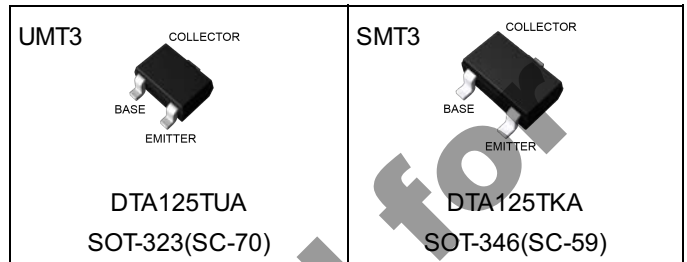


| Parameter | Value |
|-----------|---------------|
| V_{CEO} | -50V |
| I_C | -100mA |
| R_1 | 200k Ω |

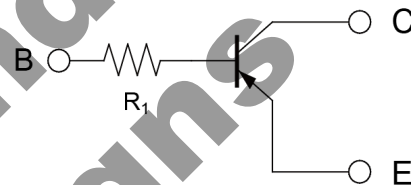
●Outline



●Features

- 1) Built-In Biasing Resistor
- 2) Built-in bias resistors enable the configuration of an inverter circuit without connecting external input resistors (see inner circuit) .
- 3) The bias resistors consist of thin-film resistors with complete isolation to allow negative biasing of the input. They also have the advantage of completely eliminating parasitic effects.
- 4) Only the on/off conditions need to be set for operation, making the circuit design easy.
- 5) Complementary NPN Types: DTC125T series
- 6) Lead Free/RoHS Compliant.

●Inner circuit



B: BASE
C: COLLECTOR
E: EMITTER

●Application

Switching circuit, Inverter circuit, Interface circuit, Driver circuit

●Packaging specifications

| Part No. | Package | Package size | Taping code | Reel size (mm) | Tape width (mm) | Basic ordering unit.(pcs) | Marking |
|-----------|---------|--------------|-------------|----------------|-----------------|---------------------------|---------|
| DTA125TUA | UMT3 | 2021 | T106 | 180 | 8 | 3000 | 9A |
| DTA125TKA | SMT3 | 2928 | T146 | 180 | 8 | 3000 | 9A |

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

| Parameter | | Symbol | Values | Unit |
|------------------------------|-----------|------------|-------------|------------------|
| Collector-base voltage | | V_{CBO} | -50 | V |
| Collector-emitter voltage | | V_{CEO} | -50 | V |
| Emitter-base voltage | | V_{EBO} | -5 | V |
| Collector current | | I_C | -100 | mA |
| Power dissipation | DTA125TUA | P_D^{*1} | 200 | mW |
| | DTA125TKA | | 200 | |
| Junction temperature | | T_j | 150 | $^\circ\text{C}$ |
| Range of storage temperature | | T_{stg} | -55 to +150 | $^\circ\text{C}$ |

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

| Parameter | Symbol | Conditions | Values | | | Unit |
|--------------------------------------|---------------|---|--------|------|------|---------------|
| | | | Min. | Typ. | Max. | |
| Collector-base breakdown voltage | BV_{CBO} | $I_C = -50\mu\text{A}$ | -50 | - | - | V |
| Collector-emitter breakdown voltage | BV_{CEO} | $I_C = -1\text{mA}$ | -50 | - | - | V |
| Emitter-base breakdown voltage | BV_{EBO} | $I_E = -50\mu\text{A}$ | -5 | - | - | V |
| Collector cut-off current | I_{CBO} | $V_{CB} = -50\text{V}$ | - | - | -0.5 | μA |
| Emitter cut-off current | I_{EBO} | $V_{EB} = -4\text{V}$ | - | - | -0.5 | μA |
| Collector-emitter saturation voltage | $V_{CE(sat)}$ | $I_C / I_B = -0.5\text{mA} / -0.05\text{mA}$ | - | - | -0.3 | V |
| DC current gain | h_{FE} | $V_{CE} = -5\text{V}, I_C = -1\text{mA}$ | 100 | 250 | 600 | - |
| Input resistance | R_1 | - | 140 | 200 | 260 | k Ω |
| Transition frequency | f_T^{*2} | $V_{CE} = -10\text{V}, I_E = 5\text{mA}, f = 100\text{MHz}$ | - | 250 | - | MHz |

