

# Transistors

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

## ●NPN Transistors

General purpose small signal amplifiers

| SST     | SMT      | BV <sub>CBO</sub><br>Min. | BV <sub>CEO</sub><br>Min. | BV <sub>EBO</sub><br>Min. | I <sub>CBO</sub> @V <sub>CB</sub><br>Max. | h <sub>FE</sub><br>Min. Max. | @I <sub>C</sub> & V <sub>CE</sub>          | V <sub>CE</sub> (sat) & V <sub>BE</sub> (sat)<br>Max. Max. | @ I <sub>C</sub>     | C <sub>ob</sub><br>Max. | f <sub>T</sub><br>Min. @ I <sub>C</sub> | NF  | I <sub>C</sub><br>Max. | DIE<br>NO. | MARKING |
|---------|----------|---------------------------|---------------------------|---------------------------|-------------------------------------------|------------------------------|--------------------------------------------|------------------------------------------------------------|----------------------|-------------------------|-----------------------------------------|-----|------------------------|------------|---------|
| SST1130 | MMST1130 | 30V                       | 25V                       | 5V                        | 50nA 20V                                  | 120 360<br>60                | 2mA 1V<br>50mA 1V                          | 0.3V 0.95V                                                 | 50mA                 | 4pF                     |                                         |     | 200mA                  | C22        | R1C     |
| SST5088 | MMST5088 | 35V                       | 30V                       | 4.5V                      | 100nA 30V                                 | 300 900<br>300               | 100μA 5V<br>1.0mA 5V<br>10mA 5V            | 0.3V 0.8V<br>(V <sub>BE</sub> (on) )                       | 10mA                 | 4pF                     | 50MHz 0.5mA                             | 3dB | 200mA                  | C22        | R1Q     |
| SST5089 | MMST5089 | 30V                       | 25V                       | 4.5V                      | 100nA 25V                                 | 400 1200<br>450              | 0.1mA 5V<br>1mA 5V<br>10mA 5V              | 0.5V 0.8V<br>(V <sub>BE</sub> (on) )                       | 10mA                 | 4pF                     | 50MHz 0.5mA                             |     | 200mA                  | C22        | R1R     |
| SST5210 | —        | 50V                       | 50V                       | 4.5V                      | 50nA 35V                                  | 200 600<br>250               | 100μA 5V<br>1.0mA 5V<br>10mA 5V            | 0.7V 0.85V<br>(V <sub>BE</sub> (on) )                      | 10mA                 | 4pF                     | 30MHz 0.5mA                             | 2dB | 200mA                  | C22        | RSR     |
| SST6428 | MMST6428 | 60V                       | 50V                       | 6V                        | 100nA 30V                                 | 250 650<br>250               | 0.01mA 5V<br>0.1mA 5V<br>1mA 5V<br>10mA 5V | 0.2V 0.6V                                                  | 10mA<br>100mA        | 3pF                     | 100MHz 1mA                              |     | 200mA                  | C22        | R1K     |
| SST6838 | MMST6838 | 50V                       | 40V                       | 5V                        | 0.5μA 30V                                 | 200 150                      | 1mA 5V<br>10mA 5V                          | 0.4V                                                       | 50mA                 | 3.5pF                   | 50MHz 2mA                               |     | 200mA                  | C22        | RBR     |
| SST7208 | —        | 60V                       | 60V                       | 5V                        | 0.2μA 60V<br>(CER)                        | 75 100                       | 10mA 5V<br>1mA 5V                          | 0.5V 0.4V 0.3V<br>1.2V 1.0V 0.95V                          | 100mA<br>10mA<br>1mA |                         | 180MHz Typ.                             |     | 100mA                  | C22        | RBQ     |
| SST1S97 | —        | 60V                       | 40V                       | 6V                        | 50nA 40V                                  | 250 700                      | 0.1mA 5V                                   | 0.65V<br>(V <sub>BE</sub> (on) )                           | 0.1mA                | 4pF                     |                                         | 2dB | 200mA                  | C22        | R97     |
| SSTA20  | MMSTA20  | 40V                       | 40V                       | 5V                        | 100nA 30V                                 | 120                          | 2mA 1V                                     | 0.25V 0.95V                                                | 10mA                 | 4pF                     | 125MHz 5mA                              |     | 200mA                  | C22        | R1C     |

