≤ 100	80	≥ 2000	500	10	≤ 1.8	1000	1 0	SOT-223
BSP 52	N	80	2000	1500	200	≤ 100	90	≥ 2000	500	10	≤ 1.8	1000	1.0	SOT-223
BSP 60	P	45	2000	1500	200	≤ 100	60	≥ 2000	500	10	≤ 1.8	1000	1.0	SOT-223
BSP 61	P	60	2000	1500	200	≤ 100	80	≥ 2000	500	10	≤ 1.8	1000	1.0	SOT-223
BSP 62	P	80	2000	1500	200	≤ 100	90	≥ 2000	500	10	≤ 1.8	1000	1.0	SOT223
PZTA 13	N	30	500	1500	≥ 125	≤ 100	30	≥ 10000	100	5	≤ 1.5	100	0.1	SOT-223
PZTA 14	N	30	500	1500	≥ 125	≤ 100	30	≥ 20000	100	5	≤ 1.5	100	0.1	SOT223
PZTA 63	P	30	800	1500	≥ 125	≤ 100	30	≥ 10000	100	5	≤ 1.5	100	0.1	SOT-223
PZTA 64	P	30	800	1500	≥ 125	≤ 100	30	≥ 20000	100	5	≤ 1.5	100	0.1	SOT-223
SMBTA 13	N	30	500	330	≥ 125	≤ 100	30	≥ 10000	100	5	≤ 1.5	100	0.1	SOT-23
SMBTA 14	N	30	500	330	≥ 125	≤ 100	30	≥ 20000	100	5	≤ 1.5	100	0.1	SOT-23
SMBTA 63	P	30	800	330	≥ 125	≤ 100	30	≥ 10000	100	5	≤ 1.5	100	0.1	SOT-23
SMBTA 64	P	30	800	330	≥ 125	≤ 100	30	≥ 20000	100	5	≤ 1.5	100	0.1	SOT-23
SMBT 6427	N	40	800	360	≥ 130	≤ 50	30	≥ 20000	100	5	≤ 1.5	500	0.5	SOT-23

High-Voltage Transistors

Type N = NPN P = PNP		Maximum Ratings			Characteristics ($T_A = 25\text{ }^{\circ}\text{C}$)									Package
		V_{CE0} V	I_{CM} mA	P_{tot} mW	f_T MHz	I_{CB0} nA	V_{CB0} V	h_{FE}	I_C mA	V_{CE} V	V_{CEsat} V	I_C mA	I_B mA	
BF 622	N	250	100	1000	100	≤ 100	200	≥ 50	25	20	≤ 0.5	10	1	SOT-89
BF 623	P	250	100	1000	100	≤ 100	200	≥ 50	25	20	≤ 0.5	10	1	SOT-89
BF 720	N	300	100	1500	100	≤ 10	200	≥ 50	25	20	≤ 0.6	30	5	SOT-223
BF 721	P	300	100	1500	100	≤ 10	200	≥ 50	25	20	≤ 0.6	30	5	SOT-223
BF 722	N	250	100	1500	100	≤ 10	200	≥ 50	25	20	≤ 0.6	30	5	SOT-223
BF 723	P	250	100	1500	100	≤ 10	200	≥ 50	25	20	≤ 0.6	30	5	SOT-223
BFN 16	N	250	500	1000	70	≤ 100	200	≥ 40	30	10	≤ 0.4	20	2	SOT-89
BFN 17	P	250	500	1000	100	≤ 100	200	≥ 40	30	10	≤ 0.4	20	2	SOT-89
BFN 18	N	300	500	1000	70	≤ 100	250	≥ 30	30	10	≤ 0.5	20	2	SOT-89
BFN 19	P	300	500	1000	100	≤ 100	250	≥ 30	30	10	≤ 0.5	20	2	SOT-89
BFN 20	N	300	100	1000	100	≤ 100	250	≥ 40	25	20	≤ 0.5	10	1	SOT-89
BFN 21	P	300	100	1000	100	≤ 100	250	≥ 40	25	20	≤ 0.5	10	1	SOT-89
BFN 22	N	250	100	360	100	≤ 100	200	≥ 50	25	20	≤ 0.5	10	1	SOT-23
BFN 23	P	250	100	360	100	≤ 100	200	≥ 50	25	20	≤ 0.5	10	1	SOT-23
BFN 24	N	250	500	360	70	≤ 100	200	≥ 40	30	10	≤ 0.4	20	2	SOT-23
BFN 25	P	250	500	360	100	≤ 100	200	≥ 40	30	10	≤ 0.4	20	2	SOT-23
BFN 26	N	300	500	360	70	≤ 100	250	≥ 30	30	10	≤ 0.5	20	2	SOT-23
BFN 27	P	300	500	360	100	≤ 100	250	≥ 30	30	10	≤ 0.5	20	2	SOT-23
BFN 36	N	250	500	1500	70	≤ 100	200	≥ 40	30	10	≤ 0.4	20	2	SOT-223
BFN 37	P	250	500	1500	100	≤ 100	200	≥ 40	30	10	≤ 0.4	20	2	SOT-223
BFN 38	N	300	500	1500	70	≤ 100	250	≥ 30	30	10	≤ 0.5	20	2	SOT-223
BFN 39	P	300	500	1500	100	≤ 100	250	≥ 30	30	10	≤ 0.5	20	2	SOT-223
PZTA 42	N	300	500	1500	70	≤ 100	200	≥ 40	30	10	≤ 0.5	20	2	SOT-223
PZTA 43	N	200	500	1500	70	≤ 100	160	≥ 40	30	10	≤ 0.4	20	2	SOT-223
PZTA 92	P	300	500	1500	100	≤ 250	200	≥ 25	30	10	≤ 0.5	20	2	SOT-223
PZTA 93	P	200	500	1500	100	≤ 250	160	≥ 25	30	10	≤ 0.4	20	2	SOT-223
SMBTA 42	N	300	500	360	70	≤ 100	200	≥ 40	30	10	≤ 0.5	20	2	SOT-23
▼ SMBTA 42M	N	300	500	1000	70	≤ 100	200	≥ 40	30	10	≤ 0.5	20	2	SCT-595
SMBTA 43	N	200	500	360	70	≤ 100	160	≥ 40	30	10	≤ 0.4	20	2	SOT-23
SMBTA 92	P	300	500	360	100	≤ 250	200	≥ 25	30	10	≤ 0.5	20	2	SOT-23
▼ SMBTA 92M	P	300	500	1000	100	≤ 250	200	≥ 25	30	10	≤ 0.5	20	2	SCT-595

▼ New type

High-Voltage Transistors (cont'd)

