

### Features

- Halogen Free. "Green" Device (Note 1)
- AEC-Q101 Qualified
- Moisture Sensitivity Level 1
- Epoxy Meets UL 94 V-0 Flammability Rating
- Lead Free Finish/RoHS Compliant ("P" Suffix Designates RoHS Compliant. See Ordering Information)

### Maximum Ratings @ 25°C Unless Otherwise Specified

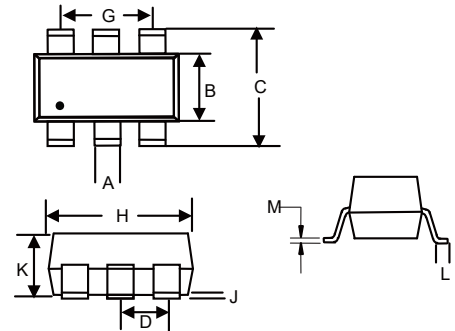
- Thermal Resistance: 833°C/W Junction to Ambient

| Parameter            | Symbol    | Value    | Unit |
|----------------------|-----------|----------|------|
| Supply Voltage       | $V_{CC}$  | 50       | V    |
| Input Voltage        | $V_{IN}$  | -5~+30   | V    |
| Output Current       | $I_O$     | 100      | mA   |
| Power Dissipation    | $P_D$     | 150      | mW   |
| Junction Temperature | $T_J$     | 150      | °C   |
| Storage Temperature  | $T_{stg}$ | -55~+150 | °C   |

Note: 1. Halogen free "Green" products are defined as those which contain <900ppm bromine, <900ppm chlorine (<1500ppm total Br + Cl) and <1000ppm antimony compounds.

## Dual NPN Digital Transistor

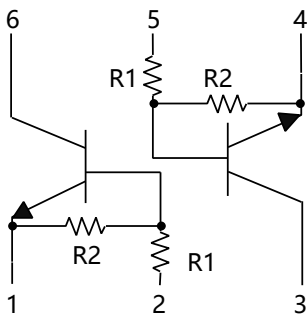
### SOT-363



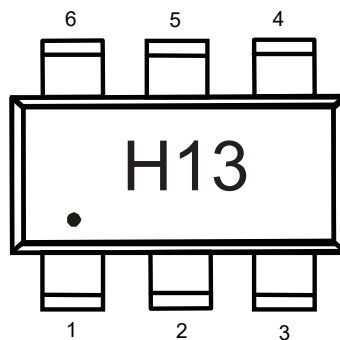
#### DIMENSIONS

| DIM | INCHES |       | MM    |      | NOTE |
|-----|--------|-------|-------|------|------|
|     | MIN    | MAX   | MIN   | MAX  |      |
| A   | 0.006  | 0.014 | 0.15  | 0.35 |      |
| B   | 0.045  | 0.053 | 1.15  | 1.35 |      |
| C   | 0.079  | 0.096 | 2.00  | 2.45 |      |
| D   | 0.026  |       | 0.65  |      | TYP. |
| G   | 0.047  | 0.055 | 1.20  | 1.40 |      |
| H   | 0.071  | 0.087 | 1.80  | 2.20 |      |
| J   | -----  | 0.004 | ----- | 0.10 |      |
| K   | 0.031  | 0.043 | 0.80  | 1.10 |      |
| L   | 0.010  | 0.018 | 0.26  | 0.46 |      |
| M   | 0.003  | 0.006 | 0.08  | 0.15 |      |