General purpose amplifiers and switches

| SST      | SMT       | BV <sub>CBO</sub><br>Min. | BV <sub>CEO</sub><br>Min. | BV <sub>EBO</sub><br>Min. | I <sub>CBO</sub> @V <sub>CB</sub><br>Max. | h <sub>FE</sub><br>Min. Max. | @I <sub>C</sub> & V <sub>CE</sub>                           | V <sub>CE</sub> (sat) & V <sub>BE</sub> (sat)<br>Max. Max. | @ I <sub>C</sub> | C <sub>ob</sub><br>Max. | f <sub>T</sub><br>Min. @ I <sub>C</sub> | t <sub>off</sub><br>Max. | I <sub>C</sub><br>Max. | DIE<br>NO. | MARKING |
|----------|-----------|---------------------------|---------------------------|---------------------------|-------------------------------------------|------------------------------|-------------------------------------------------------------|------------------------------------------------------------|------------------|-------------------------|-----------------------------------------|--------------------------|------------------------|------------|---------|
| SST2222  | MMST2222  | 60V                       | 30V                       | 5V                        | 100nA 50V                                 | 35 50 75<br>100 300          | 0.1mA 10V<br>1.0mA 10V<br>10mA 10V<br>150mA 1V<br>500mA 10V | 0.4V 1.6V                                                  | 1.3V 2.6V        | 150mA<br>500mA          | 8pF                                     | 250MHz 20mA              | 600mA                  | C31        | R1B     |
| SST2222A | MMST2222A | 75V                       | 40V                       | 6V                        | 100nA 60V                                 | 35 50 75<br>100 300          | 0.1mA 10V<br>1.0mA 10V<br>10mA 10V<br>150mA 1V<br>500mA 10V | 0.3V 1V                                                    | 1.2V 2V          | 150mA<br>500mA          | 8pF                                     | 250MHz 20mA              | 285ns 600mA            | C31        | R1P     |
| SST3904  | MMST3904  | 60V                       | 40V                       | 6V                        | 50nA 30V<br>(CEX)                         | 40 70 100<br>60 30           | 0.1mA 1V<br>1.0mA 1V<br>10mA 1V<br>50mA 1V<br>100mA 1V      | 0.2V 0.3V                                                  | 0.85V 0.95V      | 10mA<br>50mA            | 4pF                                     | 300MHz 10mA              | 250ns 200mA            | C37        | R1A     |
| SST4124  | MMST4124  | 30V                       | 25V                       | 5V                        | 50nA 20V                                  | 120 360<br>60                | 2.0mA 1V<br>50mA 1V                                         | 0.3V                                                       | 0.95V            | 50mA                    | 4pF                                     | 300MHz 10mA              | 200mA                  | C37        | R2C     |
| SST4400  | —         | 60V                       | 40V                       | 6V                        | 100nA 35V                                 | 20 40 50<br>150 20           | 1.0mA 1V<br>10mA 1V<br>150mA 1V<br>500mA 1V                 | 0.4V 0.75V                                                 | 0.95V 1.2V       | 150mA<br>500mA          | 6.5pF                                   | 200MHz 20mA              | 255ns 600mA            | C31        | R2Z     |
| SST4401  | MMST4401  | 60V                       | 40V                       | 6V                        | 100nA 35V                                 | 20 40 80<br>100 300          | 0.1mA 1V<br>1mA 1V<br>10mA 1V<br>150mA 1V<br>500mA 1V       | 0.4V 0.75V                                                 | 0.95V 1.2V       | 150mA<br>500mA          | 6.5pF                                   | 250MHz 20mA              | 225ns 600mA            | C31        | R2X     |

