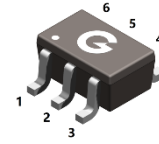
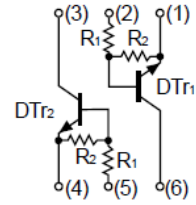


## Features

- Built-in biasing resistors ( $R_1$ : 22k $\Omega$ ,  $R_2$ : 47k $\Omega$ )
- Transistor elements are independent, eliminating interference
- Mounting cost and area can be cut in half
- RoHS compliant with Halogen-free

**HF**



**SOT-363**

## Mechanical Data

- Case: SOT-363
- Molding Compound: UL Flammability Classification Rating 94V-0
- Terminals: Matte tin-plated leads; solderability-per MIL-STD-202, Method 208

## Ordering Information

| Part Number | Package | Shipping Quantity      | Marking Code |
|-------------|---------|------------------------|--------------|
| UMH16N      | SOT-363 | 3000 pcs / Tape & Reel | H16          |

## Maximum Ratings (@ $T_A = 25^\circ\text{C}$ unless otherwise specified)

| Symbol       | Parameter         | Value      | Unit |
|--------------|-------------------|------------|------|
| $V_{CC}$     | Supply Voltage    | 50         | V    |
| $V_i$        | Input Voltage     | -10 to +40 | V    |
| $I_o$        | Output Current    | 50         | mA   |
| $I_{C(Max)}$ | Collector Current | 100        | mA   |

## Thermal Characteristics

| Parameter                                   | Symbol          | Value      | Unit               |
|---------------------------------------------|-----------------|------------|--------------------|
| Power Dissipation <sup>*1</sup>             | $P_D$           | 200        | mW                 |
| Thermal Resistance, Junction to Ambient Air | $R_{\theta JA}$ | 417        | $^\circ\text{C/W}$ |
| Operating Junction Temperature Range        | $T_J$           | -55 ~ +150 | $^\circ\text{C}$   |
| Storage Temperature Range                   | $T_{STG}$       | -55 ~ +150 | $^\circ\text{C}$   |

Note 1: Device mounted on an FR4 Printed-Circuit Board (PCB), single-sided copper, tin-plated and standard footprint

**Electrical Characteristics** (@  $T_A = 25^\circ\text{C}$  unless otherwise specified)

| Parameter              | Symbol       | Test Condition                            | Min. | Typ. | Max. | Unit       |
|------------------------|--------------|-------------------------------------------|------|------|------|------------|
| Input Voltage          | $V_{I(OFF)}$ | $V_{CC} = 5V, I_O = 100\mu A$             | 0.4  | -    | -    | V          |
| Input Voltage          | $V_{I(ON)}$  | $V_O = 0.3V, I_O = 2mA$                   | -    | -    | 2.5  | V          |
| Output Voltage         | $V_{O(ON)}$  | $I_O = 10mA, I_I = 0.5mA$                 | -    | -    | 0.3  | V          |
| Input Current          | $I_I$        | $V_I = 5V$                                | -    | -    | 0.36 | mA         |
| Output Current         | $I_{O(OFF)}$ | $V_{CC} = 50V, V_I = 0V$                  | -    | -    | 0.5  | $\mu A$    |
| DC Current Gain        | $G_I$        | $V_O = 5V, I_O = 10mA$                    | 68   | -    | -    | -          |
| Input Resistor         | $R_1$        |                                           | 15.4 | 22   | 28.6 | k $\Omega$ |
| Resistance ratio       | $R_2/R_1$    |                                           | 1.7  | 2.1  | 2.6  | -          |
| Gain-Bandwidth Product | $f_T$        | $V_{CE} = 10V, I_E = 5mA$<br>$f = 100MHz$ | -    | 250  | -    | MHz        |

Ratings and Characteristic Curves (@  $T_A = 25^\circ\text{C}$  unless otherwise specified)

