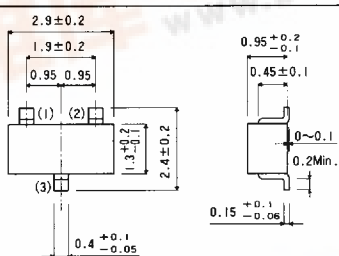
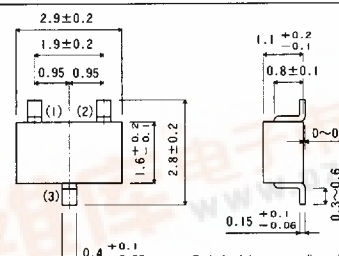


# U.S. European Type Series

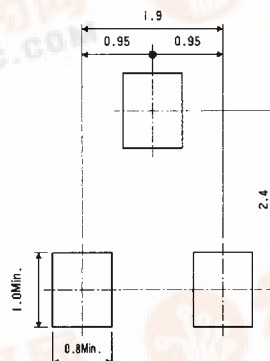
## SST (U.S. / European SOT-23) • SMT (SC-59 / Japanese SOT-23)

### Package style and dimensions

(Unit : mm)

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

Recommendable copper plate area dimension on printed circuit board



# SST/SMT (SOT-23)

S  
M  
D

## NPN Transistors

Electrical characteristics of each part No. can be looked up from the data of DIE No.

### General purpose small signal amplifiers

| Part No.<br>Package |          | 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> @I <sub>C</sub> & V <sub>CE</sub><br>Min. Max. | V <sub>CE(sat)</sub> & V <sub>BE(sat)</sub> @ I <sub>C</sub><br>Max. Max. | C <sub>ob</sub><br>Max. | f <sub>T</sub> @ I <sub>C</sub><br>Min. | NF  | I <sub>C</sub><br>Max. | Marking | DIE NO. |
|---------------------|----------|---------------------------|---------------------------|---------------------------|-------------------------------------------|----------------------------------------------------------------|---------------------------------------------------------------------------|-------------------------|-----------------------------------------|-----|------------------------|---------|---------|
| SST                 | SMT      |                           |                           |                           |                                           |                                                                |                                                                           |                         |                                         |     |                        |         |         |
| SST1130             | MMST1130 | 30V                       | 25V                       | 5V                        | 50nA 20V                                  | 120 360 2mA 1V<br>60 50mA 1V                                   | 0.3V 0.95V 50mA                                                           | 4pF                     |                                         |     | 200mA                  | R1C     | C22     |
| SST5088             | MMST5088 | 35V                       | 30V                       | 4.5V                      | 100nA 30V                                 | 300 900 100μA 5V<br>350 1.0mA 5V<br>300 10mA 5V                | 0.3V 0.8V 10mA<br>(V <sub>BE</sub> (on) )                                 | 4pF                     | 50MHz 0.5mA                             | 3dB | 200mA                  | R1Q     | C22     |
| SST5089             | MMST5089 | 30V                       | 25V                       | 4.5V                      | 100nA 25V                                 | 400 1200 0.1mA 5V<br>450 1mA 5V<br>400 10mA 5V                 | 0.5V 0.8V 10mA<br>(V <sub>BE</sub> (on) )                                 | 4pF                     | 50MHz 0.5mA                             |     | 200mA                  | R1R     | C22     |
| SST5210             | —        | 50V                       | 50V                       | 4.5V                      | 50nA 35V                                  | 200 600 100μA 5V<br>250 1.0mA 5V<br>250 10mA 5V                | 0.7V 0.85V 10mA<br>(V <sub>BE</sub> (on) )                                | 4pF                     | 30MHz 0.5mA                             | 2dB | 200mA                  | RSR     | C22     |
| SST6428             | MMST6428 | 60V                       | 50V                       | 6V                        | 100nA 30V                                 | 250 0.01mA 5V<br>250 0.1mA 5V<br>250 650 1mA 5V<br>250 10mA 5V | 0.2V 10mA<br>0.6V 100mA                                                   | 3pF                     | 100MHz 1mA                              |     | 200mA                  | R1K     | C22     |
| SST6838             | MMST6838 | 50V                       | 40V                       | 5V                        | 0.5μA 30V                                 | 200 1mA 5V<br>150 10mA 5V                                      | 0.4V 50mA                                                                 | 3.5pF                   | 50MHz 2mA                               |     | 200mA                  | RBR     | C22     |
| SST7208             | —        | 60V                       | 60V                       | 5V                        | 0.2μA 60V<br>(CER)                        | 75 10mA 5V<br>100 1mA 5V                                       | 0.5V 1.2V 100mA<br>0.4V 1.0V 10mA<br>0.3V 0.95V 1mA                       |                         | 180MHz Typ.                             |     | 100mA                  | RBQ     | C22     |
| SSTTIS97            | —        | 60V                       | 40V                       | 6V                        | 50nA 40V                                  | 250 700 0.1mA 5V                                               | 0.65V 0.1mA<br>(V <sub>BE</sub> (on) )                                    | 4pF                     |                                         | 2dB | 200mA                  | R97     | C22     |
| SSTA20              | MMSTA20  | 40V                       | 40V                       | 5V                        | 100nA 30V                                 | 120 2mA 1V                                                     | 0.25V 0.95V 10mA                                                          | 4pF                     | 125MHz 5mA                              |     | 200mA                  | R1C     | C22     |

