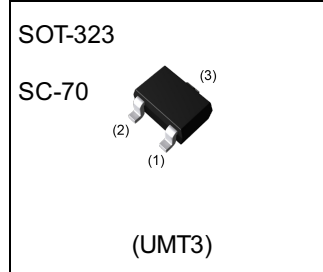


| Parameter     | Value        |
|---------------|--------------|
| $V_{CC}$      | 50V          |
| $I_{C(MAX.)}$ | 100mA        |
| $R_1$         | 1k $\Omega$  |
| $R_2$         | 10k $\Omega$ |

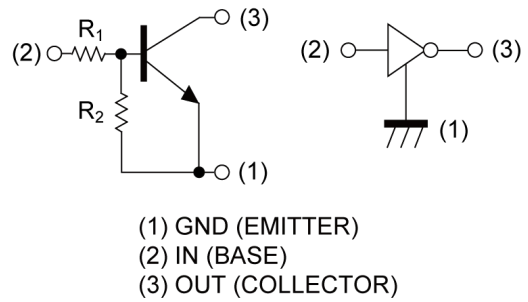
●Outline



●Features

- 1) Built-In Biasing Resistors,  
 $R_1 = 1k\Omega$ ,  $R_2 = 10k\Omega$
- 2) Built-in bias resistors enable the configuration of an inverter circuit without connecting external input resistors (see inner circuit).
- 3) Only the on/off conditions need to be set for operation, making the circuit design easy.
- 4) Complementary PNP Types: DTA113ZU3 HZG

●Inner circuit



●Application

INVERTER, INTERFACE, DRIVER

●Packaging specifications

| Part No.      | Package        | Package size | Taping code | Reel size (mm) | Tape width (mm) | Basic ordering unit.(pcs) | Marking |
|---------------|----------------|--------------|-------------|----------------|-----------------|---------------------------|---------|
| DTC113ZU3 HZG | SOT-323 (UMT3) | 2021         | T106        | 180            | 8               | 3000                      | 121     |

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

| Parameter                    | Symbol            | Values      | Unit             |
|------------------------------|-------------------|-------------|------------------|
| Supply voltage               | $V_{CC}$          | 50          | V                |
| Input voltage                | $V_{IN}$          | -5 to 10    | V                |
| Output current               | $I_O$             | 100         | mA               |
| Collector current            | $I_{C(MAX)}^{*1}$ | 100         | mA               |
| Power dissipation            | $P_D^{*2}$        | 200         | mW               |
| 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. |            |
| Input voltage        | $V_{I(off)}$ | $V_{CC} = 5V, I_O = 100\mu\text{A}$                  | -      | -    | 0.3  | V          |
|                      | $V_{I(on)}$  | $V_O = 0.3V, I_O = 20\text{mA}$                      | 3.0    | -    | -    |            |
| Output voltage       | $V_{O(on)}$  | $I_O = 10\text{mA}, I_I = 0.5\text{mA}$              | -      | 100  | 300  | mV         |
| Input current        | $I_I$        | $V_I = 5V$   | -      | -    | 7.2  | mA         |
| Output current       | $I_{O(off)}$ | $V_{CC} = 50V, V_I = 0V$                             | -      | -    | 500  | nA         |
| DC current gain      | $G_I$        | $V_O = 5V, I_O = 5\text{mA}$                         | 33     | -    | -    | -          |
| Input resistance     | $R_I$        | -  | 0.7    | 1    | 1.3  | k $\Omega$ |
| Resistance ratio     | $R_2/R_1$    | -  | 8      | 10   | 12   | -          |
| Transition frequency | $f_T^{*1}$   | $V_{CE} = 10V, I_E = -5\text{mA}, f = 100\text{MHz}$ | -      | 250  | -    | MHz        |

\*1 Characteristics of built-in transistor

\*2 Each terminal mounted on a reference land.

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

Fig.1 Input voltage vs. output current (ON characteristics)

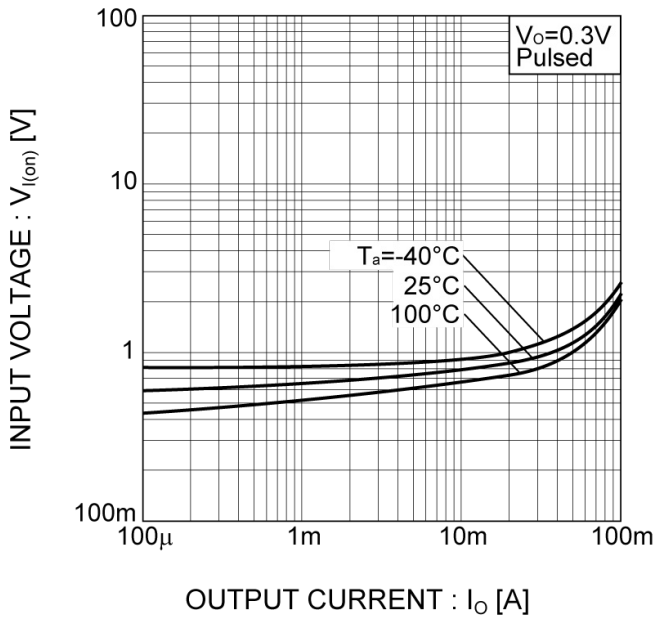


Fig.2 Output current vs. input voltage (OFF characteristics)