## Medium power amplifiers

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

## Darlington amplifiers

| SST     | SMT     | BV <sub>CBO</sub><br>Min. | BV <sub>CEO</sub><br>Min. | BV <sub>EBO</sub><br>Min. | I <sub>CBO</sub> @V <sub>CB</sub><br>Max. | h <sub>FE</sub><br>Min. Max.     | @I <sub>C</sub> & V <sub>CE</sub> | V <sub>CE</sub> (sat) & V <sub>BE</sub> (sat)<br>Max. Max. | @ I <sub>C</sub>   | C <sub>ob</sub><br>Max. | f <sub>T</sub> @ I <sub>C</sub><br>Min. Max. | NF   | I <sub>C</sub><br>Max. | DIE NO. | MARKING |
|---------|---------|---------------------------|---------------------------|---------------------------|-------------------------------------------|----------------------------------|-----------------------------------|------------------------------------------------------------|--------------------|-------------------------|----------------------------------------------|------|------------------------|---------|---------|
| SST6426 | —       | 40V                       | 40V                       | 12V                       | 50nA 30V                                  | 20K 200K<br>30K 300K<br>20K 200K | 10mA 5V<br>100mA 5V<br>500mA 5V   | 1.2V<br>1.5V                                               | 5mA<br>2.0V 500mA  | 7pF                     |                                              | 10dB | 500mA                  | D25     | RX7     |
| SST6427 | —       | 40V                       | 40V                       | 12V                       | 50nA 30V                                  | 10K 100K<br>20K 200K<br>14K 140K | 10mA 5V<br>100mA 5V<br>500mA 5V   | 1.2V<br>1.5V                                               | 50mA<br>2.0V 500mA | 7pF                     |                                              | 10dB | 500mA                  | D25     | R1J     |
| SSTA13  | MMSTA13 | (CES)<br>30V              |                           | 10V                       | 100nA 30V                                 | 5K<br>10K                        | 10mA 5V<br>100mA 5V               | 1.5V                                                       | 100mA              | 10pF                    | 125MHz 10mA                                  |      | 500mA                  | D25     | R1M     |
| SSTA14  | MMSTA14 | (CES)<br>30V              |                           | 10V                       | 100nA 30V                                 | 10K<br>20K                       | 10mA 5V<br>100mA 5V               | 1.5V                                                       | 100mA              | 10pF                    | 125MHz 10mA                                  |      | 500mA                  | D25     | R1N     |
| SSTA28  | MMSTA28 | (CES)<br>80V              |                           | 12V                       | 100nA 60V                                 | 10K<br>10K                       | 10mA 5V<br>100mA 5V               | 1.5V                                                       | 100mA              | 8pF                     | 125MHz 10mA                                  |      | 500mA                  | D69     | RAT     |
| SSTA29  | —       | (CES)<br>100V             |                           | 12V                       | 100nA 80V                                 | 10K<br>10K                       | 10mA 5V<br>100mA 5V               | 1.2V                                                       | 10mA               | 8pF                     | 125MHz 10mA                                  |      | 500mA                  | D69     | RAF     |

## RF/UHF/VHF amplifiers

| SST     | SMT      | BV <sub>CBO</sub><br>Min. | BV <sub>CEO</sub><br>Min. | BV <sub>EBO</sub><br>Min. | I <sub>CBO</sub> @V <sub>CB</sub><br>Max. | h <sub>FE</sub><br>Min. Max. | @I <sub>C</sub> & V <sub>CE</sub> | V <sub>CE</sub> (sat) & V <sub>BE</sub> (sat)<br>Max. Max. | @ I <sub>C</sub> | C <sub>ob</sub><br>Max. | f <sub>T</sub> @ I <sub>C</sub><br>Min. Max. | NF  | I <sub>C</sub><br>Max. | DIE NO. | MARKING |
|---------|----------|---------------------------|---------------------------|---------------------------|-------------------------------------------|------------------------------|-----------------------------------|------------------------------------------------------------|------------------|-------------------------|----------------------------------------------|-----|------------------------|---------|---------|
| SST1139 | MMST1139 | 30V                       | 25V                       | 3V                        | 100nA 25V                                 | 60                           | 1mA 10V                           | 0.5V                                                       | 4mA              | 1pF                     | 850MHz 4mA                                   |     | 30mA                   | C104    | R39     |
| SST5424 | MMST5424 | 30V                       | 20V                       | 3V                        | 100nA 18V<br>(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<br>(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                           | 1mA 1V                            | 0.4V                                                       | 1.0V 10mA        | 1.7pF                   | 600MHz 4mA                                   | 6dB | 50mA                   | C33     | R3B     |
| SST918S | MMST918S | 30V                       | 15V                       | 3V                        | 100nA 15V                                 | 75                           | 1mA 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<br/>2) Base<br/>3) Collector</p> | <p>1) Emitter<br/>2) Base<br/>3) Collector</p> <p>Each lead has same dimensions</p> |
| Actual size     |                                                |                                                                                     |
| Enlarged (×3.0) |                                                |                                                                                     |