*1 Each terminal mounted on a reference footprint

*2 Characteristics of built-in transistor

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

Fig.1 Grounded emitter propagation characteristics

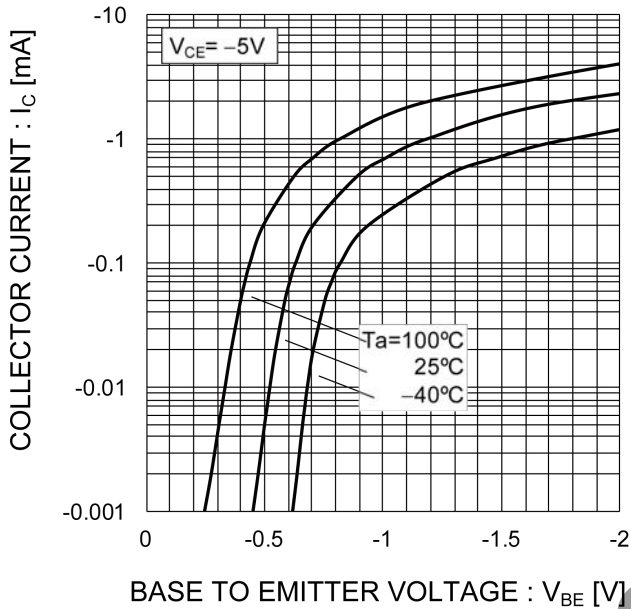


