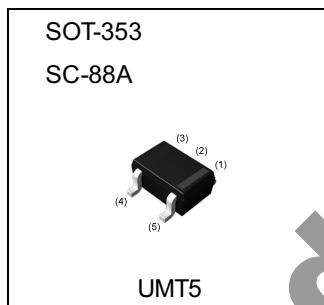


| Parameter | Value |
|-----------|-------|
| V_{CEO} | 50V |
| I_C | 150mA |

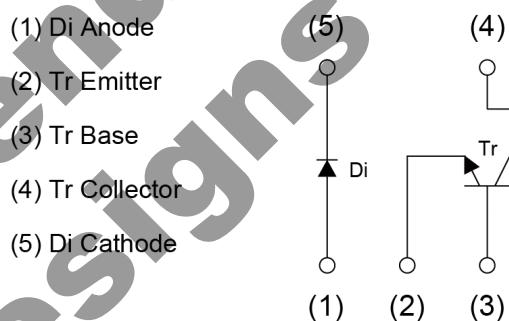
●Outline



●Features

- 1) The 2SC4617 and a diode are housed independently in a SOT-353 package.

●Inner circuit



●Application

Low-frequency

●Packaging specifications

| Part No. | Package | Package size | Taping code | Reel size (mm) | Tape width (mm) | Basic ordering unit.(pcs) | Marking |
|----------|-------------------|--------------|-------------|----------------|-----------------|---------------------------|---------|
| UML2N | SOT-353 (UMT5) | 2021 | TR | 180 | 8 | 3000 | L2 |

● **Absolute maximum ratings ($T_a = 25^\circ\text{C}$)**

Pin No.1-5 Diode

| Parameter | Symbol | Value | Unit |
|---------------------------------|-------------|-------|------|
| Reverse voltage | V_R | 80 | V |
| Repetitive peak reverse voltage | V_{RM} | 80 | V |
| Average rectified current | I_F | 100 | mA |
| Peak forward current | I_{FM} | 300 | mA |
| Surge current | I_{surge} | 4 | A |
| Rated in slash put frequency | f | 100 | MHz |

Pin No.2-3-4 Transistor

| Parameter | Symbol | Value | Unit |
|---------------------------|-----------|-------|------|
| Collector-base voltage | V_{CBO} | 60 | V |
| Collector-emitter voltage | V_{CEO} | 50 | V |
| Emitter-base voltage | V_{EBO} | 6 | V |
| Collector current | I_C | 150 | mA |

Each element

| Parameter | Symbol | Value | Unit |
|------------------------------|---------------|------------|----------|
| Power dissipation | $P_D^{*1,*2}$ | 150 | mW/Total |
| Junction temperature | T_j | 150 | °C |
| Range of storage temperature | T_{stg} | -55 ~ +150 | °C |

●Electrical characteristics ($T_a = 25^\circ\text{C}$)

Pin No.1-5 Diode

| Parameter | Symbol | Conditions | Values | | | Unit |
|-------------------------------|----------|---|--------|------|------|------|
| | | | Min. | Typ. | Max. | |
| Forward voltage | V_F | $I_F = 100\text{mA}$ | - | - | 1.2 | V |
| Reverse current | I_R | $V_R = 70\text{V}$ | - | 100 | - | nA |
| Capacitance between terminals | C_T | $V_R = 6\text{V}$, $f = 1\text{MHz}$ | - | - | 3.5 | pF |
| Reverse recovery time | t_{rr} | $V_R = 6\text{V}$, $I_F = 5\text{mA}$ $R_L = 50\Omega$ (Figure 1) | - | - | 4 | ns |