# 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><br>Min. | BV <sub>CEO</sub><br>Min. | BV <sub>EBO</sub><br>Min. | I <sub>CBO</sub> @V <sub>CB</sub><br>Max. | h <sub>FE</sub><br>Min. Max. | @I <sub>C</sub> & V <sub>CE</sub> | V <sub>CE</sub> (sat) & V <sub>BE</sub> (sat)<br>Max. Max. | @ I <sub>C</sub> | C <sub>ob</sub><br>Max. | f <sub>T</sub><br>Min. @ I <sub>C</sub> | t <sub>off</sub> /NF<br>Max. | I <sub>C</sub><br>Max. | DIE<br>NO. | MARKING |
|---------|----------|---------------------------|---------------------------|---------------------------|-------------------------------------------|------------------------------|-----------------------------------|------------------------------------------------------------|------------------|-------------------------|-----------------------------------------|------------------------------|------------------------|------------|---------|
| SST5086 | MMST5086 | 50V                       | 50V                       | 3V                        | 100nA 40V                                 | 150 500                      | 100 μA 5V<br>1.0mA 5V<br>10mA 5V  | 0.3V                                                       | 10mA             | 6pF                     | 40MHz 0.5mA                             | NF<br>3dB                    | 200mA                  | A32        | R2P     |
| SST5087 | MMST5087 | 50V                       | 50V                       | 3V                        | 100nA 40V                                 | 250 800                      | 100 μA 5V<br>1.0mA 5V<br>10mA 5V  | 0.3V                                                       | 10mA             | 6pF                     | 40MHz 0.5mA                             | NF<br>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<br>100mA 5V                | 0.5V                                                       | 100mA            | 3.5pF                   | 50MHz 2mA                               |                              | 200mA                  | A32        | R2Q     |
| SST7157 | MMST7157 | 60V                       | 60V                       | 5V                        | 100nA 25V                                 | 100 100                      | 1mA 5V<br>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><br>Min. | BV <sub>CEO</sub><br>Min. | BV <sub>EBO</sub><br>Min. | I <sub>CBO</sub> @V <sub>CB</sub><br>Max. | h <sub>FE</sub><br>Min. Max. | @I <sub>C</sub> & V <sub>CE</sub> | V <sub>CE</sub> (sat) & V <sub>BE</sub> (sat)<br>Max. Max. | @ I <sub>C</sub> | C <sub>ob</sub><br>Max. | f <sub>T</sub><br>Min. @ I <sub>C</sub> | t <sub>off</sub><br>Max. | I <sub>C</sub><br>Max. | DIE<br>NO. | MARKING |     |
|----------|-----------|---------------------------|---------------------------|---------------------------|-------------------------------------------|------------------------------|-----------------------------------|------------------------------------------------------------|------------------|-------------------------|-----------------------------------------|--------------------------|------------------------|------------|---------|-----|
| SST2907  | MMST2907  | 60V                       | 40V                       | 5V                        | 100nA 50V                                 | 35                           | 0.1mA 10V                         | 0.4V 1.6V                                                  | 1.3V 2.6V        | 150mA 500mA             | 8pF                                     | 200MHz 50mA              | 180ns                  | 600mA      | A31     | R2B |
|          |           |                           |                           |                           |                                           | 50                           | 1.0mA 10V                         |                                                            |                  |                         |                                         |                          |                        |            |         |     |
|          |           |                           |                           |                           |                                           | 75                           | 10mA 10V                          |                                                            |                  |                         |                                         |                          |                        |            |         |     |
|          |           |                           |                           |                           |                                           | 100 300                      | 150mA 10V                         |                                                            |                  |                         |                                         |                          |                        |            |         |     |
|          |           |                           |                           |                           |                                           | 30                           | 500mA 10V                         |                                                            |                  |                         |                                         |                          |                        |            |         |     |
| SST2907A | MMST2907A | 60V                       | 60V                       | 5V                        | 100nA 50V                                 | 75                           | 0.1mA 10V                         | 0.4V 1.6V                                                  | 1.3V 2.6V        | 150mA 500mA             | 8pF                                     | 200MHz 50mA              | 180ns                  | 600mA      | A31     | R2F |
|          |           |                           |                           |                           |                                           | 100                          | 1.0mA 10V                         |                                                            |                  |                         |                                         |                          |                        |            |         |     |
|          |           |                           |                           |                           |                                           | 100                          | 10mA 10V                          |                                                            |                  |                         |                                         |                          |                        |            |         |     |
|          |           |                           |                           |                           |                                           | 100 300                      | 150mA 10V                         |                                                            |                  |                         |                                         |                          |                        |            |         |     |
|          |           |                           |                           |                           |                                           | 50                           | 500mA 10V                         |                                                            |                  |                         |                                         |                          |                        |            |         |     |