SPECIFICATION TABLES  
BIPOLAR TRANSISTORS

### General purpose amplifiers and switches

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

# U.S. European Type Series

## NPN Transistors

Electrical characteristics of each part No. can be looked up from the data of DIE No.

### ■ Medium power amplifiers

| Part No.<br>Package |         | 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> @I <sub>C</sub> & V <sub>CE</sub><br>Min. Max. |      |    | V <sub>CE(sat)</sub><br>Max. & V <sub>BE(sat)</sub><br>Max. @ I <sub>C</sub> | Cob<br>Max. | f <sub>T</sub><br>Min. @ I <sub>C</sub> | t <sub>off</sub><br>Max. | I <sub>C</sub><br>Max. | Marking | DIE<br>NO. |
|---------------------|---------|---------------------------|---------------------------|---------------------------|-------------------------------------------|----------------------------------------------------------------|------|----|------------------------------------------------------------------------------|-------------|-----------------------------------------|--------------------------|------------------------|---------|------------|
| SST                 | SMT     |                           |                           |                           |                                           |                                                                |      |    |                                                                              |             |                                         |                          |                        |         |            |
| SSTA05              | —       | 60V                       | 60V                       | 4V                        | 100nA 60V                                 | 100                                                            | 10mA | 1V | 0.25V (V <sub>BE</sub> (on) ) 1.2V                                           | 100mA       | 100MHz                                  | 10mA                     | 500mA                  | R1H     | D16        |
| SSTA06              | MMSTA06 | 80V                       | 80V                       | 4V                        | 100nA 80V                                 | 100                                                            | 10mA | 1V | 0.25V (V <sub>BE</sub> (on) ) 1.2V                                           | 100mA       | 100MHz                                  | 10mA                     | 500mA                  | R1G     | D16        |

### ■ Darlington amplifiers

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

### ■ RF/UHF/VHF amplifiers

| Part No.<br>Package |          | 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> @I <sub>C</sub> & V <sub>CE</sub><br>Min. Max. |       |     | V <sub>CE(sat)</sub><br>Max. & V <sub>BE(sat)</sub><br>Max. @ I <sub>C</sub> | Cob<br>Max. | f <sub>T</sub><br>Min. @ I <sub>C</sub> | NF    | I <sub>C</sub><br>Max. | Marking | DIE<br>NO. |
|---------------------|----------|---------------------------|---------------------------|---------------------------|-------------------------------------------|----------------------------------------------------------------|-------|-----|------------------------------------------------------------------------------|-------------|-----------------------------------------|-------|------------------------|---------|------------|
| SST                 | SMT      |                           |                           |                           |                                           |                                                                |       |     |                                                                              |             |                                         |       |                        |         |            |
| SST1139             | MMST1139 | 30V                       | 25V                       | 3V                        | 100nA 25V                                 | 60                                                             | 4mA   | 10V | 0.5V 4mA                                                                     | 1pF         | 850MHz                                  | 4mA   | 30mA                   | R39     | C104       |
| 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                   | R24     | C33        |
| 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                   | R3B     | C33        |
| SST918              | —        | 30V                       | 15V                       | 3V                        | 100nA 15V                                 | 20                                                             | 3mA   | 1V  | 0.4V 1.0V 10mA                                                               | 1.7pF       | 600MHz                                  | 4mA   | 50mA                   | R3B     | C33        |
| SST918S             | MMST918S | 30V                       | 15V                       | 3V                        | 100nA 15V                                 | 75                                                             | 3mA   | 1V  | 0.4V 1.0V 10mA                                                               | 1.7pF       | 600MHz                                  | 4mA   | 50mA                   | RVY     | C33        |