Pin No.2-3-4 Transistor

| Parameter | Symbol | Conditions | Values | | | Unit |
|--------------------------------------|----------------------|--|--------|------|------|------|
| | | | Min. | Typ. | Max. | |
| Collector-base breakdown voltage | BV_{CBO} | $I_C = 50\mu\text{A}$ | 60 | - | - | V |
| Collector-emitter breakdown voltage | BV_{CEO} | $I_C = 1\text{mA}$ | 50 | - | - | V |
| Emitter-base breakdown voltage | BV_{EBO} | $I_E = 50\mu\text{A}$ | 6 | - | - | V |
| Collector cut-off current | I_{CBO} | $V_{CB} = 60\text{V}$ | - | - | 100 | nA |
| Emitter cut-off current | I_{EBO} | $V_{EB} = 5\text{V}$ | - | - | 100 | nA |
| Collector-emitter saturation voltage | $V_{CE(\text{sat})}$ | $I_C = 50\text{mA}$, $I_B = 5\text{mA}$ | - | - | 400 | mV |
| DC current gain | h_{FE} | $V_{CE} = 6\text{V}$, $I_C = 1\text{mA}$ | 120 | - | 560 | - |
| Transition frequency | f_T^{*3} | $V_{CE} = 12\text{V}$, $I_E = -2\text{mA}$, $f = 100\text{MHz}$ | - | 180 | - | MHz |
| Output capacitance | C_{ob} | $V_{CB} = -12\text{V}$, $I_E = 0\text{A}$, $f = 1\text{MHz}$ | - | 2.0 | 3.5 | pF |

*1 Each terminal mounted on a reference land.

*2 120mW per element must not be exceeded.

*3 Characteristics of built-in transistor.

● Electrical characteristic curves ($T_a=25^{\circ}\text{C}$) <For Diode>

Fig.1 Reverse Current vs.
Reverse Voltage

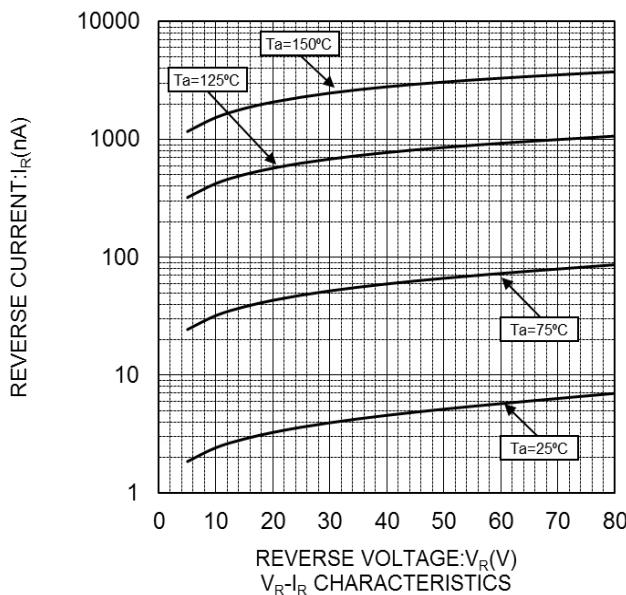


Fig.2 Forward Current vs.
Forward Voltage

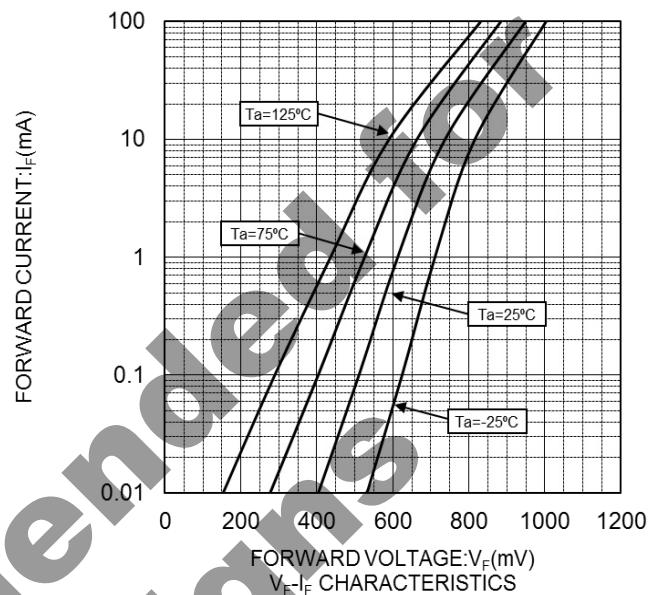
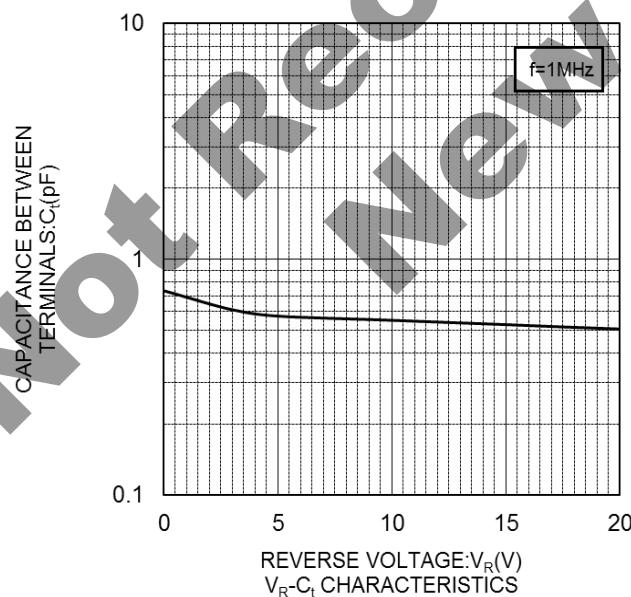