| SST3906  | MMST3906  | 40V                       | 40V                       | 5V                        | 50nA 30V<br>(CES)                         | 60                           | 0.1mA 10V                         | 0.25V 0.4V                                                 | 0.85V 0.95V      | 10mA 50mA               | 4.5pF                                   | 250MHz 10mA              | 300ns                  | 200mA      | A38     | R2A |
|          |           |                           |                           |                           |                                           | 80                           | 1.0mA 10V                         |                                                            |                  |                         |                                         |                          |                        |            |         |     |
|          |           |                           |                           |                           |                                           | 100 300                      | 10mA 10V                          |                                                            |                  |                         |                                         |                          |                        |            |         |     |
|          |           |                           |                           |                           |                                           | 60                           | 50mA 10V                          |                                                            |                  |                         |                                         |                          |                        |            |         |     |
|          |           |                           |                           |                           |                                           | 30                           | 100mA 10V                         |                                                            |                  |                         |                                         |                          |                        |            |         |     |
| SST4126  | MMST4126  | 25V                       | 25V                       | 4V                        | 50nA 20V                                  | 120 360                      | 2mA 10V                           | 0.4V                                                       | 0.95V            | 50mA                    | 4.5pF                                   | 250MHz 10mA              |                        | 200mA      | A38     | RVZ |
| SST4403  | MMST4403  | 40V                       | 40V                       | 5V                        | 100nA 35V                                 | 60                           | 50mA 10V                          | 0.4V 0.75V                                                 | 0.95V 1.3V       | 150mA 500mA             | 8.5pF                                   | 200MHz 20mA              | 255ns                  | 600mA      | A31     | R2T |
|          |           |                           |                           |                           |                                           | 30                           | 0.1mA 10V                         |                                                            |                  |                         |                                         |                          |                        |            |         |     |
|          |           |                           |                           |                           |                                           | 60                           | 1mA 10V                           |                                                            |                  |                         |                                         |                          |                        |            |         |     |
|          |           |                           |                           |                           |                                           | 100                          | 10mA 10V                          |                                                            |                  |                         |                                         |                          |                        |            |         |     |
|          |           |                           |                           |                           |                                           | 100 300                      | 150mA 10V                         |                                                            |                  |                         |                                         |                          |                        |            |         |     |
| 20       | 500mA 10V |                           |                           |                           |                                           |                              |                                   |                                                            |                  |                         |                                         |                          |                        |            |         |     |
| 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><br>Min. | BV <sub>CEO</sub><br>Min. | BV <sub>EBO</sub><br>Min. | I <sub>CBO</sub> @V <sub>CB</sub><br>Max. | h <sub>FE</sub><br>Min. Max. | @I <sub>C</sub> & V <sub>CE</sub> | V <sub>CE</sub> (sat) & V <sub>BE</sub> (sat)<br>Max. Max. | @ I <sub>C</sub> | C <sub>ob</sub><br>Max. | f <sub>T</sub><br>Min. @ I <sub>C</sub> | t <sub>off</sub> /NF<br>Max. | I <sub>C</sub><br>Max. | DIE<br>NO. | MARKING |
|--------|---------|---------------------------|---------------------------|---------------------------|-------------------------------------------|------------------------------|-----------------------------------|------------------------------------------------------------|------------------|-------------------------|-----------------------------------------|------------------------------|------------------------|------------|---------|
| SSTA55 | —       | 60V                       | 60V                       | 4V                        | 100nA 60V                                 | 100 100                      | 10mA 10V<br>100mA 10V             | 0.25V                                                      | 1.2V 100mA       |                         | 50MHz 100mA                             |                              | 500mA                  | B93        | R2H     |
| SSTA56 | MMSTA56 | 80V                       | 80V                       | 4V                        | 100nA 80V                                 | 100 100                      | 10mA 10V<br>100mA 10V             | 0.25V                                                      | 1.2V 100mA       |                         | 50MHz 100mA                             |                              | 500mA                  | B93        | R2G     |