# SST/SMT (SOT-23)

S  
M  
D

## PNP Transistors

Electrical characteristics of each part No. can be looked up from the data of DIE No.

### ■ General purpose small signal amplifiers

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

### ■ General purpose amplifiers and switches

| Part No.<br>Package |           | 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> @ I <sub>C</sub> & V <sub>CE</sub><br>Min. Max.                    | V <sub>CE(sat)</sub> & V <sub>BE(sat)</sub> @ I <sub>C</sub><br>Max. Max. | C <sub>ob</sub><br>Max. | f <sub>T</sub> @ I <sub>C</sub><br>Min. | t <sub>off</sub><br>Max. | I <sub>C</sub><br>Max. | Marking | DIE<br>NO. |
|---------------------|-----------|---------------------------|---------------------------|---------------------------|--------------------------------------------|------------------------------------------------------------------------------------|---------------------------------------------------------------------------|-------------------------|-----------------------------------------|--------------------------|------------------------|---------|------------|
| SST                 | SMT       |                           |                           |                           |                                            |                                                                                    |                                                                           |                         |                                         |                          |                        |         |            |
| SST2907             | MMST2907  | 60V                       | 40V                       | 5V                        | 100nA 50V                                  | 35 0.1mA 10V<br>50 1.0mA 10V<br>75 10mA 10V<br>100 300 150mA 10V<br>30 500mA 10V   | 0.4V 1.3V 150mA<br>1.6V 2.6V 500mA                                        | 8pF                     | 200MHz 50mA                             | 180ns                    | 600mA                  | R2B     | A31        |
| SST2907A            | MMST2907A | 60V                       | 60V                       | 5V                        | 100nA 50V                                  | 75 0.1mA 10V<br>100 1.0mA 10V<br>100 10mA 10V<br>100 300 150mA 10V<br>50 500mA 10V | 0.4V 1.3V 150mA<br>1.6V 2.6V 500mA                                        | 8pF                     | 200MHz 50mA                             | 180ns                    | 600mA                  | R2F     | A31        |
| SST3906             | MMST3906  | 40V                       | 40V                       | 5V                        | 50nA 30V (CES)                             | 60 0.1mA 1V<br>80 1.0mA 1V<br>100 300 10mA 1V<br>60 50mA 1V<br>30 100mA 1V         | 0.25V 0.85V 10mA<br>0.4V 0.95V 50mA                                       | 4.5pF                   | 250MHz 10mA                             | 300ns                    | 200mA                  | R2A     | A38        |
| SST4126             | MMST4126  | 25V                       | 25V                       | 4V                        | 50nA 20V                                   | 120 360 2mA 1V<br>60 50mA 1V<br>30 0.1mA 1V<br>60 1mA 1V                           | 0.4V 0.95V 50mA                                                           | 4.5pF                   | 250MHz 10mA                             |                          | 200mA                  | RVZ     | A38        |
| SST4403             | MMST4403  | 40V                       | 40V                       | 5V                        | 100nA 35V                                  | 100 0.1mA 1V<br>100 10mA 1V<br>100 300 150mA 2V<br>20 500mA 2V                     | 0.4V 0.95V 150mA<br>0.75V 1.3V 500mA                                      | 8.5pF                   | 200MHz 20mA                             | 255ns                    | 600mA                  | R2T     | A31        |
| SSTTIS93            | —         | 40V                       | 40V                       | 5V                        | 100nA 20V                                  | 100 300 50mA 2V                                                                    | 0.25V 50mA                                                                |                         |                                         |                          | 800mA                  | R93     | A31        |

SPECIFICATION TABLES  
BIPOLAR TRANSISTORS

# U.S. European Type Series

## PNP Transistors

Electrical characteristics of each Part No. can be looked up from the data of DIE No.