Fig.3 Capacitance Between Terminals
vs. Reverse Voltage



● Electrical characteristic curves ($T_a=25^\circ\text{C}$) <For Transistor>

Fig.4 Ground Emitter Propagation Characteristics

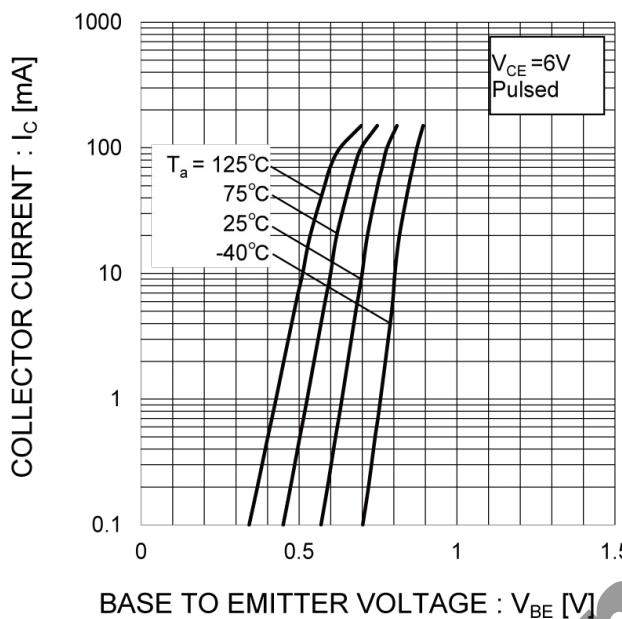


Fig.5 Typical Output Characteristics

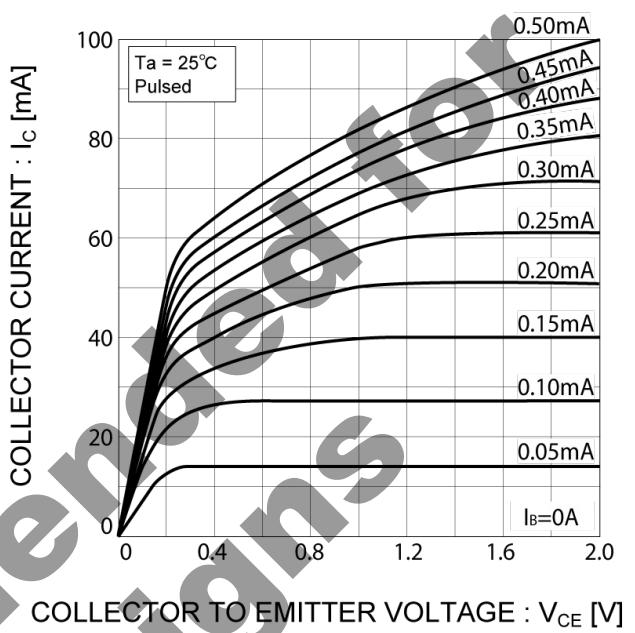


Fig.6 DC Current Gain vs. Collector Current (I)