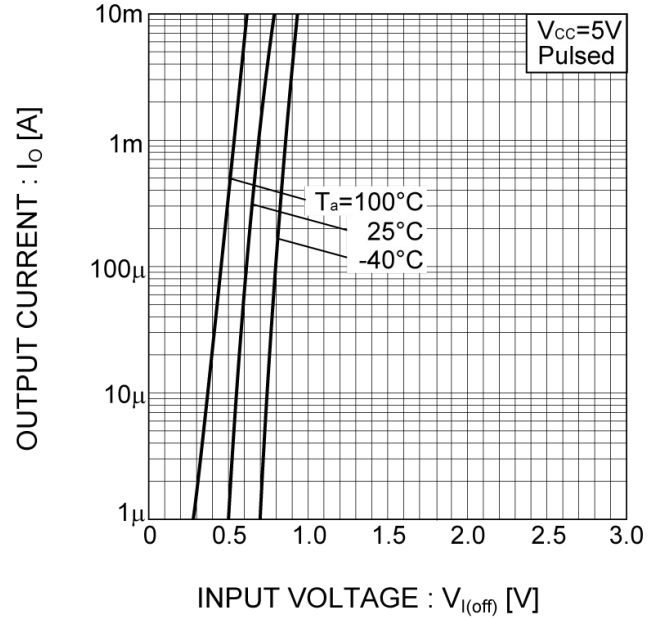


Fig.3 Output current vs. output voltage

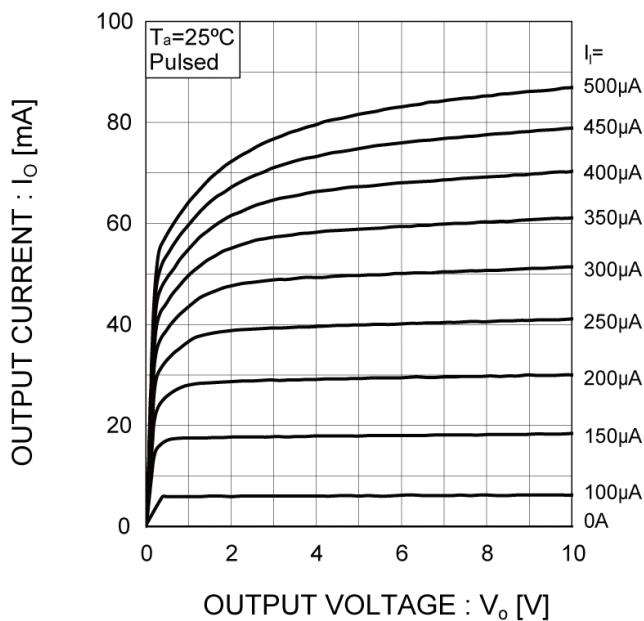
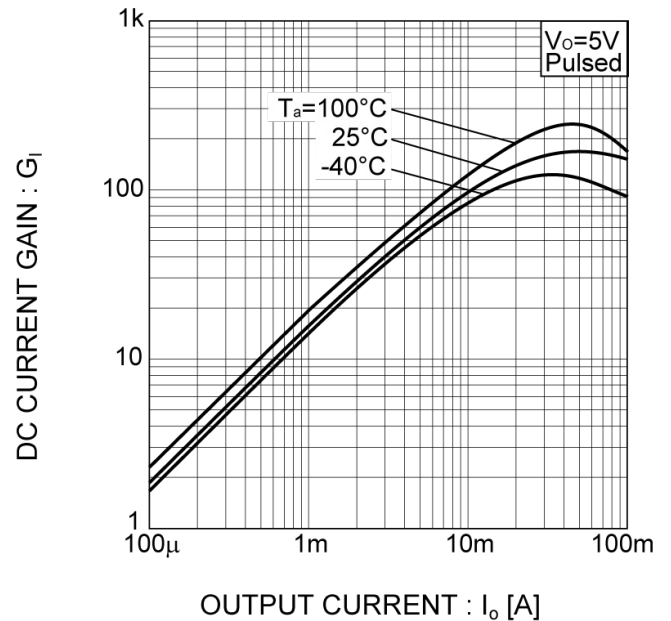
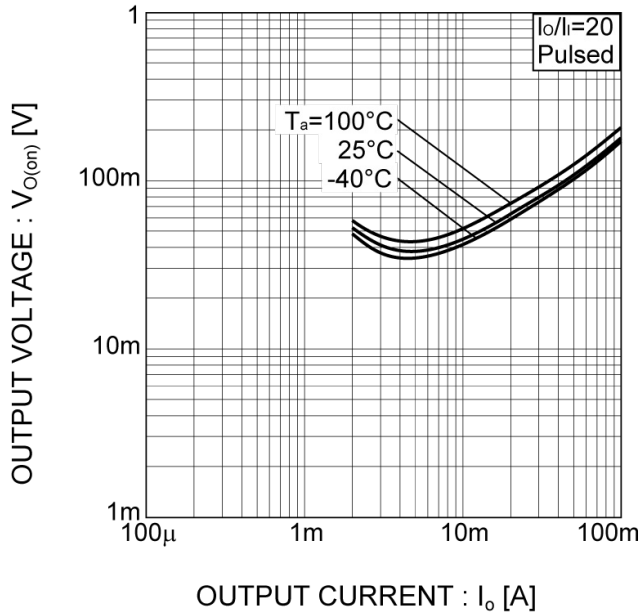