### ■ Medium power amplifiers

| Part No. |         | BV <sub>CBO</sub><br>Min. | BV <sub>CEO</sub><br>Min. | BV <sub>EBO</sub><br>Min. | I <sub>CBO</sub><br>Max. | @V <sub>CB</sub> | h <sub>FE</sub><br>Min. Max. | @I <sub>C</sub> & V <sub>CE</sub> | V <sub>CE(sat)</sub><br>Max. | & V <sub>BE(sat)</sub><br>Max. | @ I <sub>C</sub> | Cob<br>Max. | f <sub>T</sub><br>Min. | @ I <sub>C</sub> | t <sub>off</sub><br>Max. | I <sub>C</sub><br>Max. | Marking | DIE<br>NO. |
|----------|---------|---------------------------|---------------------------|---------------------------|--------------------------|------------------|------------------------------|-----------------------------------|------------------------------|--------------------------------|------------------|-------------|------------------------|------------------|--------------------------|------------------------|---------|------------|
| SST      | SMT     |                           |                           |                           |                          |                  |                              |                                   |                              |                                |                  |             |                        |                  |                          |                        |         |            |
| SSTA55   | —       | 60V                       | 60V                       | 4V                        | 100nA                    | 60V              | 100<br>100                   | 10mA 1V<br>100mA 1V               | 0.25V                        | 1.2V                           | 100mA            |             | 50MHz                  | 100mA            |                          | 500mA                  | R2H     | B93        |
| SSTA56   | MMSTA56 | 80V                       | 80V                       | 4V                        | 100nA                    | 80V              | 100<br>100                   | 10mA 1V<br>100mA 1V               | 0.25V                        | 1.2V                           | 100mA            |             | 50MHz                  | 100mA            |                          | 500mA                  | R2G     | B93        |

### ■ Darlington amplifiers

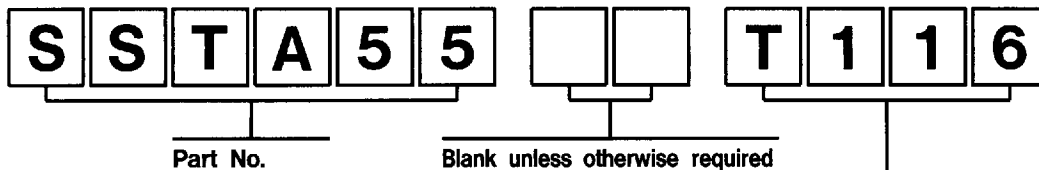
| Part No. |         | BV <sub>CBO</sub><br>Min. | BV <sub>CEO</sub><br>Min. | BV <sub>EBO</sub><br>Min. | I <sub>CBO</sub><br>Max. | @V <sub>CB</sub> | h <sub>FE</sub><br>Min. Max. | @I <sub>C</sub> & V <sub>CE</sub> | V <sub>CE(sat)</sub><br>Max. | & V <sub>BE(sat)</sub><br>Max. | @ I <sub>C</sub>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

# SST/SMT (SOT-23)

S  
M  
D

## Ordering Information

Product designation consists of type No. and packaging specification code is needed for ordering information.



