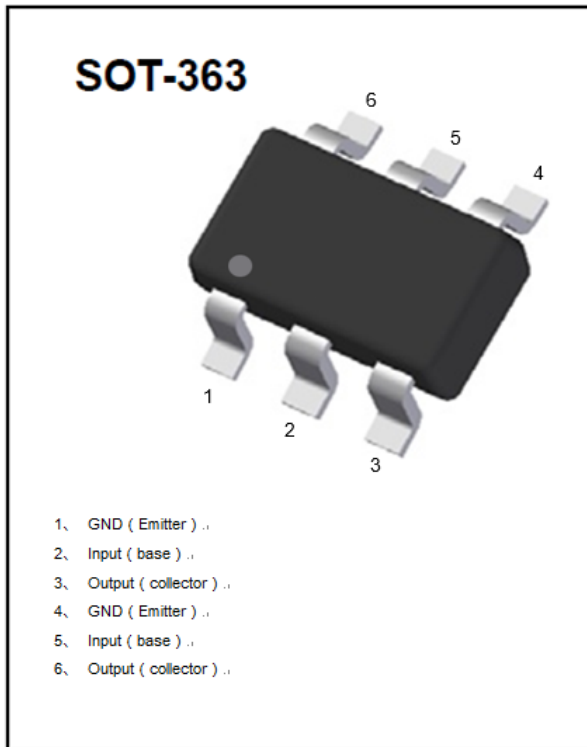


Dual NPN Digital Transistors (Built-in Resistors)



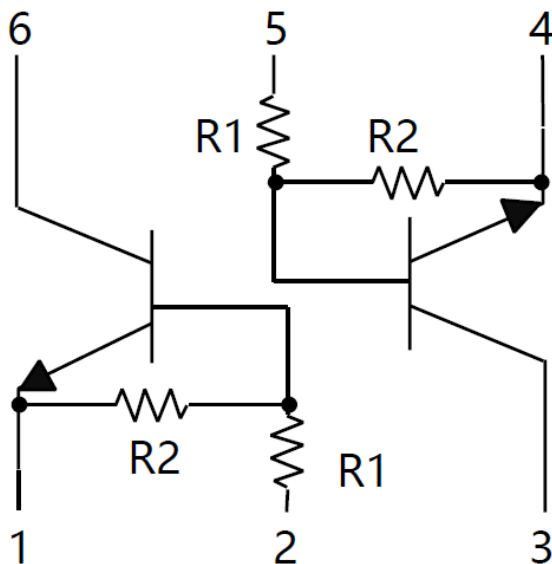
Features

- Epoxy meets UL-94 V-0 flammability rating
- Built-in bias resistors enable the configuration of an inverter circuit without connecting external input resistors
- Surface mount package ideally Suited for Automatic Insertion

Mechanical Data

- **Package:** SOT-363
- **Terminals:** Tin plated leads, solderable per J-STD-002 and JESD22-B102
- **Marking:** H9

■Equivalent circuit





UMH9N

■Maximum Ratings (Ta=25°C Unless otherwise specified)

| ITEM | SYMBOL | UNIT | CONDITIONS | VALUE |
|-------------------------------|-----------|------|------------|-------------|
| Supply Voltage | V_{CC} | V | | 50 |
| Input Voltage | V_{IN} | V | | -6 to +40 |
| Output Current | I_o | mA | | 100 |
| Power Dissipation | P_D | mW | | 150 |
| Junction Temperature (Single) | T_j | °C | | 150 |
| Storage Temperature | T_{STG} | °C | | -55 to +150 |

■Electrical Characteristics (Ta=25°C unless otherwise specified)

| ITEM | SYMBOL | UNIT | CONDITIONS | MIN | TYP | MAX |
|----------------------|--------------|------------|---------------------------------|-----|-----|------|
| Input voltage | $V_{I(off)}$ | V | $V_{CC}=5V, I_c=100\mu A$ | 0.3 | - | - |
| | $V_{I(on)}$ | V | $V_o=0.3V, I_c=10mA$ | - | - | 1.4 |
| Output voltage | $V_{O(on)}$ | V | $I_o / I_i = 5mA / 0.25 mA$ | - | - | 0.3 |
| Input current | I_i | mA | $V_i=5V$ | - | - | 0.88 |
| Output current | $I_{O(off)}$ | μA | $V_{CC}=50V, V_i=0$ | - | - | 0.5 |
| DC current gain | G_i | | $V_o=5V, I_o = 5mA$ | 68 | - | - |
| Input resistance | R_1 | k Ω | | 7 | 10 | 13 |
| Resistance ratio | R_2/R_1 | | | 3.7 | 4.7 | 5.7 |
| Transition frequency | f_T | MHz | $V_{CE}=10V, I_E=5mA, f=100MHz$ | - | 250 | - |