Type N = NPN P = PNP	Maximum Ratings			Characteristics ($T_A = 25\text{ }^{\circ}\text{C}$)									Package
	V_{CE0} V	I_{CM} mA	P_{tot} mW	f_T MHz	I_{CB0} nA	V_{CB0} V	h_{FE}	I_C mA	V_{CE} V	V_{CEsat} V	I_C mA	I_B mA	
SMBTA 93 P	200	500	360	100	≤ 250	160	≥ 25	30	10	≤ 0.4	20	2	SOT-23
SXTA 42 N	300	500	1000	70	≤ 100	200	≥ 40	30	10	≤ 0.5	20	2	SOT-89
SXTA 43 N	200	500	1000	70	≤ 100	160	≥ 40	30	10	≤ 0.4	20	2	SOT-89
SXTA 92 P	300	500	1000	100	≤ 250	200	≥ 25	30	10	≤ 0.5	20	2	SOT-89
SXTA 93 P	200	500	1000	100	≤ 250	160	≥ 25	30	10	≤ 0.4	20	2	SOT-89

▼ New type

RF-Diodes

Varactor (Tuning) Diodes

Type	Maximum Ratings		Characteristics ($T_A = 25\text{ °C}$)							Package	Chip Code (see below)
	V_R V	I_F mA	C_T pF	at V_R V	C_T pF	V_R V	C_{Ratio}	I_R nA	V_R V		
BB 439	30	20	29	3	5.0	25	5.8	≤ 20	28	SOD-323	Q
BB 535	30	20	18.7	1	2.1	28	8.9	≤ 10	30	SOD-323	A
BB 545	30	20	20	1	2.0	28	10.0	≤ 10	30	SOD-323	C
▼ BB 555	30	20	18.7	1	2.1	28	8.9	≤ 10	30	SCD-80	A
▼ BB 565	30	20	20	1	2.0	28	10.0	≤ 10	30	SCD-80	C
BB 639	30	20	38.3	1	2.65	28	14.5	≤ 10	30	SOD-323	K
BB 639 C	30	20	39	1	2.55	28	15.3	≤ 10	30	SOD-323	B
▼ BB 644	30	20	41.8	1	2.55	28	16.4	≤ 10	30	SOD-323	–
▼ BB 659	30	20	38.3	1	2.65	28	14.5	≤ 10	30	SCD-80	K
▼ BB 659C	30	20	39	1	2.55	28	15.3	≤ 10	30	SCD-80	B
BB 640	30	20	69	1	3.05	28	22.6	≤ 10	30	SOD-323	N
▼ BB 664	30	20	41.8	1	2.55	28	16.4	≤ 10	30	SCD-80	–
▼ BB 669	30	20	56.5	1	2.7	28	20.9	≤ 10	30	SOD-323	–
▼ BB 689	30	20	56.5	1	2.7	28	20.9	≤ 10	30	SCD-80	–
BB 804 (Dual)	20	50	44.75	2	26.15	8	1.71	≤ 20	16	SOT-23	E
BB 814 (Dual)	20	50	44.75	2	20.8	8	2.15	≤ 20	16	SOT-23	O
BB 833	30	20	9.3	1	0.75	28	12.4	≤ 20	30	SOD-323	F
BB 835	30	20	9.1	1	0.62	28	14.7	≤ 10	30	SOD-323	G
▼ BB 857	30	20	6.6	1	0.54	28	12.2	≤ 10	30	SCD-80	–
BB 914 (Dual)	20	50	43.75	2	18.7	8	2.34	≤ 20	16	SOT-23	P
BBY 51 (Dual)	7	20	5.30	1	3.10	4	1.75	≤ 10	6	SOT-23	H
▼ BBY 51-02W	7	20	5.30	1	3.10	4	1.75	≤ 10	6	SCD-80	H
BBY 51-03 W	7	20	5.30	1	3.10	4	1.75	≤ 10	6	SOD-323	H
BBY 51-07 (Dual)	7	20	5.30	1	3.10	4	1.75	≤ 10	6	SOT-143	H
BBY 52 (Dual)	7	20	1.75	1	1.25	4	1.40	≤ 10	6	SOT-23	I
▼ BBY 52-02W	7	20	1.75	1	1.25	4	1.40	≤ 10	6	SCD-80	I
BBY 52-03 W	7	20	1.75	1	1.25	4	1.40	≤ 10	6	SOD-323	I
BBY 53 (Dual)	6	20	5.30	1	2.40	3	2.20	≤ 10	4	SOT-23	L
▼ BBY 53-02W	6	20	5.30	1	2.40	3	2.20	≤ 10	4	SCD-80	L
BBY 53-03 W	6	20	5.30	1	2.40	3	2.20	≤ 10	4	SOD-323	L
▼ BBY 55-02W	16	20	15	2	6	10	2.5	≤ 3	15	SCD-80	H
▼ BBY 55-03W	16	20	15	2	6	10	2.5	≤ 3	15	SOD-323	H