## Packaging specifications code

| Package | Code | Packaging type | Packaging condition        | Direction                         | Quantity/Taping (pcs) |
|---------|------|----------------|----------------------------|-----------------------------------|-----------------------|
| SST     | T116 | Taping         | Embossed smaller reel tape | 1 pin side on sprocket hole side  | 3,000                 |
|         | T117 |                |                            | 2 pins side on sprocket hole side |                       |
|         | T216 |                | Embossed larger reel tape  | 1 pin side on sprocket hole side  | 10,000                |
|         | —    |                |                            | 2 pins side on sprocket hole side |                       |
| SMT     | T146 | Taping         | Embossed smaller reel tape | 1 pin side on sprocket hole side  | 3,000                 |
|         | T147 |                |                            | 2 pins side on sprocket hole side |                       |
|         | T246 |                | Embossed larger reel tape  | 1 pin side on sprocket hole side  | 10,000                |
|         | T247 |                |                            | 2 pins side on sprocket hole side |                       |

SPECIFICATION TABLES  
BIPOLAR TRANSISTORS

## Packaging specifications

(Unit : mm)

| SST • SMT                                                                                                    |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      |            |            |  |     |              |      |             |      |     |              |      |             |      |         |      |  |  |  |   |   |   |     |            |            |           |     |           |           |            |         |      |  |     |              |      |             |   |     |              |      |             |      |
|--------------------------------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------|------------|--|-----|--------------|------|-------------|------|-----|--------------|------|-------------|------|---------|------|--|--|--|---|---|---|-----|------------|------------|-----------|-----|-----------|-----------|------------|---------|------|--|-----|--------------|------|-------------|---|-----|--------------|------|-------------|------|
| Reel                                                                                                         | Tape                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 |            |            |  |     |              |      |             |      |     |              |      |             |      |         |      |  |  |  |   |   |   |     |            |            |           |     |           |           |            |         |      |  |     |              |      |             |   |     |              |      |             |      |
| <div>SMALLER REEL</div> <div><p>2.0<br/>10.0 ± 1.5<br/>φ13.5 ± 0.5<br/>φ50.0 Min.<br/>φ178.0 ± 2.0</p></div> | <div><p>4.0 ± 0.1<br/>2.0 ± 0.05<br/>4.0 ± 0.1<br/>φ1.5 +0.1/-0<br/>1.75 ± 0.1<br/>0.3 ± 0.1<br/>5.5 ± 0.2<br/>3.5 ± 0.05<br/>8.0 ± 0.2<br/>0 ~ 0.5<br/>Feeding direction</p></div> <div><table><tr><th>Package</th><th colspan="2">Code</th></tr><tr><td rowspan="2">SST</td><td>Smaller reel</td><td>T116</td></tr><tr><td>Larger reel</td><td>T216</td></tr><tr><td rowspan="2">SMT</td><td>Smaller reel</td><td>T146</td></tr><tr><td>Larger reel</td><td>T246</td></tr></table></div> <div><table><tr><th>Package</th><th colspan="3">Size</th></tr><tr><th></th><th>A</th><th>B</th><th>C</th></tr><tr><td>SST</td><td>3.15 ± 0.1</td><td>2.85 ± 0.1</td><td>1.4 ± 0.1</td></tr><tr><td>SMT</td><td>3.1 ± 0.1</td><td>3.2 ± 0.1</td><td>1.35 ± 0.1</td></tr></table></div> <div><table><tr><th>Package</th><th colspan="2">Code</th></tr><tr><td rowspan="2">SST</td><td>Smaller reel</td><td>T117</td></tr><tr><td>Larger reel</td><td>—</td></tr><tr><td rowspan="2">SMT</td><td>Smaller reel</td><td>T147</td></tr><tr><td>Larger reel</td><td>T247</td></tr></table></div> | Package    | Code       |  | SST | Smaller reel | T116 | Larger reel | T216 | SMT | Smaller reel | T146 | Larger reel | T246 | Package | Size |  |  |  | A | B | C | SST | 3.15 ± 0.1 | 2.85 ± 0.1 | 1.4 ± 0.1 | SMT | 3.1 ± 0.1 | 3.2 ± 0.1 | 1.35 ± 0.1 | Package | Code |  | SST | Smaller reel | T117 | Larger reel | — | SMT | Smaller reel | T147 | Larger reel | T247 |
| Package                                                                                                      | Code                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 |            |            |  |     |              |      |             |      |     |              |      |             |      |         |      |  |  |  |   |   |   |     |            |            |           |     |           |           |            |         |      |  |     |              |      |             |   |     |              |      |             |      |
| SST                                                                                                          | Smaller reel                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         | T116       |            |  |     |              |      |             |      |     |              |      |             |      |         |      |  |  |  |   |   |   |     |            |            |           |     |           |           |            |         |      |  |     |              |      |             |   |     |              |      |             |      |
|                                                                                                              | Larger reel                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          | T216       |            |  |     |              |      |             |      |     |              |      |             |      |         |      |  |  |  |   |   |   |     |            |            |           |     |           |           |            |         |      |  |     |              |      |             |   |     |              |      |             |      |
| SMT                                                                                                          | Smaller reel                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         | T146       |            |  |     |              |      |             |      |     |              |      |             |      |         |      |  |  |  |   |   |   |     |            |            |           |     |           |           |            |         |      |  |     |              |      |             |   |     |              |      |             |      |