■ Ordering Information (Example)

| PREFERRED P/N | PACKING CODE | UNIT WEIGHT(g) | MINIMUM PACKAGE(pcs) | INNER BOX QUANTITY(pcs) | OUTER CARTON QUANTITY(pcs) | DELIVERY MODE |
|---------------|--------------|--------------------|----------------------|-------------------------|----------------------------|---------------|
| UMH9N | F2 | Approximate 0.009g | 3000 | 30000 | 120000 | 7" reel |



■ Characteristics (Typical)

Fig. 1 - DC Current Gain Characteristics

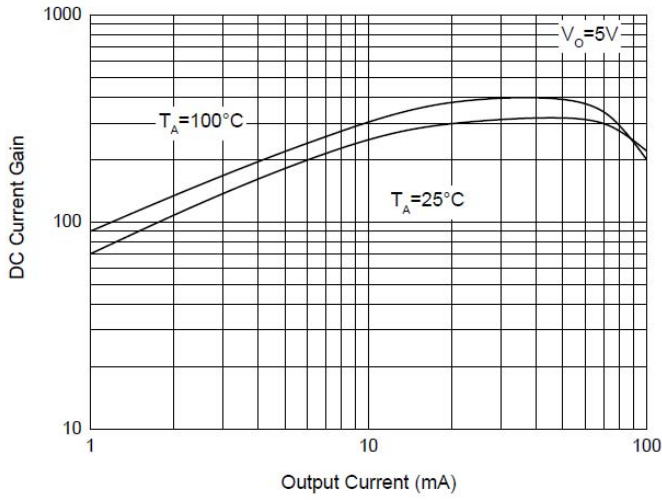


Fig. 2 - Input Voltage (on) Characteristics

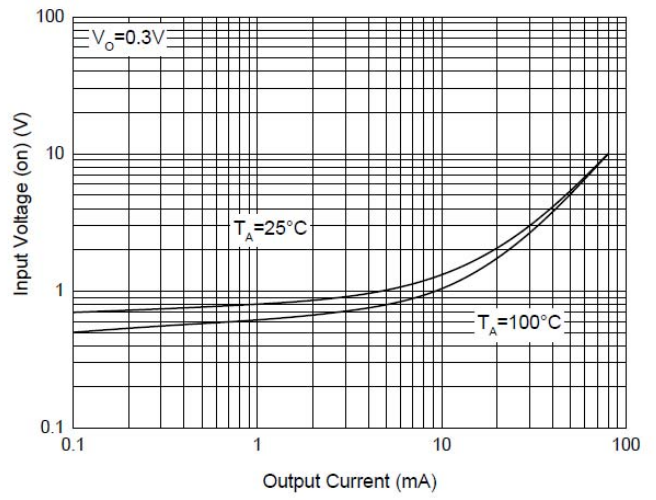


Fig. 3 - Input Voltage (off) Characteristics

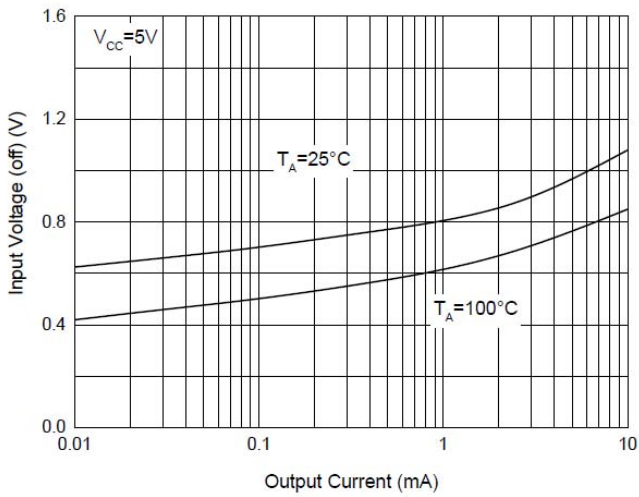
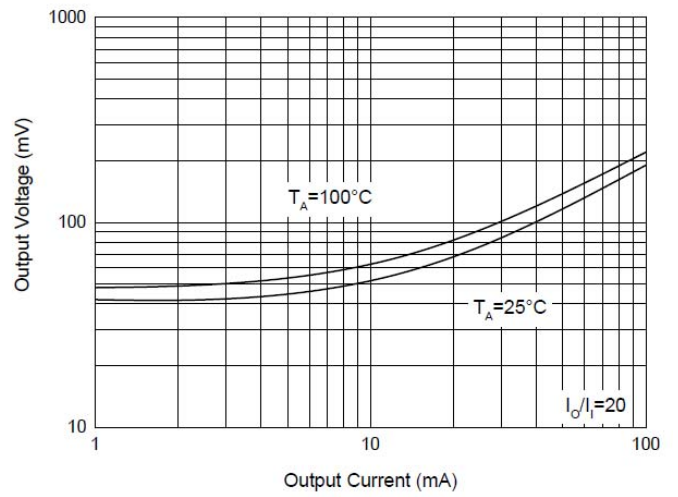


