

# Transistors

SST (U. S. / European SOT-23) • SMT (SC-59 / Japanese SOT-23)

● NPN Transistors

General purpose small signal amplifiers

SST	SMT	BV <sub>CEO</sub> Min.	BV <sub>CE0</sub> Min.	BV <sub>EBO</sub> Min.	I <sub>CBO</sub> @V <sub>CB</sub> Max.	h <sub>FE</sub> @I <sub>c</sub> & V <sub>CE</sub>			V <sub>CE</sub> (sat) & V <sub>BE</sub> (sat) @ I <sub>c</sub>			C <sub>ob</sub> Max.	f <sub>T</sub> @ I <sub>c</sub>	NF	I <sub>c</sub> Max.	DIE NO.	MARKING
						Min.	Max.	Max.	Max.	Max.	Max.						
SST1130	MMST1130	30V	25V	5V	50nA 20V	120	360	2mA 1V	0.3V	0.95V	50mA	4pF			200mA	C22	R1C
SST5088	MMST5088	35V	30V	4.5V	100nA 30V	300	900	100μA 5V	0.3V	0.8V	10mA	4pF	50MHz 0.5mA	3dB	200mA	C22	R1Q
SST5089	MMST5089	30V	25V	4.5V	100nA 25V	300	900	10mA 5V	(V <sub>BE</sub> (on) )			4pF			200mA	C22	R1Q
SST5089	MMST5089	30V	25V	4.5V	100nA 25V	400	1200	0.1mA 5V	0.5V	0.8V	10mA	4pF	50MHz 0.5mA		200mA	C22	R1R
SST5210	—	50V	50V	4.5V	50nA 35V	250	600	100μA 5V	0.7V	0.85V	10mA	4pF	30MHz 0.5mA	2dB	200mA	C22	R5R
SST5210	—	50V	50V	4.5V	50nA 35V	250	600	10mA 5V	(V <sub>BE</sub> (on) )			4pF			200mA	C22	R5R
SST6428	MMST6428	60V	50V	6V	100nA 30V	250	600	100μA 5V	0.2V		10mA	3pF	100MHz 1mA		200mA	C22	R1K
SST6428	MMST6428	60V	50V	6V	100nA 30V	250	650	1mA 5V	0.6V		100mA				200mA	C22	R1K
SST6838	MMST6838	50V	40V	5V	0.5μA 30V	250	650	1mA 5V	0.4V		50mA	3.5pF	50MHz 2mA		200mA	C22	RBR
SST6838	MMST6838	50V	40V	5V	0.5μA 30V	150	400	10mA 5V	0.4V		50mA	3.5pF	50MHz 2mA		200mA	C22	RBR
SST7208	—	60V	60V	5V	0.2μA 60V (CER)	75	100	10mA 5V	0.5V	1.2V	100mA		180MHz Typ.		100mA	C22	R8Q
SST7208	—	60V	60V	5V	0.2μA 60V (CER)	100	100	1mA 5V	0.4V	1.0V	10mA		180MHz Typ.		100mA	C22	R8Q
SST7208	—	60V	60V	5V	0.2μA 60V (CER)	100	100	1mA 5V	0.3V	0.95V	1mA		180MHz Typ.		100mA	C22	R8Q
SSTIS97	—	60V	40V	6V	50nA 40V	250	700	0.1mA 5V		0.65V	0.1mA	4pF		2dB	200mA	C22	R97
SSTIS97	—	60V	40V	6V	50nA 40V	250	700	0.1mA 5V	(V <sub>BE</sub> (on) )			4pF			200mA	C22	R97
SSTA20	MMSTA20	40V	40V	5V	100nA 30V	120	360	2mA 1V	0.25V	0.95V	10mA	4pF	125MHz 5mA		200mA	C22	R1C