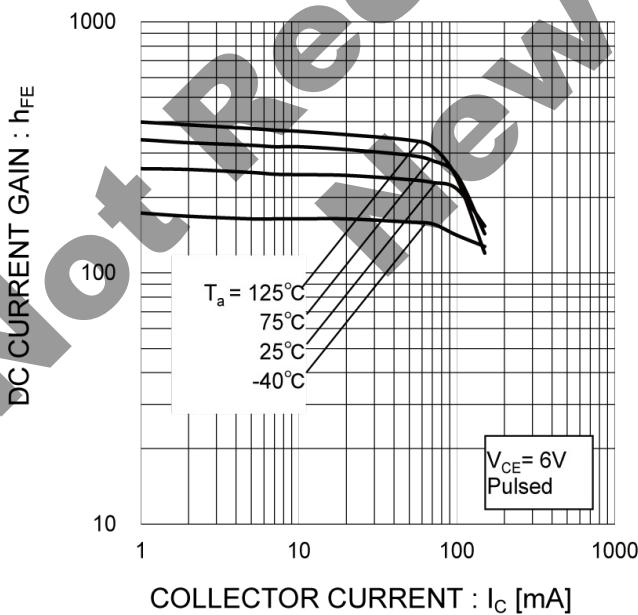
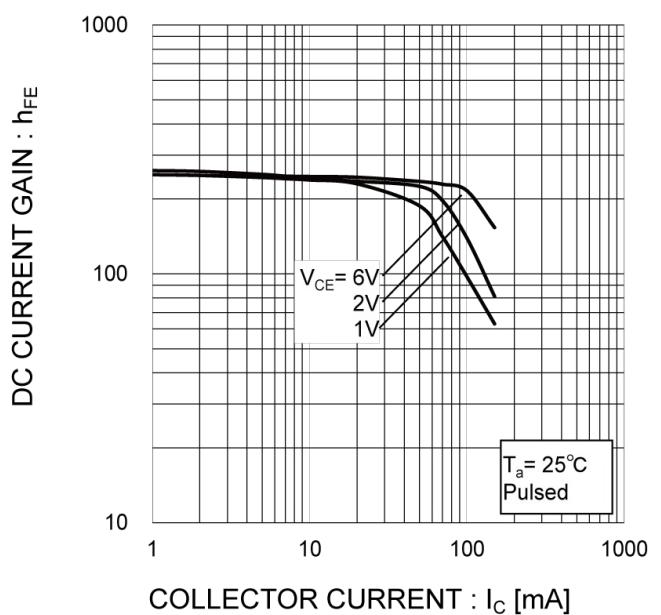


Fig.7 DC Current Gain vs. Collector Current (II)



● Electrical characteristic curves ($T_a=25^\circ\text{C}$) <For Transistor>

Fig.8 Collector-Emitter Saturation
Voltage vs. Collector Current (I_c)

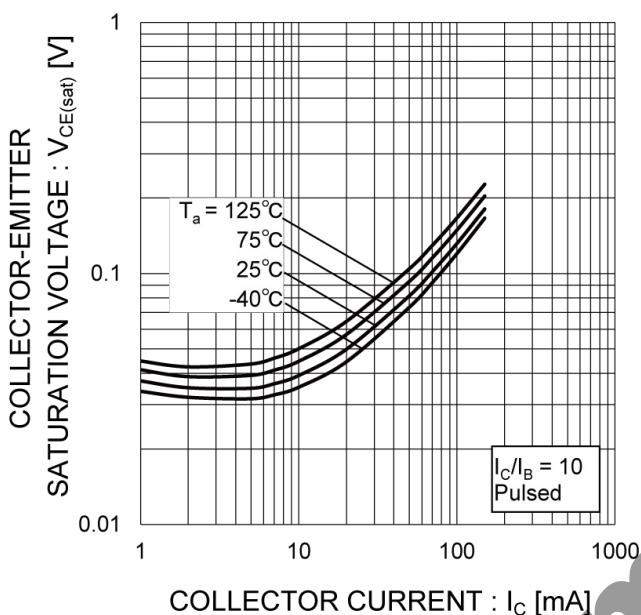


Fig.9 Collector-Emitter Saturation
Voltage vs. Collector Current (II)