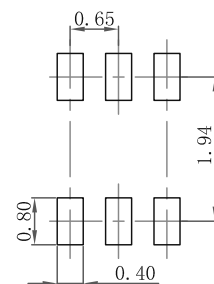
### Internal Structure



### Device Marking



#### Suggested Solder Pad Layout



**Electrical Characteristics @ 25°C Unless Otherwise Specified**

| Parameter            | Symbol       | Min  | Typ | Max  | Unit       | Conditions                      |
|----------------------|--------------|------|-----|------|------------|---------------------------------|
| Input Voltage        | $V_{I(off)}$ | 0.5  | --- | ---  | V          | $V_{CC}=5V, I_O=100\mu A$       |
|                      | $V_{I(on)}$  | ---  | --- | 1.3  | V          | $V_O=0.3V, I_O=5mA$             |
| Output Voltage       | $V_{O(on)}$  | ---  | --- | 0.3  | V          | $I_O=10mA, I_I=0.5mA$           |
| Input Current        | $I_I$        | ---  | --- | 1.8  | mA         | $V_I=5V$                        |
| Output Current       | $I_{O(off)}$ | ---  | --- | 0.5  | $\mu A$    | $V_{CC}=50V, V_I=0$             |
| DC Current Gain      | $G_I$        | 80   | --- | ---  |            | $V_O=5V, I_O=10mA$              |
| Input Resistance     | $R_1$        | 3.29 | 4.7 | 6.11 | K $\Omega$ |                                 |
| Resistance Ratio     | $R_2/R_1$    | 8    | 10  | 12   |            |                                 |
| Transition Frequency | $f_T$        | ---  | 250 | ---  | MHz        | $V_{CE}=10V, I_C=5mA, f=100MHz$ |