▼ New type

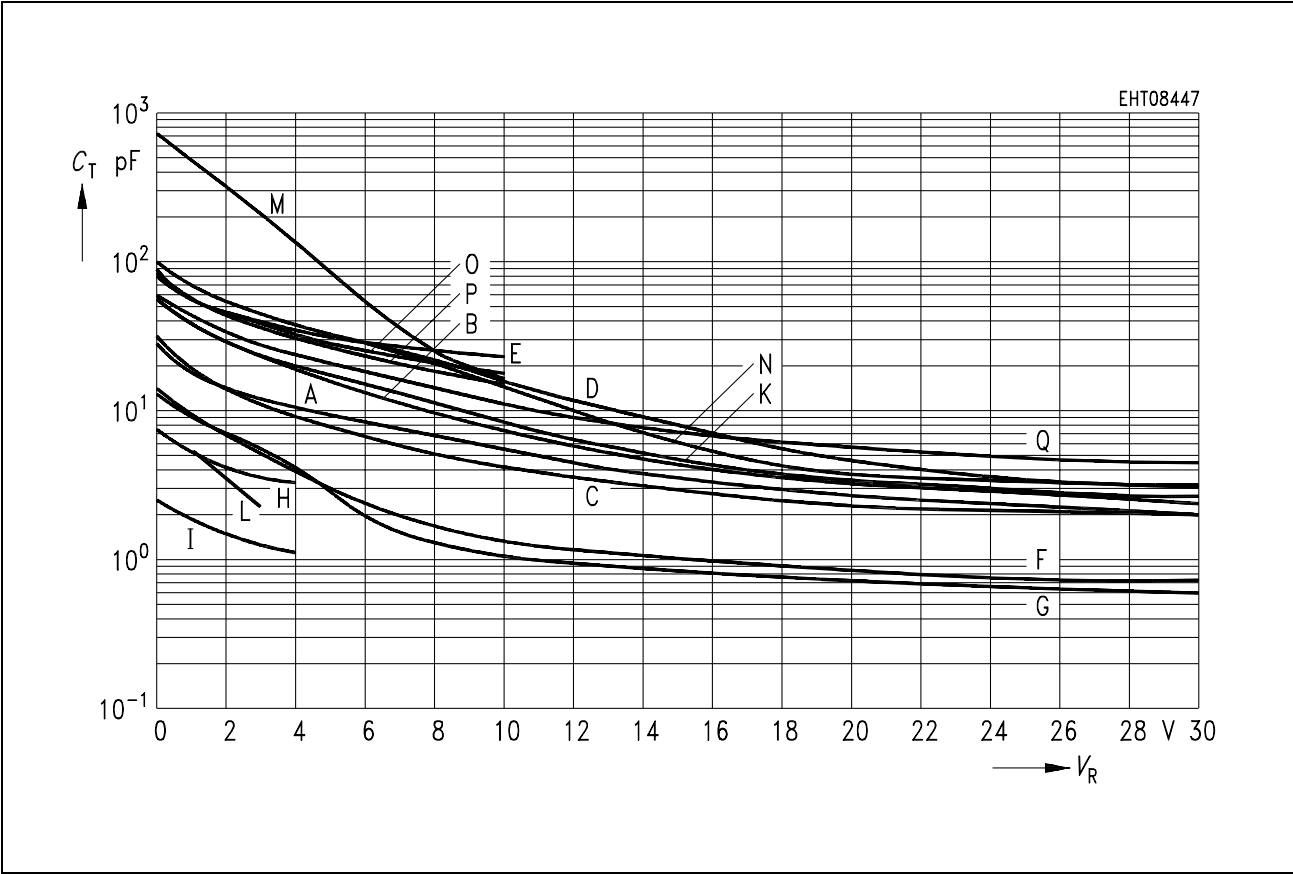
Varactor (Tuning) Diodes

Type	Maximum Ratings		Characteristics ($T_A = 25\text{ }^{\circ}\text{C}$)							Package	Chip Code (see below)
	V_R V	I_F mA	C_T pF	at V_R V	C_T pF	V_R V	C_{Ratio}	I_R nA	V_R V		
▼ BBY 56-02W	8	20	41	1	17.5	3	2.34	≤ 10	8	SCD-80	H
▼ BBY 56-03W	8	20	41	1	17.5	3	2.34	≤ 10	8	SOD-323	H
▼ BBY 57-02W	16	20	17.5	1	4.73	4	3.7	≤ 10	16	SCD-80	H
▼ BBY 57-03W	16	20	17.5	1	4.73	4	3.7	≤ 10	16	SOD-323	H
▼ BBY 58-02W	16	20	18.3	1	6.0	4	3.0	≤ 10	16	SCD-80	H
▼ BBY 58-03W	16	20	18.3	1	6.0	4	3.0	≤ 10	16	SOD-323	H

▼ New type

Varactor (Tuning) Diodes Characteristic Curves

The curve numbers refer to the chip codes in the preceding table.



Diodes Capacitance C_T vs. Reverse Voltage V_R

PIN Diodes (General Purpose, Switching)

Type	Maximum Ratings		Characteristics ($T_A = 25\text{ °C}$)				Package	Chip Code
	V_R	I_F	r_f	r_f	C_T	τ_L		
	V	mA	$I_F = 10\text{ }\mu\text{A}$ $f = 100\text{ MHz}$	$I_F = 10\text{ mA}$ $f = 100\text{ MHz}$	$V_R = 0\text{ V}$ $f = 100\text{ MHz}$	$I_F = 10\text{ mA}$ $I_R = 6/3\text{ mA}$		
BA 592	35	100	10 Ω	0.4 Ω	1.20 pF	120 ns	SOD-323	P1
BA 595	50	50	1.5 k Ω	4.5 Ω	0.23 pF	1.6 μs	SOD-323	P9
BA 597	50	100	2.3 k Ω	4.5 Ω	0.32 pF	2.3 μs	SOD-323	P5
BA 885	50	50	1,5 Ω	4.5 Ω	0.23 pF	1,6 μs	SOT-23	P9
▼ BA 892	35	100	10 Ω	0.4	1.20 pF	120 ns	SCD-80	P1
BAR 14-1 (Dual)	100	100	2.5 k Ω	8 Ω	0.2 pF	1 μs	SOT-23	P4
BAR 15-1 (Dual)	100	100	2.5 k Ω	8 Ω	0.2 pF	1 μs	SOT-23	P4
BAR 16-1 (Dual)	100	100	2.5 k Ω	8 Ω	0.2 pF	1 μs	SOT-23	P4
BAR 17	100	100	1 k Ω	3.5 Ω	0.37 pF	3.3 μs	SOT-23	P6
BAR 60 (Triple)	100	100	2.5 k Ω	7 Ω	0.2 pF	1 μs	SOT-143	P4
BAR 61 (Triple)	100	100	2.5 k Ω	7 Ω	0.2 pF	1 μs	SOT-143	P4
BAR 63	35	100	70 Ω	1 Ω	0.3 pF	100 ns	SOT-23	P2
BAR 63-04 (Dual)	35	100	70 Ω	1 Ω	0.3 pF	100 ns	SOT-23	P2
BAR 63-05 (Dual)	35	100	70 Ω	1 Ω	0.3 pF	100 ns	SOT-23	P2
BAR 63-06 (Dual)	35	100	70 Ω	1 Ω	0.3 pF	100 ns	SOT-23	P2
▼ BAR 63-02W	35	100	70 Ω	1	0.3 pF	100 ns	SCD-80	P2
BAR 63-03W	35	100	70 Ω	1 Ω	0.3 pF	100 ns	SOD-323	P2
▼ BAR 63-04W (Dual)	35	100	70 Ω	1	0.3 pF	100 ns	SOT-323	P2
▼ BAR 63-05W (Dual)	35	100	70 Ω	1	0.3 pF	100 ns	SOT-323	P2
▼ BAR 63-06W (Dual)	35	100	70 Ω	1	0.3 pF	100 ns	SOT-323	P2
BAR 64	200	100	600 Ω	2 Ω	0.3 pF	1.4 μs	SOT-23	P7
BAR 64-04 (Dual)	200	100	600 Ω	2 Ω	0.3 pF	1.4 μs	SOT-23	P7
BAR 64-05 (Dual)	200	100	600 Ω	2 Ω	0.3 pF	1,4 μs	SOT-23	P7
BAR 64-06 (Dual)	200	100	600 Ω	2 Ω	0.3 pF	1.4 μs	SOT-23	P7
BAR 64-07 (Dual)	200	100	600 Ω	2 Ω	0.3 pF	1.4 μs	SOT-143	P7
▼ BAR 64-02W	200	100	600 Ω	2	0.3 pF	1.4 μs	SCD-80	P7
BAR 64-03W	200	100	600 Ω	2 Ω	0.3 pF	1.4 μs	SOD-323	P7
▼ BAR 64-04W (Dual)	200	100	600 Ω	2	0.3 pF	1.4 μs	SOT-323	P7
▼ BAR 64-05W (Dual)	200	100	600 Ω	2	0.3 pF	1,4 μs	SOT-323	P7
▼ BAR 64-06W (Dual)	200	100	600 Ω	2	0.3 pF	1.4 μs	SOT-323	P7
▼ BAR 65-02W	30	100	6 Ω	0.56	0.6 pF	80 ns	SCD-80	P3
BAR 65-03W	30	100	6 Ω	0.56 Ω	0.6 pF	80 ns	SOD-323	P3
BAR 65-07	30	100	6 Ω	0.56 Ω	0.6 pF	80 ns	SOT-143	P3