General purpose amplifiers and switches

SST	SMT	BV <sub>CEO</sub> Min.	BV <sub>CE0</sub> Min.	BV <sub>EBO</sub> Min.	I <sub>CBO</sub> @V <sub>CB</sub> Max.	h <sub>FE</sub> @I <sub>c</sub> & V <sub>CE</sub>			V <sub>CE</sub> (sat) & V <sub>BE</sub> (sat) @ I <sub>c</sub>			C <sub>ob</sub> Max.	f <sub>T</sub> @ I <sub>c</sub>	t <sub>off</sub> Max.	I <sub>c</sub> Max.	DIE NO.	MARKING
						Min.	Max.	Max.	Max.	Max.	Max.						
SST2222	MMST2222	60V	30V	5V	100nA 50V	35	50	0.1mA 10V	0.4V	1.3V	150mA	8pF	250MHz 20mA		600mA	C31	R1B
SST2222	MMST2222	60V	30V	5V	100nA 50V	75	100	10mA 10V	1.6V	2.6V	500mA						
SST2222	MMST2222	60V	30V	5V	100nA 50V	50	30	150mA 10V									
SST2222	MMST2222	60V	30V	5V	100nA 50V	50	30	150mA 10V									
SST2222	MMST2222	60V	30V	5V	100nA 50V	30	50	500mA 10V									
SST2222A	MMST2222A	75V	40V	6V	100nA 60V	35	50	0.1mA 10V	0.3V	1.2V	150mA	8pF	250MHz 20mA	285ns	600mA	C31	R1P
SST2222A	MMST2222A	75V	40V	6V	100nA 60V	75	100	10mA 10V	1V	2V	500mA						
SST2222A	MMST2222A	75V	40V	6V	100nA 60V	50	30	150mA 10V									
SST2222A	MMST2222A	75V	40V	6V	100nA 60V	50	30	150mA 10V									
SST2222A	MMST2222A	75V	40V	6V	100nA 60V	30	50	500mA 10V									
SST3904	MMST3904	60V	40V	6V	50nA 30V (CEX)	40	70	0.1mA 10V	0.2V	0.85V	10mA	4pF	300MHz 10mA	250ns	200mA	C37	R1A
SST3904	MMST3904	60V	40V	6V	50nA 30V (CEX)	100	300	10mA 10V	0.3V	0.95V	50mA						
SST3904	MMST3904	60V	40V	6V	50nA 30V (CEX)	60	30	50mA 10V									
SST3904	MMST3904	60V	40V	6V	50nA 30V (CEX)	30	100	100mA 10V									
SST4124	MMST4124	30V	25V	5V	50nA 20V	120	360	2.0mA 1V	0.3V	0.95V	50mA	4pF	300MHz 10mA		200mA	C37	RZC
SST4124	MMST4124	30V	25V	5V	50nA 20V	60	180	50mA 1V									
SST4400	—	60V	40V	6V	100nA 35V	20	40	1.0mA 10V	0.4V	0.95V	150mA	6.5pF	200MHz 20mA	255ns	600mA	C31	R2Z
SST4400	—	60V	40V	6V	100nA 35V	50	150	150mA 10V	0.75V	1.2V	500mA						
SST4400	—	60V	40V	6V	100nA 35V	20	40	500mA 10V									
SST4401	MMST4401	60V	40V	6V	100nA 35V	20	40	0.1mA 10V	0.4V	0.95V	150mA	6.5pF	250MHz 20mA	225ns	600mA	C31	R2X
SST4401	MMST4401	60V	40V	6V	100nA 35V	80	100	1mA 10V	0.75V	1.2V	500mA						
SST4401	MMST4401	60V	40V	6V	100nA 35V	100	300	150mA 10V									
SST4401	MMST4401	60V	40V	6V	100nA 35V	40	100	500mA 10V									

Medium power amplifiers

SST	SMT	BV <sub>CB0</sub> Min.	BV <sub>CE0</sub> Min.	BV <sub>EB0</sub> Min.	I <sub>CB0</sub> @V <sub>CB</sub> Max.	h <sub>FE</sub> Min. Max.	@I <sub>c</sub> & V <sub>CE</sub>	V <sub>CE</sub> (sat) & V <sub>BE</sub> (sat) Max. Max.	@ I <sub>c</sub>	C <sub>ob</sub> Max.	f <sub>T</sub> Min. @ I <sub>c</sub>	t <sub>off</sub> Max.	I <sub>c</sub> Max.	DIE NO.	MARKING
SSTA05	—	60V	60V	4V	100nA 60V	100 100	10mA 1V 100mA 1V	0.25V (V <sub>BE(on)</sub> )	1.2V 100mA		100MHz 10mA		500mA	D15	R11
SSTA06	MMSTA06	80V	80V	4V	100nA 80V	100 100	10mA 1V 100mA 1V	0.25V (V <sub>BE(on)</sub> )	1.2V 100mA		100MHz 10mA		500mA	D15	R11