### Darlington amplifiers

| SST    | SMT     | BV <sub>CBO</sub><br>Min. | BV <sub>CEO</sub><br>Min. | BV <sub>EBO</sub><br>Min. | I <sub>CBO</sub> @V <sub>CB</sub><br>Max. | h <sub>FE</sub><br>Min. Max. | @I <sub>C</sub> & V <sub>CE</sub> | V <sub>CE</sub> (sat) & V <sub>BE</sub> (sat)<br>Max. Max. | @ I <sub>C</sub> | C <sub>ob</sub><br>Max. | f <sub>T</sub><br>Min. @ I <sub>C</sub> | t <sub>off</sub> /NF<br>Max. | I <sub>C</sub><br>Max. | DIE<br>NO. | MARKING |
|--------|---------|---------------------------|---------------------------|---------------------------|-------------------------------------------|------------------------------|-----------------------------------|------------------------------------------------------------|------------------|-------------------------|-----------------------------------------|------------------------------|------------------------|------------|---------|
| SSTA63 | MMSTA63 | 30V                       | 30V (CES)                 | 10V                       | 100nA 30V                                 | 5K 10K                       | 10mA 10V<br>100mA 10V             | 1.5V                                                       | 100mA            | 7pF                     | 125MHz 10mA                             | 3dB                          | 300mA                  | B25        | R2U     |
| SSTA64 | MMSTA64 | 30V                       | 30V (CES)                 | 10V                       | 100nA 30V                                 | 10K 20K                      | 10mA 10V<br>100mA 10V             | 1.5V                                                       | 100mA            | 7pF                     | 125MHz 10mA                             | 3dB                          | 300mA                  | B25        | R2V     |
| SSTA65 | —       | 30V                       | 30V (CES)                 | 8V                        | 100nA 30V                                 | 50K 20K                      | 10mA 10V<br>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) |     |
|---------------|----------|----------|----------------|------------|----------|------------|-------------|---------------|-----|
| 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             | G1J |
|               | BC847B   | NPN      | 45             | 100        | 200~450  | 2mA / 5V   | 200         | 3             | G1K |
|               | BC847C   | NPN      | 45             | 100        | 450~800  | 2mA / 5V   | 200         | 3             | G1L |
|               | BC848A   | NPN      | 30             | 100        | 110~230  | 2mA / 5V   | 200         | 3             | G1J |
|               | 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 |
| Low Noise Amp | 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 |
|               | 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 |
| Driver        | 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 |
|               | BCW65A   | NPN      | 32             | 800        | 100~250  | 100mA / 1V | 100         | 12            | GEA |
|               | BCW65B   | NPN      | 32             | 800        | 160~400  | 100mA / 1V | 100         | 12            | GEB |
| Low Noise Amp | 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 |
|               | BCW69    | PNP      | 45             | 100        | 110~260  | 2mA / 5V   |             | 7             | GH1 |
|               | BCW70    | PNP      | 45             | 100        | 210~500  | 2mA / 5V   |             | 7             | GH2 |
| Driver        | BCW71    | NPN      | 45             | 100        | 110~230  | 2mA / 5V   |             | 4             | GK1 |
|               | BCW72    | NPN      | 45             | 100        | 200~450  | 2mA / 5V   |             | 4             | GK2 |
|               | 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 |
| Low Noise Amp | BCX20    | NPN      | 25             | 500        | 100~600  | 100mA / 1V |             |               | GU2 |
|               | 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 |
| 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