▼ New type

PIN Diodes (General Purpose, Switching)

Type	Maximum Ratings		Characteristics ($T_A = 25\text{ }^{\circ}\text{C}$)				Package	Chip Code
			r_f	r_f	C_T	τ_L		
	V_R	I_F	$I_F = 10\text{ }\mu\text{A}$	$I_F = 10\text{ mA}$	$V_R = 0\text{ V}$	$I_F = 10\text{ mA}$		
	V	mA	$f = 100\text{ MHz}$	$f = 100\text{ MHz}$	$f = 100\text{ MHz}$	$I_R = 6/3\text{ mA}$		
BAR 80	35	100	10 Ω	0.4 Ω	1.2 pF	120 ns	MW-4	P1
BAR 81	30	100	6 Ω	0.56 Ω	0.6 pF	80 ns	MW-4	P3
▼ BAR 81W	30	100	6 Ω	0.56 Ω	0.6 pF	80 ns	SOT-343	P3
BAT 18	35	100	10 Ω	0.4 Ω	1.2 pF	120 ns	SOT-23	P1
BAT 18-04 (Dual)	35	100	10 Ω	0.4 Ω	1.2 pF	120 ns	SOT-23	P1
BAT 18-05 (Dual)	35	100	10 Ω	0.4 Ω	1.2 pF	120 ns	SOT-23	P1
BAT 18-06 (Dual)	35	100	10 Ω	0.4 Ω	1.2 pF	120 ns	SOT-23	P1

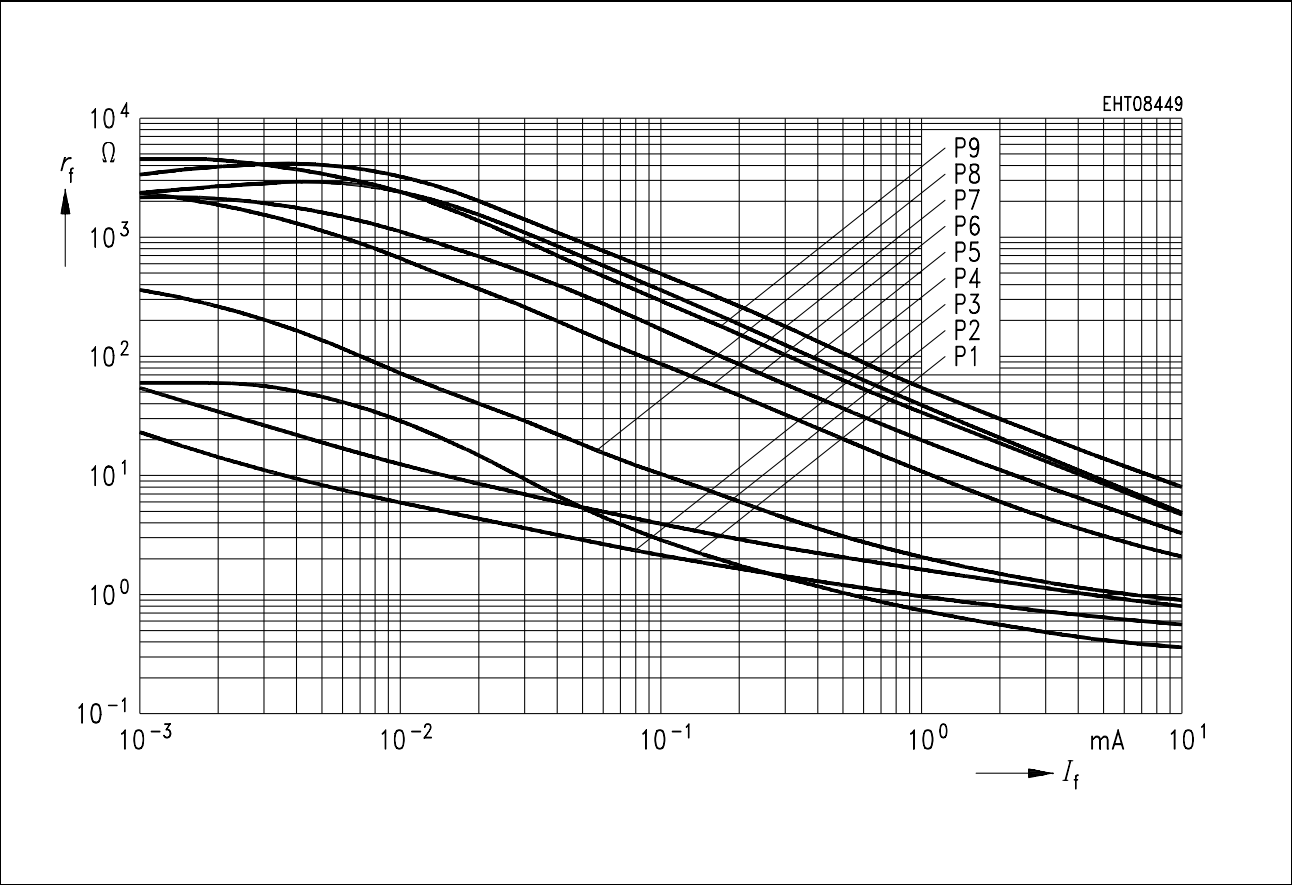
▼ New type

Electrostatic-Discharge-Protection Diode

Type	Maximum Ratings		Characteristics ($T_A = 25\text{ }^{\circ}\text{C}$)				Package	Chip Code
			r_f	r_f	C_T	τ_L		
	V_R	I_F	$I_F = 10\text{ }\mu\text{A}$	$I_F = 10\text{ mA}$	$V_R = 0\text{ V}$	$I_F = 10\text{ mA}$		
	V	mA	$f = 100\text{ MHz}$	$f = 100\text{ MHz}$	$f = 100\text{ MHz}$	$I_R = 6/3\text{ mA}$		
BAR 66 (Dual)	150	200	85 Ω	0.95 Ω	0.3 pF	700 ns	SOT-23	–

PIN Diodes Characteristic Curves

The curve numbers refer to the chip codes in the preceding tables.