Fig.4 DC current gain vs. output current

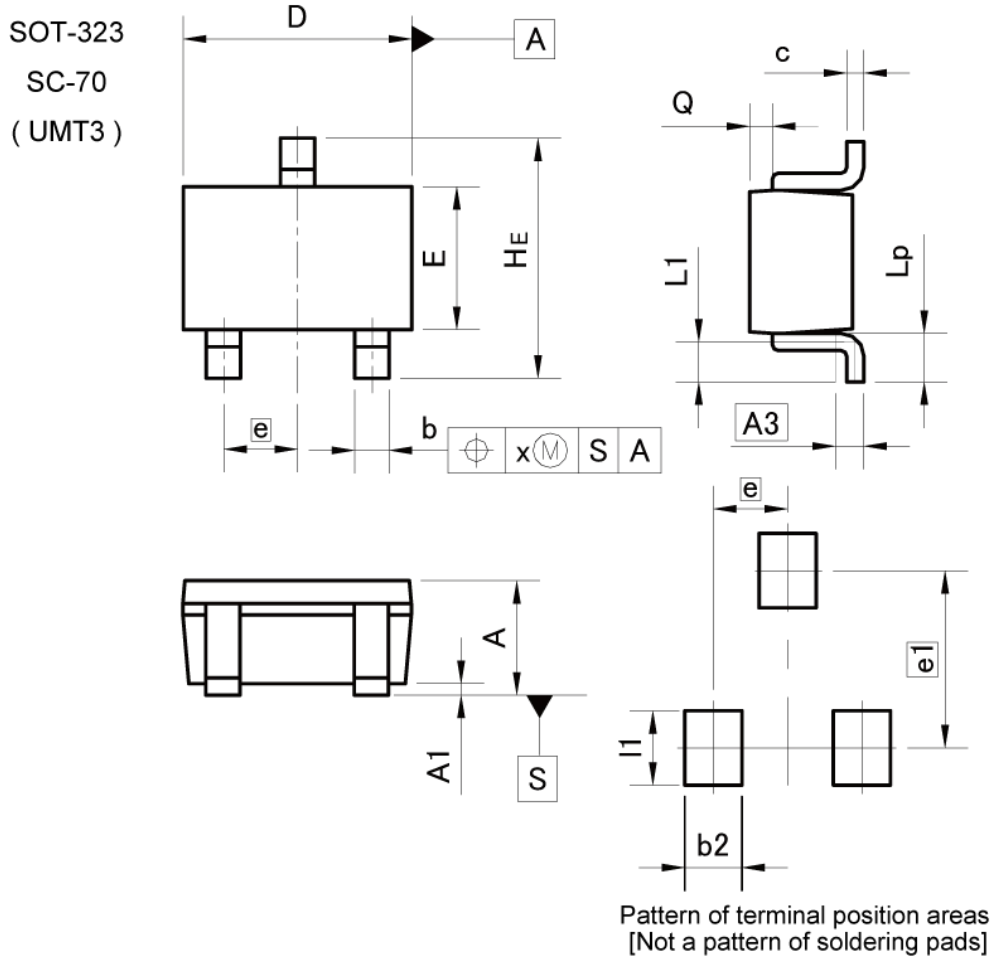


● Electrical characteristic curves ( $T_a = 25^\circ\text{C}$ )

Fig.5 Output voltage vs. output current



●Dimensions



| 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   | 0.25       | 0.40 | 0.010  | 0.016 |
| 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 |

| DIM | MILIMETERS |      | INCHES |       |
|-----|------------|------|--------|-------|
|     | MIN        | MAX  | MIN    | MAX   |
| b2  | -          | 0.50 | -      | 0.020 |
| e1  | 1.55       |      | 0.061  |       |
| l1  | -          | 0.65 | -      | 0.026 |

Dimension in mm/inches

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|-----------|-----------|------------|-----------|
| CLASS III | CLASS III | CLASS II b | CLASS III |
| CLASS IV  |           | CLASS III  |           |

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  - [d] Use of our Products in places where the Products are exposed to static electricity or electromagnetic waves
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  - [h] Use of the Products in places subject to dew condensation
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1. Product performance and soldered connections may deteriorate if the Products are stored in the places where:
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2. Even under ROHM recommended storage condition, solderability of products out of recommended storage time period may be degraded. It is strongly recommended to confirm solderability before using Products of which storage time is exceeding the recommended storage time period.
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