Fig.2 Grounded emitter output characteristics

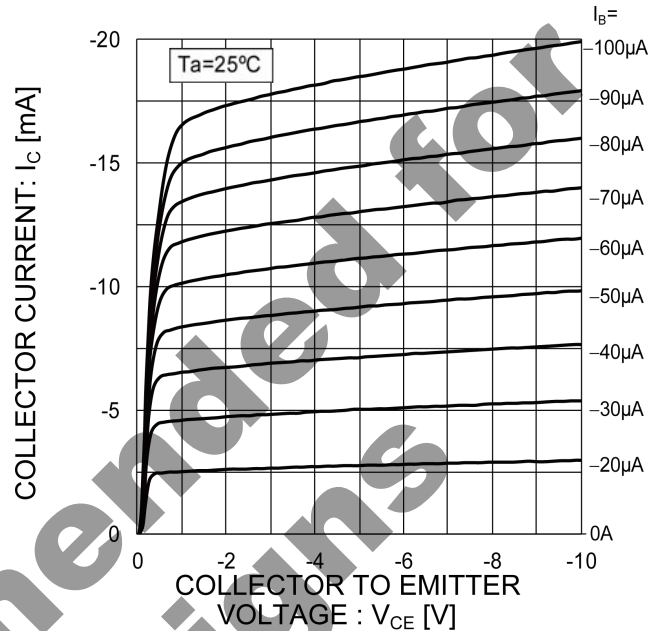


Fig.3 DC Current gain vs. Collector Current

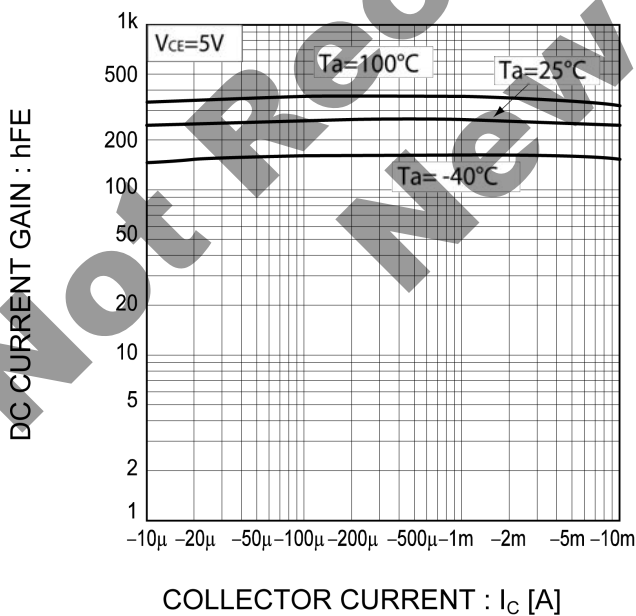
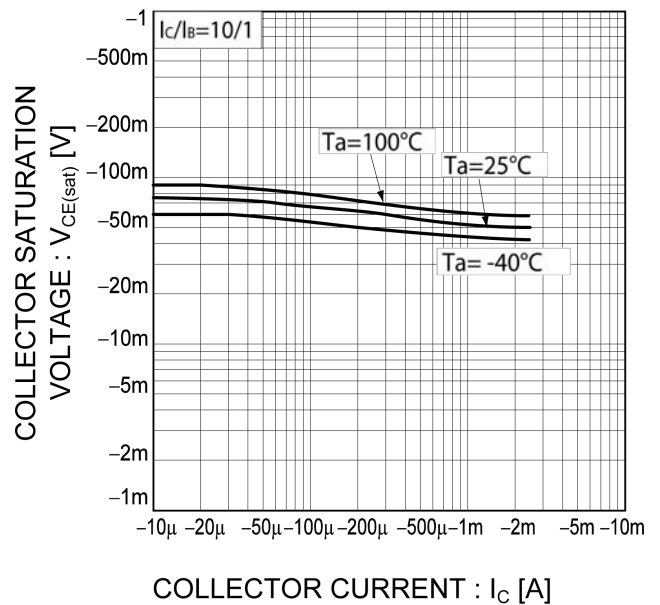
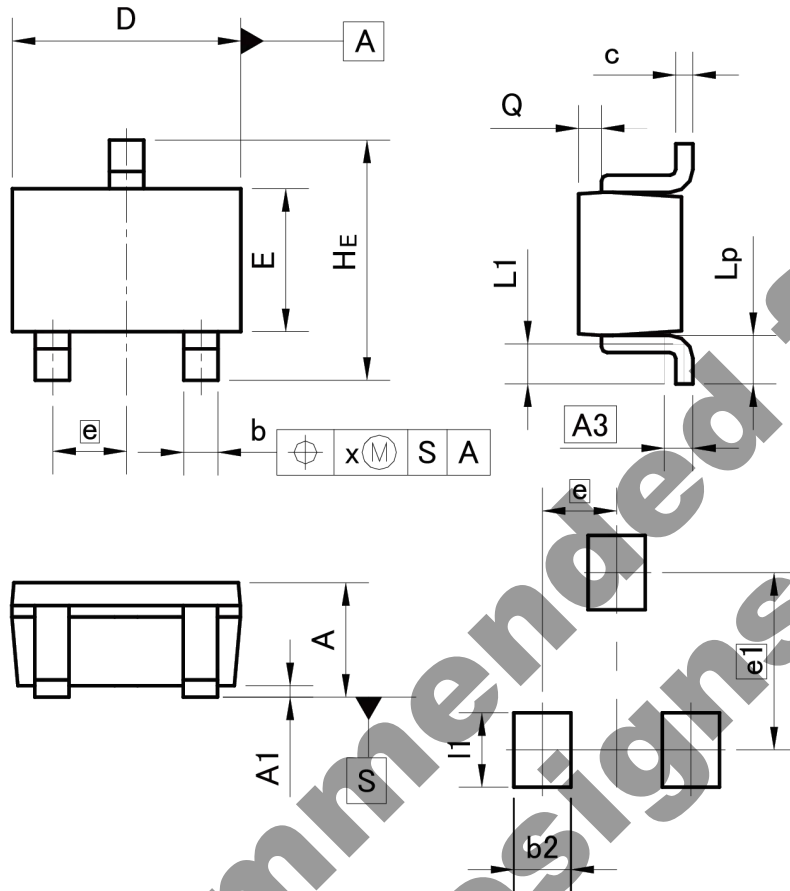