Darlington amplifiers

SST	SMT	BV <sub>CB0</sub> Min.	BV <sub>CE0</sub> Min.	BV <sub>EB0</sub> Min.	I <sub>CB0</sub> @V <sub>CB</sub> Max.	h <sub>FE</sub> Min. Max.	@I <sub>c</sub> & V <sub>CE</sub>	V <sub>CE</sub> (sat) & V <sub>BE</sub> (sat) Max. Max.	@ I <sub>c</sub>	C <sub>ob</sub> Max.	f <sub>T</sub> Min. @ I <sub>c</sub>	NF	I <sub>c</sub> Max.	DIE NO.	MARKING
SST6426	—	40V	40V	12V	50nA 30V	20K 200K 30K 300K 20K 200K	10mA 5V 100mA 5V 500mA 5V	1.2V 1.5V	5mA 500mA	7pF		10dB	500mA	D25	RX7
SST6427	—	40V	40V	12V	50nA 30V	10K 100K 20K 200K 14K 140K	10mA 5V 100mA 5V 500mA 5V	1.2V 1.5V	50mA 500mA	7pF		10dB	500mA	D25	R1J
SSTA13	MMSTA13	(CES) 30V		10V	100nA 30V	5K 10K	10mA 5V 100mA 5V	1.5V	100mA	10pF	125MHz 10mA		500mA	D25	R1M
SSTA14	MMSTA14	(CES) 30V		10V	100nA 30V	10K 20K	10mA 5V 100mA 5V	1.5V	100mA	10pF	125MHz 10mA		500mA	D25	R1N
SSTA28	MMSTA28	(CES) 80V		12V	100nA 60V	10K 10K	10mA 5V 100mA 5V	1.5V	100mA	8pF	125MHz 10mA		500mA	D69	RAT
SSTA29	—	(CES) 100V		12V	100nA 80V	10K 10K	10mA 5V 100mA 5V	1.2V	10mA	8pF	125MHz 10mA		500mA	D69	RAF

RF/UHF/VHF amplifiers

SST	SMT	BV <sub>CB0</sub> Min.	BV <sub>CE0</sub> Min.	BV <sub>EB0</sub> Min.	I <sub>CB0</sub> @V <sub>CB</sub> Max.	h <sub>FE</sub> Min. Max.	@I <sub>c</sub> & V <sub>CE</sub>	V <sub>CE</sub> (sat) & V <sub>BE</sub> (sat) Max. Max.	@ I <sub>c</sub>	C <sub>ob</sub> Max.	f <sub>T</sub> Min. @ I <sub>c</sub>	NF	I <sub>c</sub> Max.	DIE NO.	MARKING
SST1139	MMST1139	30V	25V	3V	100nA 25V	60	4mA 10V	0.5V	4mA	1pF	850MHz 4mA		30mA	C104	R39
SST5424	MMST5424	30V	20V	3V	100nA 18V (CES)	60 150	2.5mA 4V	0.4V	1.0V 10mA	1.2pF	600MHz 2.5mA		50mA	C33	R24
SST8245	MMST8245	30V	20V	3V	100nA 18V (CES)	60 150	2.5mA 4V	0.4V	1.0V 10mA	1.2pF	600MHz 2.5mA		50mA	C33	R3B
SST918	—	30V	15V	3V	100nA 15V	20	4mA 1V	0.4V	1.0V 10mA	1.7pF	600MHz 4mA	6dB	50mA	C33	R3B
SST918S	MMST918S	30V	15V	3V	100nA 15V	75	4mA 1V	0.4V	1.0V 10mA	1.7pF	600MHz 4mA		50mA	C33	RVY

(Unit : mm)