Forward Resistance r_f vs. Forward Current I_f

AF-Schottky Diodes/RF-Schottky Diodes

Type	Maximum Ratings		Characteristics ($T_A = 25\text{ }^{\circ}\text{C}$)					Package	Chip Code
	V_R V	I_F mA	C_T pF	V_F at mV	I_F mA	V_F at mV	I_F mA		
BAS 40	40	120	3.2	310	1	720	40	SOT-23	S9
BAS 40-04 (Dual)	40	120	3.2	310	1	720	40	SOT-23	S9
BAS 40-04W (Dual)	40	120	3.2	310	1	720	40	SOT-323	S9
BAS 40-05 (Dual)	40	120	3.2	310	1	720	40	SOT-23	S9
BAS 40-05W (Dual)	40	120	3.2	310	1	720	40	SOT-323	S9
BAS 40-06 (Dual)	40	120	3.2	310	1	720	40	SOT-23	S9
BAS 40-06W (Dual)	40	120	3.2	310	1	720	40	SOT-323	S9
BAS 40-07 (Dual)	40	120	3.2	310	1	720	40	SOT-143	S9
▼ BAS 40-07W (Dual)	40	120	3.2	310	1	720	40	SOT-343	S9
BAS 70	70	70	1.5	380	1	690	10	SOT-23	S10
BAS 70-04 (Dual)	70	70	1.5	380	1	690	10	SOT-23	S10
▼ BAS 70-04S (Quad)	70	70	1.5	380	1	690	10	SOT-363	S10
BAS 70-04W (Dual)	70	70	1.5	380	1	690	10	SOT-323	S10
BAS 70-05 (Dual)	70	70	1.5	380	1	690	10	SOT-23	S10
BAS 70-05W (Dual)	70	70	1.5	380	1	690	10	SOT-323	S10
BAS 70-06 (Dual)	70	70	1.5	380	1	690	10	SOT-23	S10
▼ BAS 70-06S (Quad)	70	70	1.5	380	1	690	10	SOT-363	S10
BAS 70-06W (Dual)	70	70	1.5	380	1	690	10	SOT-323	S10
BAS 70-07 (Dual)	70	70	1.5	380	1	690	10	SOT-143	S10
▼ BAS 70-07W (Dual)	70	70	1.5	380	1	690	10	SOT-343	S10
BAS 125	25	100	0.95	385	1	800	35	SOT-23	S11
BAS 125-04 (Dual)	25	100	0.95	385	1	800	35	SOT-23	S11
BAS 125-05 (Dual)	25	100	0.95	385	1	800	35	SOT-23	S11
BAS 125-06 (Dual)	25	100	0.95	385	1	800	35	SOT-23	S11
BAS 125-07 (Dual)	25	100	0.95	385	1	800	35	SOT-143	S11
BAS 125W	25	100	0.95	385	1	800	35	SOT-323	S11
BAS 125-04W (Dual)	25	100	0.95	385	1	800	35	SOT-323	S11
BAS 125-05W (Dual)	25	100	0.95	385	1	800	35	SOT-323	S11
BAS 125-06W (Dual)	25	100	0.95	385	1	800	35	SOT-323	S11
▼ BAS 125-07W (Dual)	25	100	0.95	385	1	800	35	SOT-343	S11
BAS 140W	40	120	3.2	385	1	800	35	SOD-323	S9

▼ New type

AF-Schottky Diodes/RF-Schottky Diodes (cont'd)

Type	Maximum Ratings		Characteristics ($T_A = 25\text{ °C}$)					Package	Chip Code
	V_R V	I_F mA	C_T pF	V_F at mV	I_F mA	V_F at mV	I_F mA		
BAS 170W	70	70	1.5	385	1	800	35	SOD-323	S10
BAT 14-03W	4	90	0.22	430	1	550	10	SOD-323	S1
BAT 14-099 (Dual)	4	90	0.22	430	1	550	10	SOT-143	S1
BAT 14-099R (Quad)	—	90	0.38	400	1	480	10	SOT-143	S1
BAT 15-03W	4	110	0.21	230	1	320	10	SOD-323	S2
BAT 15-099 (Dual)	4	110	0.21	230	1	320	10	SOT-143	S2
BAT 15-099R (Quad)	—	110	0.37	230	1	320	10	SOT-143	S2
BAT 17	4	130	0.55	340	1	425	10	SOT-23	S3
BAT 17W	4	130	0.55	340	1	425	10	SOT-323	S3
BAT 17-04 (Dual)	4	130	0.55	340	1	425	10	SOT-23	S3
BAT 17-04W (Dual)	4	130	0.55	340	1	425	10	SOT-323	S3
BAT 17-05W (Dual)	4	130	0.55	340	1	425	10	SOT-323	S3
BAT 17-06 (Dual)	4	130	0.55	340	1	425	10	SOT-23	S3
BAT 17-06W (Dual)	4	130	0.55	340	1	425	10	SOT-323	S3
BAT 17-07 (Dual)	4	130	0.55	340	1	425	10	SOT-143	S3
▼ BAT 60A	10	3000	20	120	10	300	1000	SOD-323	—
▼ BAT 60B	10	3000	20	240	10	400	1000	SOD-323	—
BAT 64	30	250	4.0	385	10	570	100	SOT-23	S6
BAT 64-04 (Dual)	30	250	4.0	385	10	570	100	SOT-23	S6
▼ BAT 64-04W (Dual)	30	250	4.0	385	10	570	100	SOT-323	S6
BAT 64-05 (Dual)	30	250	4.0	385	10	570	100	SOT-23	S6
▼ BAT 64-05W (Dual)	30	250	4.0	385	10	570	100	SOT-323	S6
BAT 64-06 (Dual)	30	250	4.0	385	10	570	100	SOT-23	S6
▼ BAT 64-06W (Dual)	30	250	4.0	385	10	570	100	SOT-323	S6
BAT 64-07 (Dual)	30	250	4.0	385	10	570	100	SOT-143	S6
▼ BAT 64-07W (Dual)	30	250	4.0	385	10	570	100	SOT-343	S6
BAT 66-05 (Dual)	40	2000	33.0	280	10	470	1000	SOT-223	—
BAT 68	8	130	0.75	320	1	395	10	SOT-23	S7

▼ New type

AF-Schottky Diodes/RF-Schottky Diodes (cont'd)

Type	Maximum Ratings		Characteristics ($T_A = 25\text{ }^{\circ}\text{C}$)					Package	Chip Code
	V_R V	I_F mA	C_T pF	V_F at mV	I_F mA	V_F at mV	I_F mA		
BAT 68W	8	130	0.75	320	1	395	10	SOT-323	S7
BAT 68-03W	8	130	0.75	320	1	395	10	SOD-323	S7
BAT 68-04 (Dual)	8	130	0.75	320	1	395	10	SOT-23	S7
BAT 68-04W (Dual)	8	130	0.75	320	1	395	10	SOT-323	S7
BAT 68-05 (Dual)	8	130	0.75	320	1	395	10	SOT-23	S7
BAT 68-05W (Dual)	8	130	0.75	320	1	395	10	SOT-323	S7
BAT 68-06 (Dual)	8	130	0.75	320	1	395	10	SOT-23	S7
BAT 68-06W (Dual)	8	130	0.75	320	1	395	10	SOT-323	S7
BAT 68-07 (Dual)	8	130	0.75	320	1	395	10	SOT-143	S7
▼ BAT 68-07W (Dual)	8	130	0.75	320	1	395	10	SOT-343	S7
▼ BAT 70-05 (Dual)	70	1500	48.8	260	10	520	1500	SOT-223	–
BAT 114-099 (Dual)	4	90	0.22	580	1	680	10	SOT-143	S8
BAT 114-099R (Quad)	–	90	0.22	580	1	680	10	SOT-143	S8
▼ BAT 165	40	750	8.0	320	10	460	250	SOD-323	–
▼ BAT 240A (Dual)	240	400	11.5	325	10	470	50	SOT-23	–