**Curve Characteristics**

Fig. 1 - DC Current Gain Characteristics

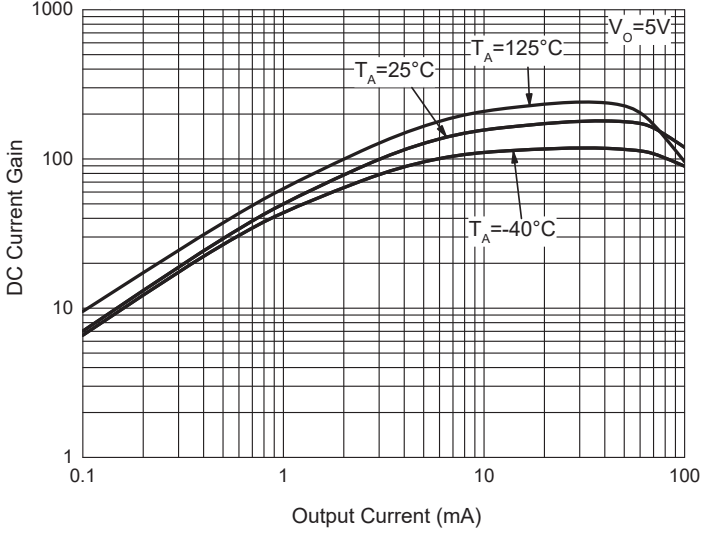


Fig. 2 - Input Voltage (on) Characteristics

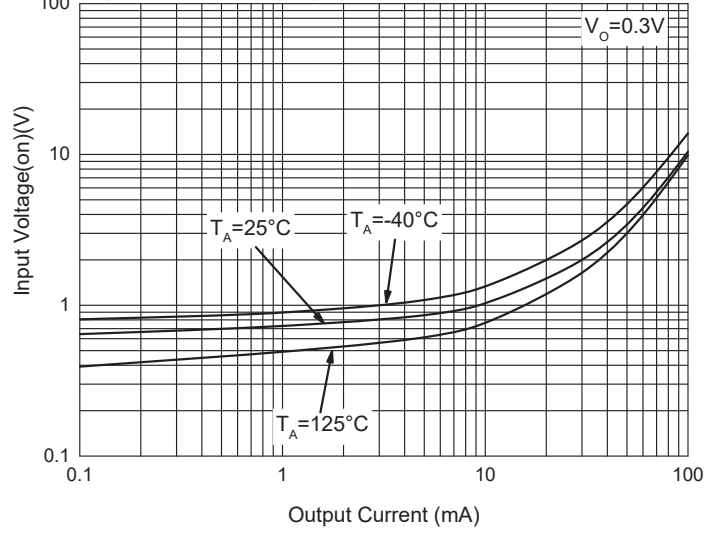


Fig. 3 - Input Voltage (off) Characteristics

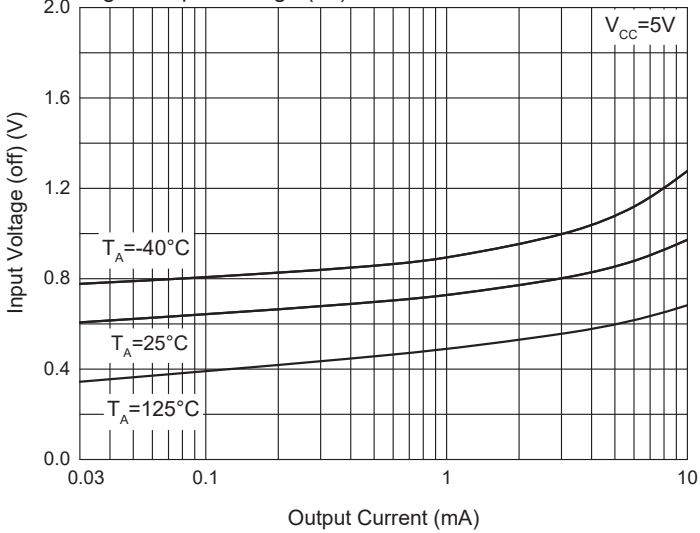


Fig. 4 - Output Voltage Characteristics

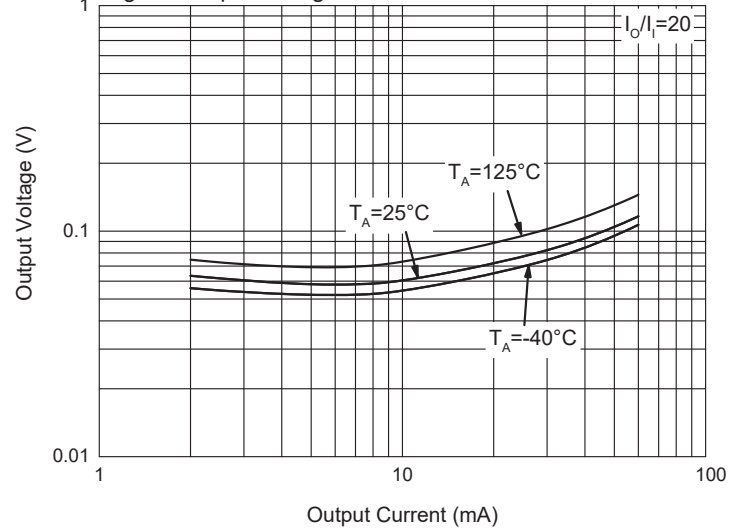
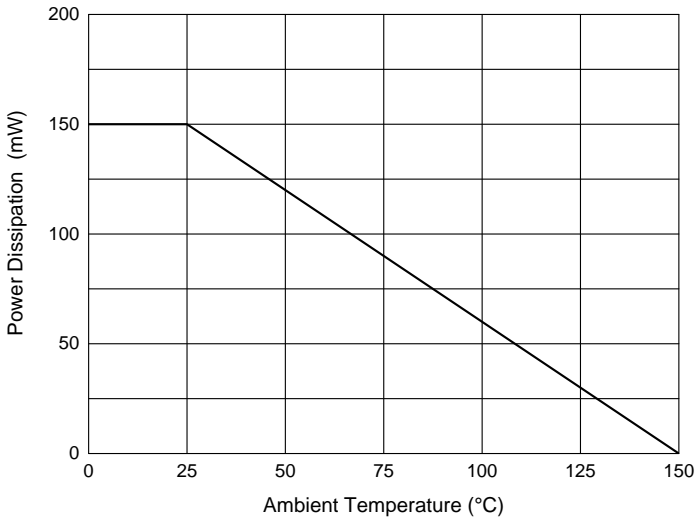


Fig. 5 - Power Derating Curve



## Ordering Information

| Device       | Packing              |
|--------------|----------------------|
| UMH13NHE3-TP | Tape&Reel:3Kpcs/Reel |

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