Package	SST (U. S. /European SOT-23)	SMT (SC-59/Japanese SOT-23)
Dimensions	<p>1) Emitter 2) Base 3) Collector</p>	<p>Each lead has same dimensions 1) Emitter 2) Base 3) Collector</p>
Actual size		
Enlarged (×3.0)		

Transistors TRANSISTORS

# Transistors

SST (U. S. / European SOT-23) • SMT (SC-59 / Japanese SOT-23)

## ●PNP Transistors

### General purpose small signal amplifiers

SST	SMT	BV <sub>CBO</sub> Min.	BV <sub>CEO</sub> Min.	BV <sub>EBO</sub> Min.	I <sub>CBO</sub> @V <sub>CB</sub> Max.	h <sub>FE</sub> Min. Max.	@I <sub>C</sub> & V <sub>CE</sub>	V <sub>CE</sub> (sat) & V <sub>BE</sub> (sat) Max. Max.	@ I <sub>C</sub>	C <sub>ob</sub> Max.	f <sub>T</sub> Min. @ I <sub>C</sub>	t <sub>off</sub> /NF Max.	I <sub>C</sub> Max.	DIE NO.	MARKING
SST5086	MMST5086	50V	50V	3V	100nA 40V	150 500	100 μA 5V 1.0mA 5V 10mA 5V	0.3V	10mA	6pF	40MHz 0.5mA	NF 3dB	200mA	A32	R2P
SST5087	MMST5087	50V	50V	3V	100nA 40V	250 800	100 μA 5V 1.0mA 5V 10mA 5V	0.3V	10mA	6pF	40MHz 0.5mA	NF 2dB	200mA	A32	R2Q
SST5101	MMST5101	60V	40V	6V	100nA 55V	200 400	10mA 5V	0.15V	10mA	8pF	125MHz 2mA		200mA	A32	1T1
SST6839	MMST6839	50V	40V	5V		100 100	1mA 5V 100mA 5V	0.5V	100mA	3.5pF	50MHz 2mA		200mA	A32	RFQ
SST7157	MMST7157	60V	60V	5V	100nA 25V	100 100	1mA 5V 100mA 5V	0.25V	100mA				200mA	A32	R2Q
SST8598	MMST8598	60V	60V	5V	100nA 60V	100 300	1mA 5V	0.5V	100mA	8pF	150MHz 10mA		200mA	A32	R2K
SSTA70	MMSTA70	60V	60V	5V	100nA 30V	160 400	5mA 10V	0.2V	100mA	5pF	125MHz 5mA		200mA	A32	R2C

### General purpose amplifiers and switches

SST	SMT	BV <sub>CBO</sub> Min.	BV <sub>CEO</sub> Min.	BV <sub>EBO</sub> Min.	I <sub>CBO</sub> @V <sub>CB</sub> Max.	h <sub>FE</sub> Min. Max.	@I <sub>C</sub> & V <sub>CE</sub>	V <sub>CE</sub> (sat) & V <sub>BE</sub> (sat) Max. Max.	@ I <sub>C</sub>	C <sub>ob</sub> Max.	f <sub>T</sub> Min. @ I <sub>C</sub>	t <sub>off</sub> Max.	I <sub>C</sub> Max.	DIE NO.	MARKING	
SST2907	MMST2907	60V	40V	5V	100nA 50V	35 75	0.1mA 10V 1.0mA 10V 10mA 10V 150mA 10V 500mA 10V	0.4V 1.6V	1.3V 2.6V	150mA 500mA	8pF	200MHz 50mA	180ns	600mA	A31	R2B
SST2907A	MMST2907A	60V	60V	5V	100nA 50V	75 100	0.1mA 10V 1.0mA 10V 10mA 10V 150mA 10V 500mA 10V	0.4V 1.6V	1.3V 2.6V	150mA 500mA	8pF	200MHz 50mA	180ns	600mA	A31	R2F
SST3906	MMST3906	40V	40V	5V	50nA 30V (CES)	60 80	0.1mA 10V 1.0mA 10V 10mA 10V 50mA 10V 100mA 10V	0.25V 0.4V	0.85V 0.95V	10mA 50mA	4.5pF	250MHz 10mA	300ns	200mA	A38	R2A
SST4126	MMST4126	25V	25V	4V	50nA 20V	120 60	360 2mA 10V 50mA 10V	0.4V	0.95V	50mA	4.5pF	250MHz 10mA		200mA	A38	RVZ
SST4403	MMST4403	40V	40V	5V	100nA 35V	30 60	0.1mA 10V 1mA 10V 10mA 10V 150mA 10V 500mA 10V	0.4V 0.75V	0.95V 1.3V	150mA 500mA	8.5pF	200MHz 20mA	255ns	600mA	A31	R2T
SSTT93	-	40V	40V	5V	100nA 20V	100 300	50mA 10V	0.25V		50mA			800mA	A31	R93	