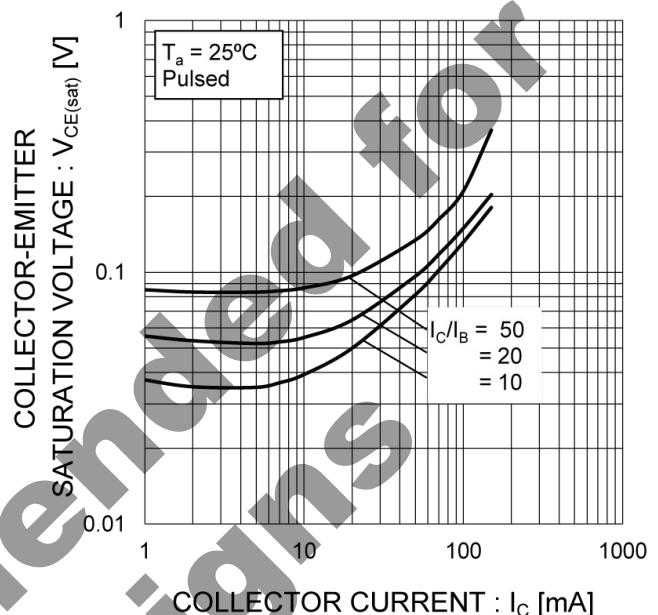


Fig.10 Base-Emitter Saturation Voltage
vs. Collector Current

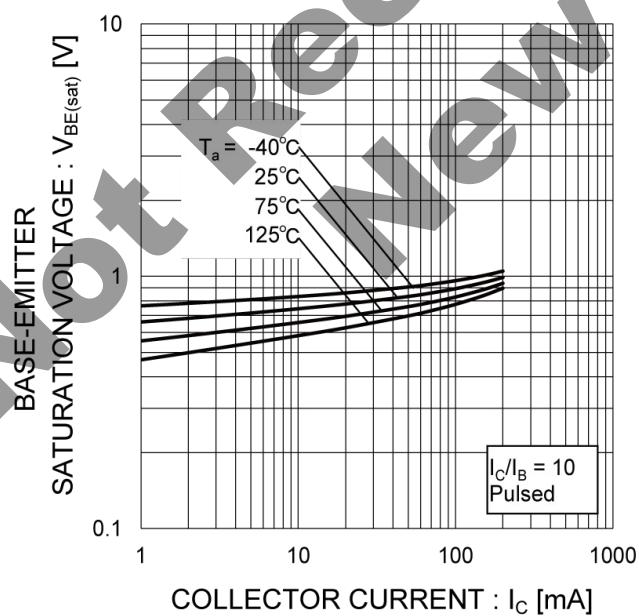
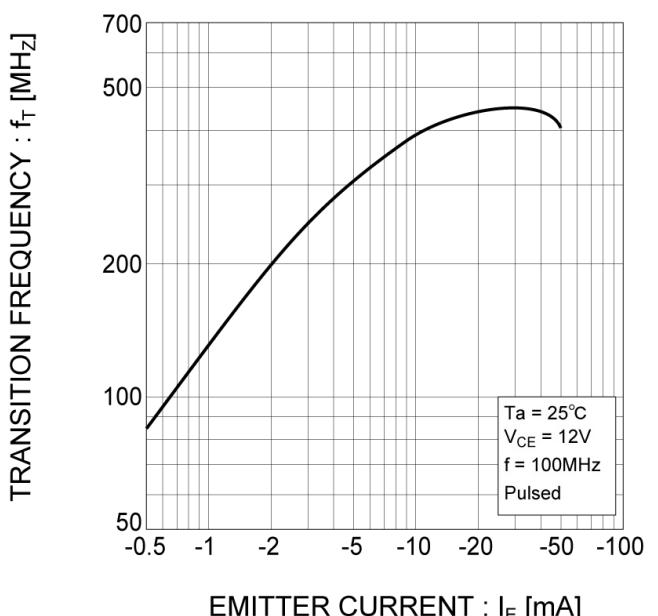


Fig.11 Gain Bandwidth Product vs.
Emitter Current



● Electrical characteristic curves ($T_a=25^\circ\text{C}$) <For Transistor>

Fig.12 Emitter Input Capacitance vs.

Emitter-Base Voltage

Collector Output Capacitance vs.