Fig.4 Collector-emitter saturation voltage vs. Collector Current



●Dimensions

UMT3



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

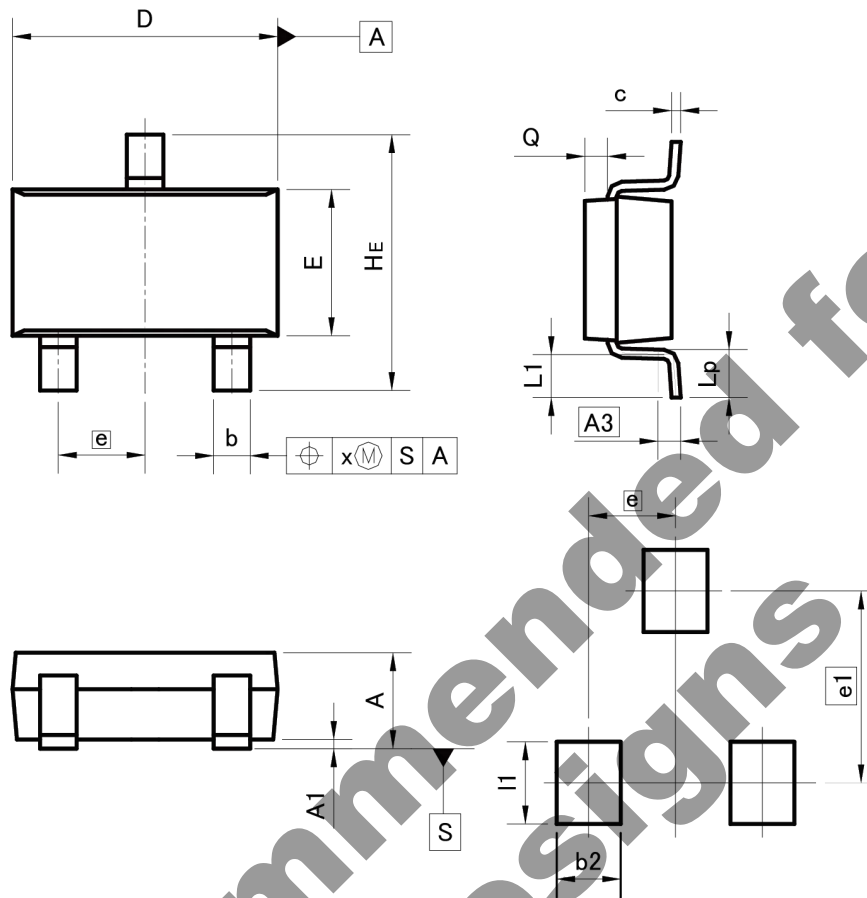
| DIM | MILIMETERS | | INCHES | |
|-----|------------|------|--------|-------|
| | MIN | MAX | MIN | MAX |
| A | 0.80 | 1.00 | 0.031 | 0.039 |
| A1 | 0.00 | 0.10 | 0.000 | 0.004 |
| A3 | 0.25 | | 0.010 | |
| b | 0.15 | 0.30 | 0.006 | 0.012 |
| c | 0.10 | 0.20 | 0.004 | 0.008 |
| D | 1.90 | 2.10 | 0.075 | 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 | 0.20 | 0.50 | 0.008 | 0.020 |
| Lp | 0.25 | 0.55 | 0.010 | 0.022 |
| Q | 0.10 | 0.30 | 0.004 | 0.012 |
| x | - | 0.10 | - | 0.004 |

| DIM | MILIMETERS | | INCHES | |
|-----|------------|------|--------|-------|
| | MIN | MAX | MIN | MAX |
| b2 | - | 0.50 | - | 0.020 |
| e1 | 1.55 | | 0.061 | |
| I1 | - | 0.65 | - | 0.026 |

Dimension in mm/inches

●Dimensions

SMT3



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

| DIM | MILIMETERS | | INCHES | |
|-----|------------|------|--------|-------|
| | MIN | MAX | MIN | MAX |
| A | 1.00 | 1.30 | 0.039 | 0.051 |
| A1 | 0.00 | 0.10 | 0.000 | 0.004 |
| A3 | 0.25 | | 0.010 | |
| b | 0.35 | 0.50 | 0.014 | 0.020 |
| c | 0.09 | 0.25 | 0.004 | 0.010 |
| D | 2.80 | 3.00 | 0.110 | 0.118 |
| E | 1.50 | 1.80 | 0.059 | 0.071 |
| e | 0.95 | | 0.037 | |
| HE | 2.60 | 3.00 | 0.102 | 0.118 |
| L1 | 0.30 | 0.60 | 0.012 | 0.024 |
| Lp | 0.40 | 0.70 | 0.016 | 0.028 |
| Q | 0.20 | 0.30 | 0.008 | 0.012 |
| x | - | 0.10 | - | 0.004 |
| y | - | 0.10 | - | 0.004 |

| DIM | MILIMETERS | | INCHES | |
|-----|------------|------|--------|-------|
| | MIN | MAX | MIN | MAX |
| b2 | - | 0.60 | - | 0.024 |
| e1 | 2.10 | | 0.083 | |
| l1 | - | 0.90 | - | 0.035 |

Dimension in mm/inches

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