### Medium power amplifiers

SST	SMT	BV <sub>CBO</sub> Min.	BV <sub>CEO</sub> Min.	BV <sub>EBO</sub> Min.	I <sub>CBO</sub> @V <sub>CB</sub> Max.	h <sub>FE</sub> Min. Max.	@I <sub>C</sub> & V <sub>CE</sub>	V <sub>CE</sub> (sat) & V <sub>BE</sub> (sat) Max. Max.	@ I <sub>C</sub>	C <sub>ob</sub> Max.	f <sub>T</sub> Min. @ I <sub>C</sub>	t <sub>off</sub> Max.	I <sub>C</sub> Max.	DIE NO.	MARKING
SSTA55	-	60V	60V	4V	100nA 60V	100 100	10mA 10V 100mA 10V	0.25V	1.2V	100mA	50MHz 100mA		500mA	B93	R2H
SSTA56	MMSTA56	80V	80V	4V	100nA 80V	100 100	10mA 10V 100mA 10V	0.25V	1.2V	100mA	50MHz 100mA		500mA	B93	R2G

### Darlington amplifiers

SST	SMT	BV <sub>CBO</sub> Min.	BV <sub>CEO</sub> Min.	BV <sub>EBO</sub> Min.	I <sub>CBO</sub> @V <sub>CB</sub> Max.	h <sub>FE</sub> Min. Max.	@I <sub>C</sub> & V <sub>CE</sub>	V <sub>CE</sub> (sat) & V <sub>BE</sub> (sat) Max. Max.	@ I <sub>C</sub>	C <sub>ob</sub> Max.	f <sub>T</sub> Min. @ I <sub>C</sub>	t <sub>off</sub> /NF Max.	I <sub>C</sub> Max.	DIE NO.	MARKING
SSTA63	MMSTA63	30V	30V (CES)	10V	100nA 30V	5K 10K	10mA 10V 100mA 10V	1.5V	100mA	7pF	125MHz 10mA	3dB	300mA	B25	R2U
SSTA64	MMSTA64	30V	30V (CES)	10V	100nA 30V	10K 20K	10mA 10V 100mA 10V	1.5V	100mA	7pF	125MHz 10mA	3dB	300mA	B25	R2V
SSTA65	-	30V	30V (CES)	8V	100nA 30V	50K 20K	10mA 10V 100mA 10V	1.5V	100mA		100MHz 10mA	2dB	300mA	B25	R65