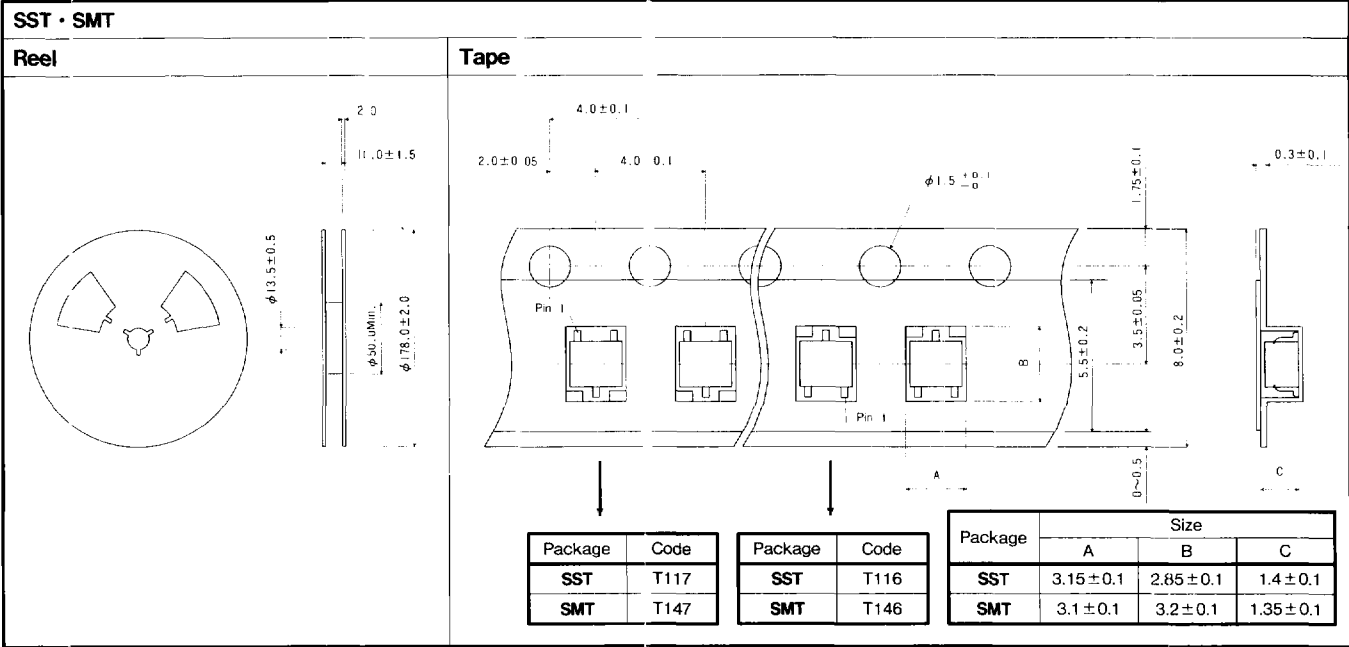
SST (U.S/ European SOT-23) • SMT (SC-59/ Japanese SOT-23)

●Packasing

| 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)



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