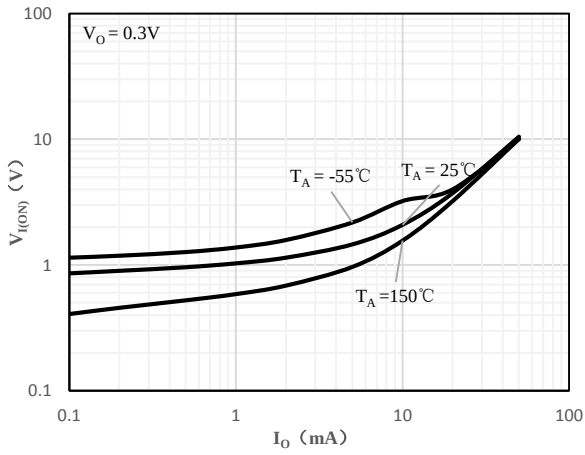


Fig 1 Input Voltage vs Output Current

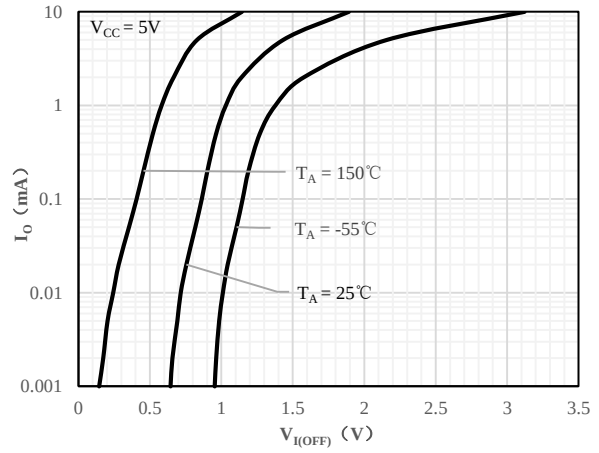


Fig 2 Output Current vs Input Voltage

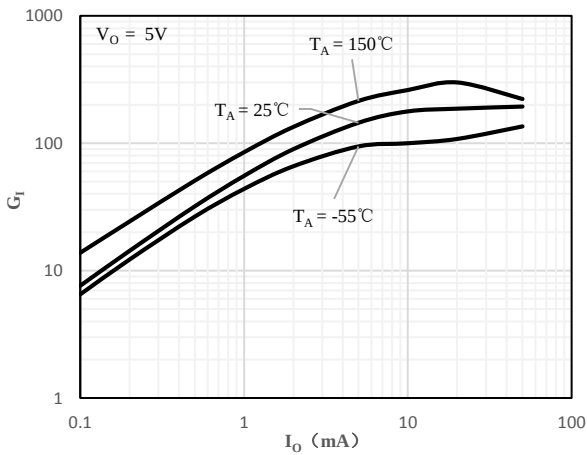


Fig 3 DC Current Gain vs Output Current

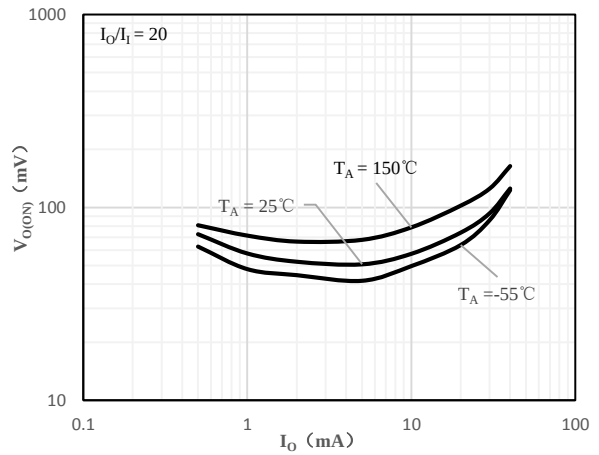
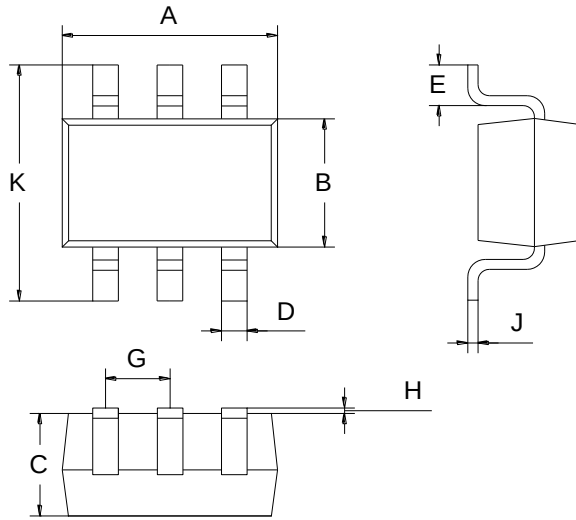


Fig 4 Output Voltage vs Output Current

## Package Outline Dimensions (Unit: mm)



| SOT-363   |      |      |
|-----------|------|------|
| Dimension | Min. | Max. |
| A         | 2.00 | 2.20 |
| B         | 1.15 | 1.35 |
| C         | 0.85 | 1.05 |
| D         | 0.15 | 0.35 |
| E         | 0.25 | 0.40 |
| G         | 0.60 | 0.70 |
| H         | 0.02 | 0.10 |
| J         | 0.05 | 0.15 |
| K         | 2.20 | 2.40 |

## Mounting Pad Layout (Unit: mm)

### SOT-363