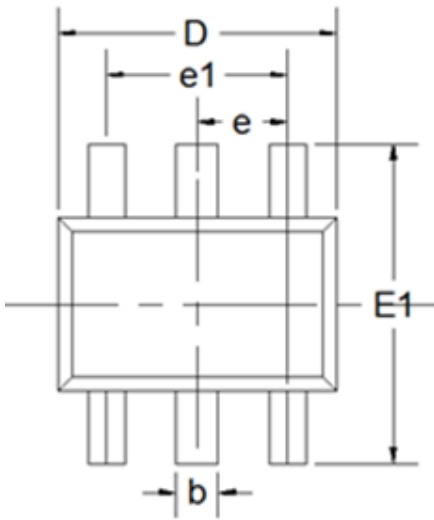
Fig. 4 - Output Voltage Characteristics



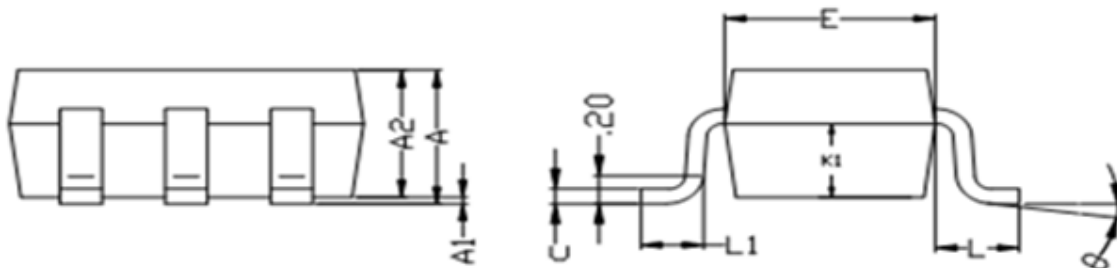


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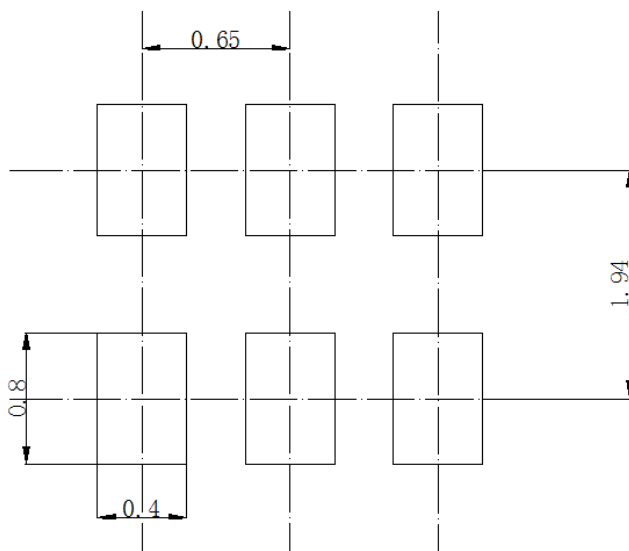
■SOT-363 Package Outline Dimensions



| DIM | DIMENSIONS | | | |
|-----|------------|-------|----------|------|
| | INCHES | | MM | |
| | MIN | MAX | MIN | MAX |
| A | 0.035 | 0.043 | 0.9 | 1.1 |
| A1 | 0 | 0.004 | 0 | 0.1 |
| A2 | 0.035 | 0.039 | 0.9 | 1 |
| b | 0.006 | 0.014 | 0.15 | 0.35 |
| c | 0.002 | 0.01 | 0.05 | 0.25 |
| D | 0.071 | 0.087 | 1.8 | 2.2 |
| E | 0.045 | 0.053 | 1.15 | 1.35 |
| E1 | 0.085 | 0.096 | 2.15 | 2.45 |
| e | 0.026Typ | | 0.65Typ | |
| e1 | 0.047 | 0.055 | 1.2 | 1.4 |
| L | 0.021Typ | | 0.525Typ | |
| L1 | 0.01 | 0.018 | 0.26 | 0.46 |
| φ | 0° | 8° | 0° | 8° |



■SOT-363 Suggested Pad Layout



Unit: mm



UMH9N

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