Collector-Base Voltage

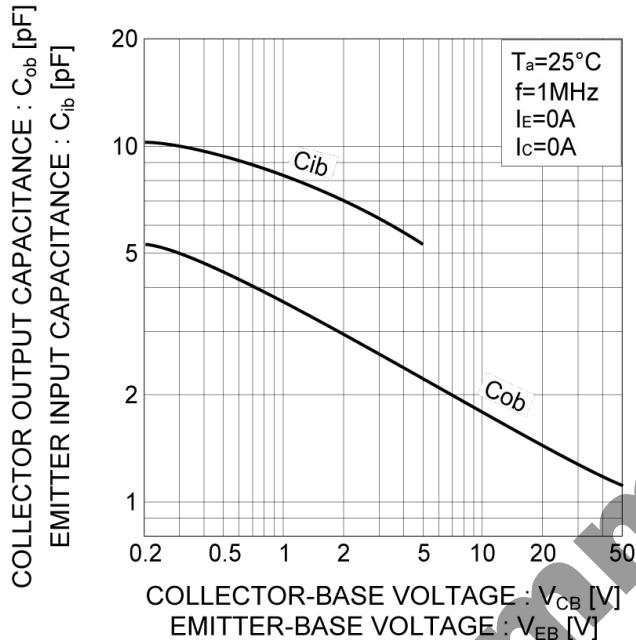
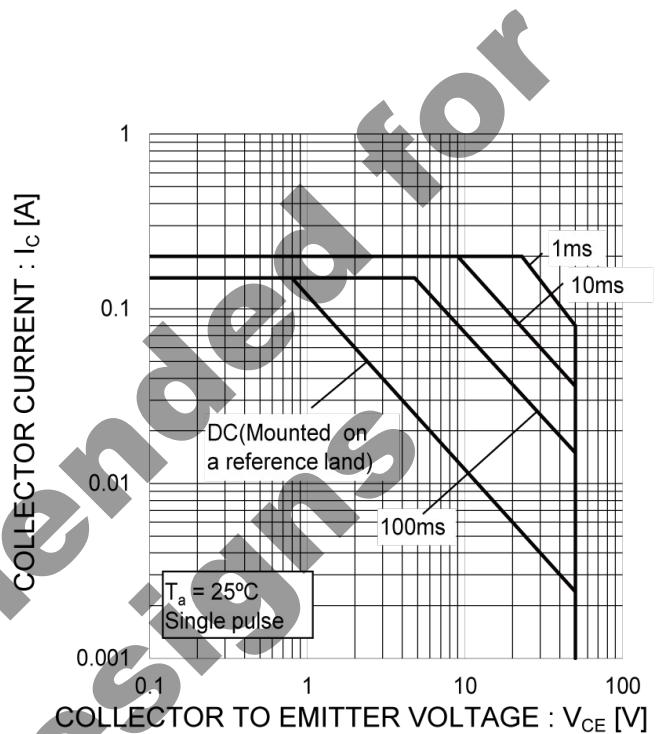
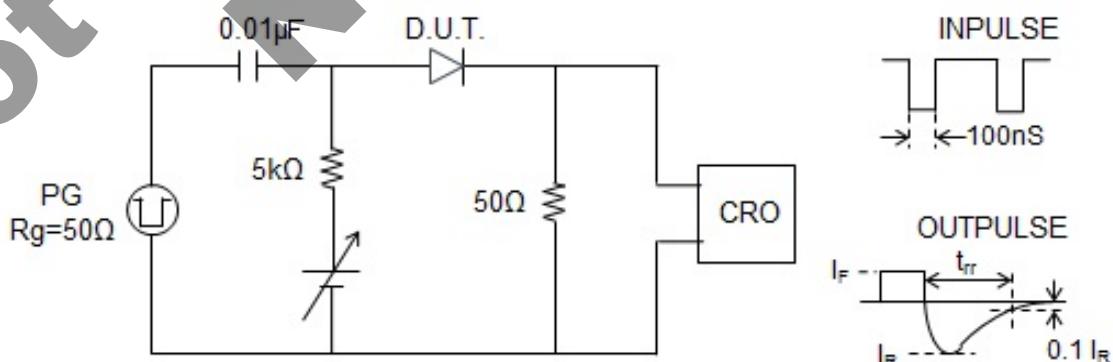