## SST (U.S. / European SOT-23)

Function	Part No.	Polarity	$BV_{CEO}$ (V)	$I_c$ (mA)	$h_{FE}$	@Condition	$f_T$ (MHz)	$C_{ob}$ (pF)	Part No.
Pre Amp	BC817-16	NPN	45	800	110~250	100mA / 1V	150	6	G3E
	BC817-25	NPN	45	800	160~400	100mA / 1V	150	6	G3F
	BC847A	NPN	45	100	110~230	2mA / 5V	200	3	G3H
	BC847B	NPN	45	100	200~450	2mA / 5V	200	3	G3J
	BC847C	NPN	45	100	450~800	2mA / 5V	200	3	G3L
	BC848A	NPN	30	100	110~230	2mA / 5V	200	3	G3N
	BC848B	NPN	30	100	200~450	2mA / 5V	200	3	G1K
	BC848C	NPN	30	100	420~800	2mA / 5V	200	3	G1L
	BC857A	PNP	45	100	110~230	2mA / 5V	250	4.5	G3E
	BC857B	PNP	45	100	210~480	2mA / 5V	250	4.5	G3F
	BC858A	PNP	30	100	110~250	2mA / 5V	250	4.5	G3L
	BC858B	PNP	30	100	210~480	2mA / 5V	250	4.5	G3K
	BC858C	PNP	30	100	420~800	2mA / 5V	250	4.5	G3L
	BCW29	PNP	32	100	110~260	2mA / 5V		7	GC1
	BCW30	PNP	32	100	210~500	2mA / 5V		7	GC2
	BCW31	NPN	32	100	110~230	2mA / 5V		4	GD1
BCW32	NPN	32	100	200~450	2mA / 5V		4	GD2	
BCW33	NPN	32	100	420~800	2mA / 5V		4	GD3	
Low Noise Amp	BCW60A	NPN	32	200	110~230	2mA / 5V	125	4.5	GAA
	BCW60B	NPN	32	200	180~310	2mA / 5V	125	4.5	GAB
	BCW60C	NPN	32	200	260~460	2mA / 5V	125	4.5	GAC
	BCW60D	NPN	32	200	380~630	2mA / 5V	125	4.5	GAD
	BCW61A	PNP	32	200	110~230	2mA / 5V	180	5	GBA
	BCW61B	PNP	32	200	180~310	2mA / 5V	180	5	GBB
	BCW61C	PNP	32	200	250~460	2mA / 5V	180	5	GBC
BCW61D	PNP	32	200	380~630	2mA / 5V	180	5	GBD	
Driver	BCW65A	NPN	32	800	100~250	100mA / 1V	100	12	GEA
	BCW65B	NPN	32	800	160~400	100mA / 1V	100	12	GEB
	BCW65C	NPN	45	800	250~630	100mA / 1V	100	12	GEC
	BCW68F	PNP	45	800	100~250	100mA / 1V	100	18	GDF
	BCW68G	PNP	45	800	160~400	100mA / 1V	100	18	GDG
Low Noise Amp	BCW69	PNP	45	100	110~260	2mA / 5V		7	GH1
	BCW70	PNP	45	100	210~500	2mA / 5V		7	GH2
	BCW71	NPN	45	100	110~230	2mA / 5V		4	GK1
	BCW72	NPN	45	100	200~450	2mA / 5V		4	GK2
Driver	BCX17	PNP	45	500	100~600	100mA / 1V			GT1
	BCX18	PNP	25	500	100~600	100mA / 1V			GT2
	BCX19	NPN	45	500	100~600	100mA / 1V			GU1
	BCX20	NPN	25	500	100~600	100mA / 1V			GU2
Low Noise Amp	BCX70G	NPN	45	200	110~220	2mA / 5V	125	4.5	GAG
	BCX70H	NPN	45	200	180~310	2mA / 5V	125	4.5	GAH
	BCX70J	NPN	45	200	250~460	2mA / 5V	125	4.5	GAJ
	BCX70K	NPN	45	200	380~630	2mA / 5V	125	4.5	GAK
	BCX71G	PNP	45	200	110~220	2mA / 5V	180	6	GBG
	BCX71H	PNP	45	200	140~310	2mA / 5V	180	6	GBH
BCX71J	PNP	45	200	250~460	2mA / 5V	180	6	GBJ	
Mix Osc.	BFS17	NPN	15	50	20~150	2mA / 5V	1000	1.5	GMA
TV Tuner	BFS20	NPN	20	25	40~	7mA / 10V	275	0.8	GNA

# Transistors

SST (U.S/European SOT-23) • SMT (SC-59/Japanese SOT-23)

## ●Packaging

Package	Packaging type	Packaging condition	Direction	Code	Quantity /Package (pcs)	Quantity /Unit (pcs)
SST	Taping	Embossed reel tape	1 Pin side on sprocket hole side	T116	3,000	-
			2 Pins side on sprocket hole side	T117		
SMT	Taping	Embossed reel taping	1 Pin side on sprocket hole side	T146	3,000	-
			2 Pins side on sprocket hole side	T147		

## ●Packaging specifications

(Unit : mm)