▼ New type

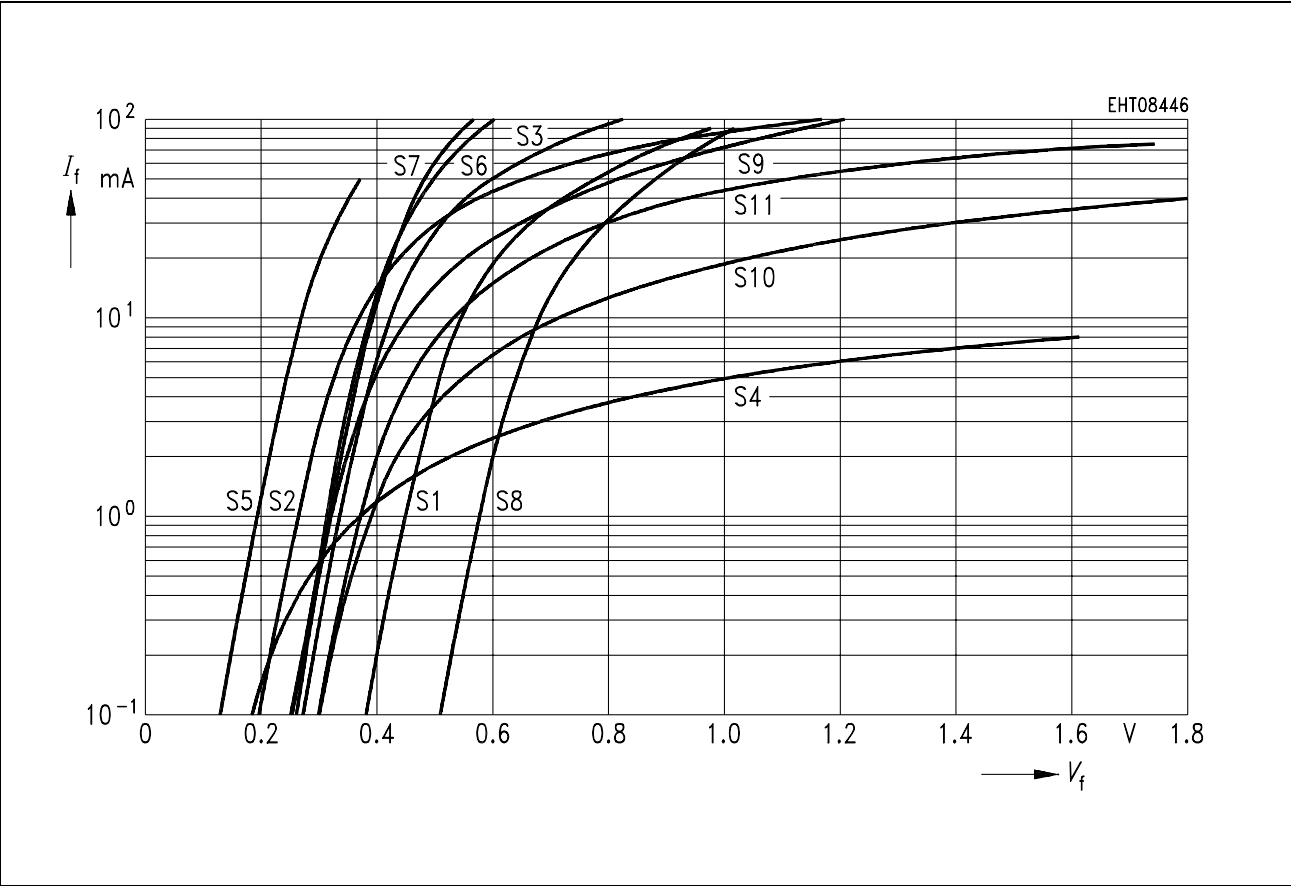
Schottky Detector Diodes

Type	Maximum Ratings		Characteristics ($T_A = 25\text{ }^{\circ}\text{C}$)								Package	Chip Code
	V_R V	I_F mA	C_T pF	at V_R V	V_F V	at I_F mA	R_O k Ω	at V_F V	I_R nA	at V_R V		
BAT 62	40	20	0.4	0	0.53	2	160	0	≤ 10	40	SOT-143	S4
▼ BAT 62-02W	40	20	0.4	0	580	2	225	0	≤ 10	40	SCD-80	S4
BAT 62-03W	40	20	0.4	0	0.53	2	160	0	≤ 10	40	SOD-323	S4
▼ BAT 62-07W	40	20	0.4	0	580	2	225	0	≤ 10	40	SOT-343	S4
BAT 63	3	100	0.65	0.2	0.19	1	30	0	≤ 10	3	SOT-143	S5

▼ New type

Schottky-Diodes Characteristic Curves

The curve numbers refer to the chip codes in the preceding tables.



Forward Current I_f vs. Forward Voltage V_f

AF-Diodes

General Purpose, Switching and Rectifier Diodes

Type	Maximum Ratings		Characteristics ($T_A = 25\text{ °C}$)						Package
	V_R V	I_F mA	V_{BR} V	I_R μA	at V_R V	V_F V	at I_F mA	t_{rr} ns	
BAL 74	50	250	50	≤ 0.10	50	≤ 1.00	100	≤ 4.0	SOT-23
BAL 99	70	250	70	≤ 2.50	70	≤ 1.25	150	≤ 6.0	SOT-23
BAR 74	50	250	50	≤ 0.10	50	≤ 1.00	100	≤ 4.0	SOT-23
BAR 99	70	250	70	≤ 2.50	70	≤ 1.25	150	≤ 6.0	SOT-23
BAS 16	75	250	75	≤ 1.00	75	≤ 1.25	150	≤ 6.0	SOT-23
▼ BAS 16-02W	75	250	75	≤ 1.00	75	≤ 1.25	150	≤ 6.0	SCD-80
▼ BAS 16-03W	75	250	75	≤ 1.00	75	≤ 1.25	150	≤ 6.0	SOD-323
BAS 16W	75	250	75	≤ 1.00	75	≤ 1.25	150	≤ 6.0	SOT-323
BAS 19	100	250	120	≤ 0.10	120	≤ 1.25	200	≤ 50.0	SOT-23
BAS 20	150	250	200	≤ 0.10	200	≤ 1.25	200	≤ 50.0	SOT-23
BAS 21	200	250	250	≤ 0.10	250	≤ 1.25	200	≤ 50.0	SOT-23
BAS 28 (Dual)	75	200	85	≤ 1.00	75	≤ 1.25	150	≤ 6.0	SOT-143
▼ BAS 28W (Dual)	75	200	85	≤ 1.00	75	≤ 1.25	150	≤ 6.0	SOT-343
BAS 78A	50	1000	50	≤ 1.00	50	≤ 2.00	2000	1.0 μs	SOT-223
BAS 78B	100	1000	100	≤ 1.00	100	≤ 2.00	2000	1.0 μs	SOT-223
BAS 78C	200	1000	200	≤ 1.00	200	≤ 2.00	2000	1.0 μs	SOT-223
BAS 78D	400	1000	400	≤ 1.00	400	≤ 2.00	2000	1.0 μs	SOT-223
BAS 79A (Dual)	≤ 50	1000	50	≤ 1.00	50	≤ 2.00	2000	1.0 μs	SOT-223
BAS 79B (Dual)	100	1000	100	≤ 1.00	100	≤ 2.00	2000	1.0 μs	SOT-223
BAS 79C (Dual)	200	1000	200	≤ 1.00	200	≤ 2.00	2000	1.0 μs	SOT-223
BAS 79D (Dual)	400	1000	400	≤ 1.00	400	≤ 2.00	2000	1.0 μs	SOT-223
BAV 70 (Dual)	70	200	70	≤ 2.50	70	≤ 1.25	150	≤ 6.0	SOT-23
BAV 70W (Dual)	70	200	70	≤ 2.50	70	≤ 1.25	150	≤ 6.0	SOT-323
BAV 74 (Dual)	50	200	50	≤ 0.10	50	≤ 1.00	100	≤ 4.0	SOT-23
BAV 99 (Dual)	70	200	70	≤ 2.50	70	≤ 1.25	150	≤ 6.0	SOT-23
BAV 99W (Dual)	70	200	70	≤ 2.50	70	≤ 1.25	150	≤ 6.0	SOT-323
BAW 56 (Dual)	70	200	70	≤ 2.50	70	≤ 1.25	150	≤ 6.0	SOT-23
BAW 56W (Dual)	70	200	70	≤ 2.50	70	≤ 1.25	150	≤ 6.0	SOT-323
BAW 78A	50	1000	50	≤ 1.00	50	≤ 2.00	2000	1.0 μs	SOT-89
BAW 78B	100	1000	100	≤ 1.00	100	≤ 2.00	2000	1.0 μs	SOT-89
BAW 78C	200	1000	200	≤ 1.00	200	≤ 2.00	2000	1.0 μs	SOT-89
BAW 78D	400	1000	400	≤ 1.00	400	≤ 2.00	2000	1.0 μs	SOT-89