|                                                                                                              | Larger reel                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          | T246       |            |  |     |              |      |             |      |     |              |      |             |      |         |      |  |  |  |   |   |   |     |            |            |           |     |           |           |            |         |      |  |     |              |      |             |   |     |              |      |             |      |
| Package                                                                                                      | Size                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 |            |            |  |     |              |      |             |      |     |              |      |             |      |         |      |  |  |  |   |   |   |     |            |            |           |     |           |           |            |         |      |  |     |              |      |             |   |     |              |      |             |      |
|                                                                                                              | A                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    | B          | C          |  |     |              |      |             |      |     |              |      |             |      |         |      |  |  |  |   |   |   |     |            |            |           |     |           |           |            |         |      |  |     |              |      |             |   |     |              |      |             |      |
| SST                                                                                                          | 3.15 ± 0.1                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           | 2.85 ± 0.1 | 1.4 ± 0.1  |  |     |              |      |             |      |     |              |      |             |      |         |      |  |  |  |   |   |   |     |            |            |           |     |           |           |            |         |      |  |     |              |      |             |   |     |              |      |             |      |
| SMT                                                                                                          | 3.1 ± 0.1                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            | 3.2 ± 0.1  | 1.35 ± 0.1 |  |     |              |      |             |      |     |              |      |             |      |         |      |  |  |  |   |   |   |     |            |            |           |     |           |           |            |         |      |  |     |              |      |             |   |     |              |      |             |      |
| Package                                                                                                      | Code                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 |            |            |  |     |              |      |             |      |     |              |      |             |      |         |      |  |  |  |   |   |   |     |            |            |           |     |           |           |            |         |      |  |     |              |      |             |   |     |              |      |             |      |
| SST                                                                                                          | Smaller reel                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         | T117       |            |  |     |              |      |             |      |     |              |      |             |      |         |      |  |  |  |   |   |   |     |            |            |           |     |           |           |            |         |      |  |     |              |      |             |   |     |              |      |             |      |
|                                                                                                              | Larger reel                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          | —          |            |  |     |              |      |             |      |     |              |      |             |      |         |      |  |  |  |   |   |   |     |            |            |           |     |           |           |            |         |      |  |     |              |      |             |   |     |              |      |             |      |
| SMT                                                                                                          | Smaller reel                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         | T147       |            |  |     |              |      |             |      |     |              |      |             |      |         |      |  |  |  |   |   |   |     |            |            |           |     |           |           |            |         |      |  |     |              |      |             |   |     |              |      |             |      |
|                                                                                                              | Larger reel                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          | T247       |            |  |     |              |      |             |      |     |              |      |             |      |         |      |  |  |  |   |   |   |     |            |            |           |     |           |           |            |         |      |  |     |              |      |             |   |     |              |      |             |      |
| <div>LARGER REEL</div> <div><p>1.5 ~ 2.0<br/>8.4 ± 1.5<br/>φ13 ± 0.5<br/>Min. φ55<br/>φ330 Max.</p></div>    |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      |            |            |  |     |              |      |             |      |     |              |      |             |      |         |      |  |  |  |   |   |   |     |            |            |           |     |           |           |            |         |      |  |     |              |      |             |   |     |              |      |             |      |