Fig.13 Safe Operating Area



(figure 1) Reverse recovery time test circuit

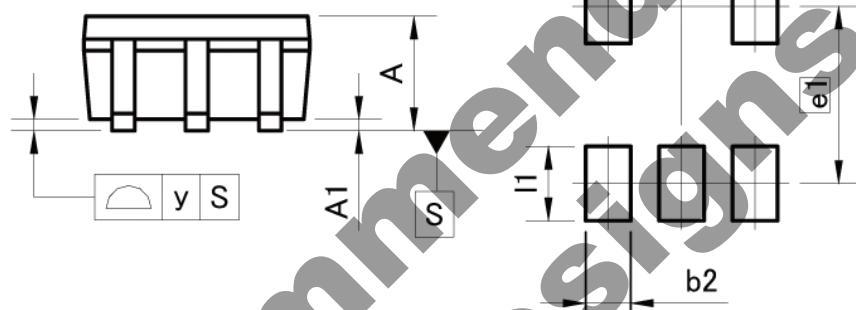
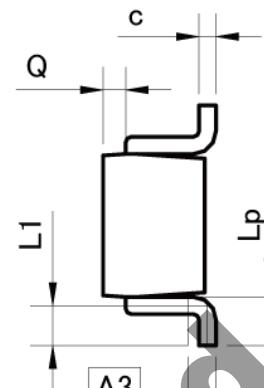
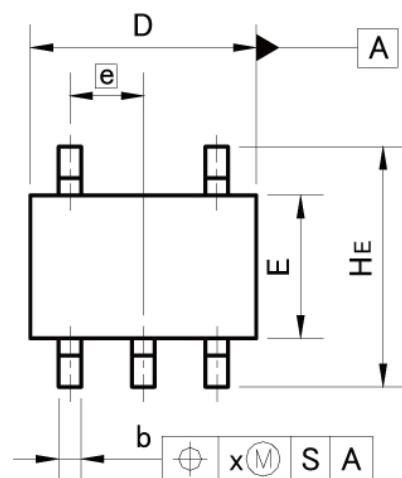


●Dimensions

SOT-353

SC-88A

(UMT5)



Pattern of terminal position areas
[Not a pattern of soldering pads]

| DIM | MILIMETERS | | INCHES | |
|-----|------------|------|--------|-------|
| | MIN | MAX | MIN | MAX |
| A | 0.80 | 1.00 | 0.031 | 0.039 |
| A1 | 0.00 | 0.10 | 0.000 | 0.004 |
| A3 | 0.25 | | 0.010 | |
| b | 0.15 | 0.30 | 0.006 | 0.012 |
| c | 0.10 | 0.20 | 0.004 | 0.008 |
| D | 1.90 | 2.10 | 0.075 | 0.083 |
| E | 1.15 | 1.35 | 0.045 | 0.053 |
| e | 0.65 | | 0.026 | |
| HE | 2.00 | 2.20 | 0.079 | 0.087 |
| L1 | 0.10 | 0.40 | 0.004 | 0.016 |
| Lp | 0.25 | 0.55 | 0.010 | 0.022 |
| Q | 0.10 | 0.30 | 0.004 | 0.012 |
| x | — | 0.10 | — | 0.004 |
| y | — | 0.10 | — | 0.004 |

| DIM | MILIMETERS | | INCHES | |
|-----|------------|------|--------|-------|
| | MIN | MAX | MIN | MAX |
| b2 | — | 0.40 | — | 0.016 |
| e1 | 1.55 | | 0.061 | |
| l1 | — | 0.65 | — | 0.026 |

Dimension in mm/inches

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| JAPAN | USA | EU | CHINA |
|-----------|-----------|------------|-----------|
| CLASS III | CLASS III | CLASS II b | CLASS III |
| CLASS IV | | CLASS III | |

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 - Installation of redundant circuits to reduce the impact of single or multiple circuit failure
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 - Use of our Products in places where the Products are exposed to sea wind or corrosive gases, including Cl₂, H₂S, NH₃, SO₂, and NO₂
 - Use of our Products in places where the Products are exposed to static electricity or electromagnetic waves
 - Use of our Products in proximity to heat-producing components, plastic cords, or other flammable items
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 - Use of the Products in places subject to dew condensation
- The Products are not subject to radiation-proof design.
- Please verify and confirm characteristics of the final or mounted products in using the Products.
- In particular, if a transient load (a large amount of load applied in a short period of time, such as pulse. is applied, confirmation of performance characteristics after on-board mounting is strongly recommended. Avoid applying power exceeding normal rated power; exceeding the power rating under steady-state loading condition may negatively affect product performance and reliability.
- De-rate Power Dissipation depending on ambient temperature. When used in sealed area, confirm that it is the use in the range that does not exceed the maximum junction temperature.
- Confirm that operation temperature is within the specified range described in the product specification.
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- When a highly active halogenous (chlorine, bromine, etc.) flux is used, the residue of flux may negatively affect product performance and reliability.
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 - [b] the temperature or humidity exceeds those recommended by ROHM
 - [c] the Products are exposed to direct sunshine or condensation
 - [d] the Products are exposed to high Electrostatic
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3. Store / transport cartons in the correct direction, which is indicated on a carton with a symbol. Otherwise bent leads may occur due to excessive stress applied when dropping of a carton.
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