▼ New type

AF-Diodes

General Purpose, Switching and Rectifier Diodes (cont'd)

Type	Maximum Ratings		Characteristics ($T_A = 25\text{ }^{\circ}\text{C}$)						Package
	V_R V	I_F mA	V_{BR} V	I_R μA	at V_R V	V_F V	at I_F mA	t_{rr} ns	
▼ BAW 78M	400	1000	400	≤ 1.00	400	≤ 2.00	2000	1.0 μs	SCT-595
BAW 79A (Dual)	50	1000	50	≤ 1.00	50	≤ 2.00	2000	1.0 μs	SOT-89
BAW 79B (Dual)	100	1000	100	≤ 1.00	100	≤ 2.00	2000	1.0 μs	SOT-89
BAW 79C (Dual)	200	1000	200	≤ 1.00	200	≤ 2.00	2000	1.0 μs	SOT-89
BAW 79D (Dual)	400	1000	400	≤ 1.00	400	≤ 2.00	2000	1.0 μs	SOT-89
BAW 100 (Dual)	75	200	70	≤ 2.50	70	≤ 1.25	150	≤ 6.0	SOT-143
BAW 101 (Dual)	300	250	300	≤ 0.15	250	≤ 1.30	100	1.0 μs	SOT-143
SMBD 914	70	200	100	≤ 5.00	75	≤ 1.00	100	≤ 4.0	SOT-23
SMBD 2835 (Dual)	30	200	75	≤ 0.10	30	≤ 1.20	100	≤ 6.0	SOT-23
SMBD 2836 (Dual)	50	200	75	≤ 0.10	50	≤ 1.20	100	≤ 6.0	SOT-23
SMBD 2837 (Dual)	30	200	75	≤ 0.10	30	≤ 1.20	100	≤ 6.0	SOT-23
SMBD 2838 (Dual)	50	200	75	≤ 0.10	50	≤ 1.20	100	≤ 6.0	SOT-23
SMBD 6050	70	250	70	≤ 0.10	50	≤ 1.10	100	≤ 10.0	SOT-23
SMBD 6100 (Dual)	70	200	70	≤ 0.10	50	≤ 1.10	100	≤ 15.0	SOT-23
SMBD 7000 (Dual)	100	200	100	≤ 0.50	100	≤ 1.10	100	≤ 15.0	SOT-23

▼ New type

Diode Arrays

▼ BAS 16S (Triple)	75	250	75	≤ 1.00	75	≤ 1.25	150	≤ 6.0	SOT-363
BAV 70 S (Quad)	70	200	≤ 1.5	≤ 2.5	70	≤ 1.25	150	≤ 6.0	SOT-363
▼ BAV 99S (Quad)	70	200	70	≤ 2.50	70	≤ 1.25	150	≤ 6.0	SOT-363
▼ BAW 56S (Quad)	70	200	70	≤ 2.50	70	≤ 1.25	150	≤ 6.0	SOT-363

▼ New type

Low Leakage Diodes

BAS 116	75	250	75	$\leq 5\text{ (nA)}$	75	≤ 1.25	150	$\leq 3.0\text{ }\mu\text{s}$	SOT-23
BAW 156 (Dual)	70	200	70	$\leq 5\text{ (nA)}$	70	≤ 1.25	150	$\leq 3.0\text{ }\mu\text{s}$	SOT-23
BAV 170 (Dual)	70	200	70	$\leq 5\text{ (nA)}$	70	≤ 1.25	150	$\leq 3.0\text{ }\mu\text{s}$	SOT-23
BAV 199 (Dual)	70	200	70	$\leq 5\text{ (nA)}$	70	≤ 1.25	150	$\leq 3.0\text{ }\mu\text{s}$	SOT-23

Bridge Rectifier

BGX 50A (Bridge)	50	140	50	≤ 0.20	50	≤ 2.60	100	≤ 6.0	SOT-143
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For complete information and data sheets please contact us on our internet homepage
<http://www.siemens.de/semiconductor/products/35/35.htm>

Leaded Components

Varactor Diodes (leaded)

Type	Maximum Ratings		Characteristics ($T_A = 25\text{ }^{\circ}\text{C}$)								Package		
			V_R V	I_F mA	C_T pF	at	V_R V	C_T pF	at	V_R V		C_{Ratio}	I_R nA
■ BB 112	12	50	440 - 520	1		16.50 - 29.00	8.5		≥ 18.00	50	10		TO-92a
■ BB 304	32	50	42 - 47.5	2		25.00	8.0		1.65 - 1.75	20	30		TO-92b

■ Not for new design

Transistors (leaded)

Type N = NPN P = PNP	Maximum Ratings			Characteristics ($T_A = 25\text{ }^{\circ}\text{C}$)										Package
				f_T	I_{CB0} at V_{CB0}	h_{FE} at I_C	V_{CE}	V_{CEsat} at I_C	I_B					
	V_{CE0} V	I_C mA	P_{tot} mW	MHz	nA	V		mA	V	V	mA	mA		

High-Voltage Transistors

■ BF 420	N	300	50	830	100	≤ 10	200	≥ 50	25	20	≤ 20.0	25	–		TO-92d
■ BF 421	P	300	50	830	100	≤ 10	200	≥ 50	25	20	≤ 20.0	25	–		TO-92d
■ BF 422	N	250	50	830	100	≤ 10	200	≥ 50	25	20	≤ 20.0	25	–		TO-92d
■ BF 423	P	250	50	830	100	≤ 10	200	≥ 50	25	20	≤ 20.0	25	–		TO-92d
■ BFP 22	N	200	200	625	70	≤ 100	160	≥ 50	30	10	≤ 0.5	20	2		TO-92c
■ BFP 23	P	200	200	625	70	≤ 100	160	≥ 50	30	10	≤ 0.4	20	2		TO-92c
■ BFP 25	N	300	200	625	70	≤ 100	250	≥ 40	30	10	≤ 0.4	20	2		TO-92c
■ BFP 26	P	300	200	625	70	≤ 100	250	≥ 40	30	10	≤ 0.5	20	2		TO-92c
■ MPSA 42	N	300	500	625	70	100	200	≥ 40	30	10	≤ 0.5	20	2		TO-92c
■ MPSA 43	N	200	500	625	70	100	160	≥ 40	30	10	≤ 0.4	20	2		TO-92c
■ MPSA 92	P	300	500	625	70	100	200	≥ 25	30	10	≤ 0.5	20	2		TO-92c
■ MPSA 93	P	200	500	625	70	100	160	≥ 30	30	10	≤ 0.4	20	2		TO-92c

■ Not for new design

Transistors (leaded) (cont'd)

Type N = NPN P = PNP	Maximum Ratings			Characteristics ($T_A = 25\text{ }^{\circ}\text{C}$)									Package
	V_{CE0} V	I_C mA	P_{tot} mW	f_T MHz	I_{CB0} nA	at V_{CB0} V	h_{FE}	at I_C mA	V_{CE} V	V_{CEsat} V	at I_C mA	I_B mA	

Darlington Transistors

■ BC 516	P	30	500	625	200	≤ 100	30	≥ 30000	20	2	≤ 1.0	100	0.1	TO-92d
■ BC 517	N	30	500	625	150	≤ 100	30	≥ 30000	20	2	≤ 1.0	100	0.1	TO-92d
■ BC 617	N	40	500	625	150	≤ 100	40	≥ 20000	200	5	≤ 1.1	200	0.2	TO-92d
■ BC 618	N	55	500	625	150	≤ 100	60	≥ 10000	200	5	≤ 1.1	200	0.2	TO-92d
■ BC 875	N	45	1000	800	150	≤ 100	60	≥ 2000	500	10	≤ 1.3	500	0.5	TO-92d
■ BC 876	P	45	1000	800	150	≤ 100	60	≥ 2000	500	10	≤ 1.3	500	0.5	TO-92d
■ BC 877	N	60	1000	800	150	≤ 100	80	≥ 2000	500	10	≤ 1.3	500	0.5	TO-92d
■ BC 878	P	60	1000	800	150	≤ 100	80	≥ 2000	500	10	≤ 1.3	500	0.5	TO-92d
■ BC 879	N	80	1000	800	150	≤ 100	90	≥ 2000	500	10	≤ 1.3	500	0.5	TO-92d
■ BC 880	P	80	1000	800	150	≤ 100	90	≥ 2000	500	10	≤ 1.3	500	0.5	TO-92d

■ Not for new design

RF-Transistors

Type N = NPN P = PNP		Maximum Ratings			Characteristics ($T_A = 25\text{ }^{\circ}\text{C}$)									Package	
					V_{CE0} V	I_C mA	P_{tot} mW	f_T GHz	F dB	I_C mA	V_{CE} V	f MHz	G_{PC} dB		I_C mA
■	BF 414	P	30	25	300	0.56	3.0	5	10	100	—	—	—	—	TO-92d
■	BF 506	P	35	30	300	0.55	3.0	2	10	200	—	—	—	—	TO-92d
■	BF 959	N	20	100	500	1.10	4.0	20	10	200	—	—	—	—	TO-92d

■ Not for new design

For complete information and data sheets please contact us on our internet homepage
<http://www.siemens.de/semiconductor/products/35/35.htm>

General Purpose and Switching Transistors

Type N = NPN P = PNP		Maximum Ratings			Characteristics ($T_A = 25\text{ °C}$)									Package
		V_{CB0} V	I_C mA	P_{tot} mW	f_T MHz	I_{CB0} nA	at V_{CB0} V	h_{FE}	at I_C mA	V_{CE} V	V_{CESat} V	at I_C mA	I_B mA	
■ BC 327	P	50	800	625	200	≤ 100	45	100 ... 630*	100	1	≤ 0.70	500	50.0	TO-92d
■ BC 328	P	30	800	625	200	≤ 100	25	100 ... 630*	100	1	≤ 0.70	500	50.0	TO-92d
■ BC 337	N	50	800	625	170	≤ 100	45	100 ... 630*	100	1	≤ 0.70	500	50.0	TO-92d
■ BC 338	N	30	800	625	170	≤ 100	25	100 ... 630*	100	1	≤ 0.70	500	50.0	TO-92d
■ BC 368	N	25	1000	800	100	≤ 100	25	85 ... 375	500	1	≤ 0.50	1000	100.0	TO-92d
■ BC 369	P	25	1000	800	100	≤ 100	25	85 ... 375	500	1	≤ 0.50	1000	100.0	TO-92d
■ BC 635	N	45	1000	800	100	≤ 100	30	40 ... 250	150	2	≤ 0.50	500	50.0	TO-92d
■ BC 636	P	45	1000	800	100	≤ 100	30	40 ... 250	150	2	≤ 0.50	500	50.0	TO-92d
■ BC 637	N	60	1000	800	100	≤ 100	30	40 ... 160	150	2	≤ 0.50	500	50.0	TO-92d
■ BC 638	P	60	1000	800	100	≤ 100	30	40 ... 160	150	2	≤ 0.50	500	50.0	TO-92d
■ BC 639	N	100	1000	800	100	≤ 100	30	40 ... 160	150	2	≤ 0.50	500	50.0	TO-92d
■ BC 640	P	100	1000	800	100	≤ 100	30	40 ... 160	150	2	≤ 0.50	500	50.0	TO-92d
■ BCX 12	N	125	800	625	100	100	100	63	100	1	≤ 1.00	500	50.0	TO-92d
■ BCX 13	P	125	800	625	120	100	100	63	100	1	≤ 1.00	500	50.0	TO-92d
■ BCX 58	N	32	100	500	200	≤ 20	32	120 ... 630*	2	5	≤ 0.50	100	2.50	TO-92d
■ BCX 59	N	45	100	500	200	≤ 20	45	120 ... 630*	2	5	≤ 0.50	100	2.50	TO-92d
■ BCX 78	P	32	100	500	250	≤ 20	32	120 ... 630*	2	5	≤ 0.60	100	2.50	TO-92d
■ BCX 79	P	45	100	500	250	≤ 20	45	120 ... 630*	2	5	≤ 0.60	100	2.50	TO-92d

■ Not for new design

* Available in h_{FE} subgroups.