

Features

- Built-In Bias Resistors Enable the Configuration of an Inverter Circuit Without Connecting External Input Resistors
- The Bias Resistors Consist of Thin-Film Resistors With Complete Isolation to Allow Negative Biasing of the Input. They Also Have the Advantage of Almost Completely Eliminating Parasitic Effects
- Only the On/Off Conditions Need to Be Set For Operation, Making Device Design Easy
- Halogen Free. "Green" Device (Note 1)
- 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)

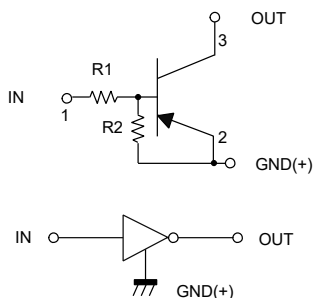
Maximum Ratings @ 25°C Unless Otherwise Specified

| Parameter | Symbol | Min | Typ | Max | Unit |
|----------------------|--------------|-----|------|-----|------|
| Supply Voltage | V_{CC} | --- | -50 | --- | V |
| Input Voltage | V_{IN} | -30 | --- | 10 | V |
| Output Current | I_O | --- | -100 | --- | mA |
| | $I_{C(Max)}$ | --- | -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.

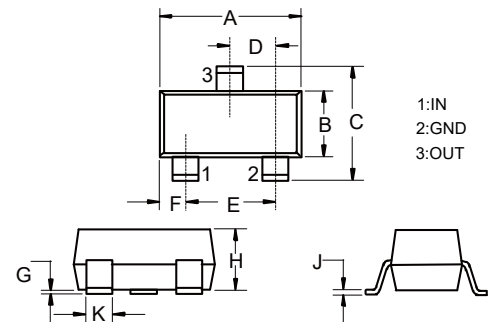
Device Marking: 13

Internal Structure



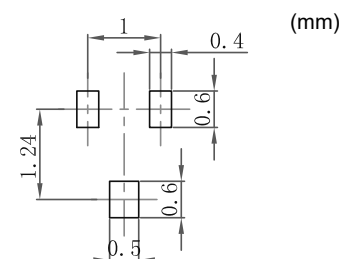
PNP Digital Transistor

SOT-523



| DIM | INCHES | | MM | | NOTE |
|-----|--------|-------|------|------|------|
| | MIN | MAX | MIN | MAX | |
| A | 0.059 | 0.067 | 1.50 | 1.70 | |
| B | 0.030 | 0.033 | 0.75 | 0.85 | |
| C | 0.057 | 0.069 | 1.45 | 1.75 | |
| D | 0.020 | | 0.50 | | TYP. |
| E | 0.035 | 0.043 | 0.90 | 1.10 | |
| G | 0.000 | 0.004 | 0.00 | 0.10 | |
| H | 0.024 | 0.031 | 0.60 | 0.80 | |
| J | 0.004 | 0.008 | 0.10 | 0.20 | |
| K | 0.006 | 0.014 | 0.15 | 0.35 | |

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 | $V_{CC}=-5V, I_O=-100\mu A$ |
| | $V_{I(on)}$ | --- | --- | -3.0 | V | $V_O=-0.3V, I_O=-20mA$ |
| 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 | μA | $V_{CC}=-50V, V_I=0$ |
| DC Current Gain | G_1 | 30 | --- | --- | | $V_O=-5V, I_O=-10mA$ |
| Input Resistance | R_1 | 3.29 | 4.7 | 6.11 | K Ω | |
| Resistance Ratio | R_2/R_1 | 0.8 | 1.0 | 1.2 | | |
| Transition Frequency | f_T | --- | 250 | --- | MHz | $V_{CE}=-10V, I_E=5mA, f=100MHz$ |

Curve Characteristics

Fig. 1 - DC Current Gain Characteristics

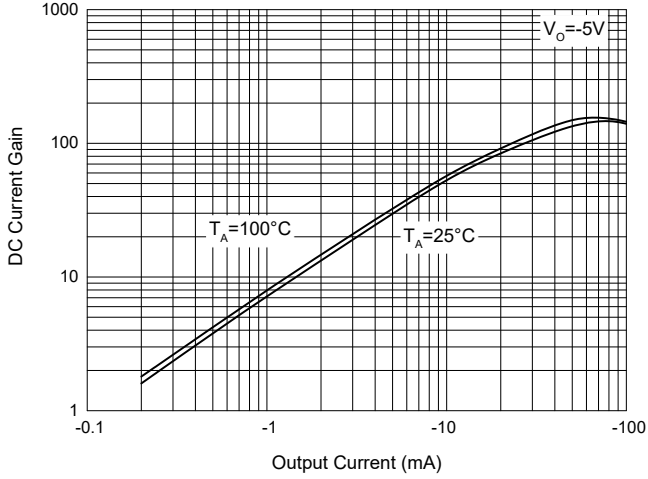


Fig. 2 - Input Voltage (on) Characteristics

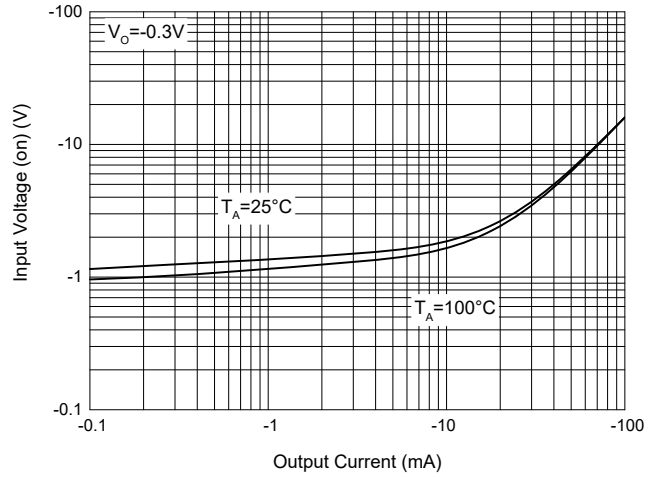


Fig. 3 - Input Voltage (off) Characteristics

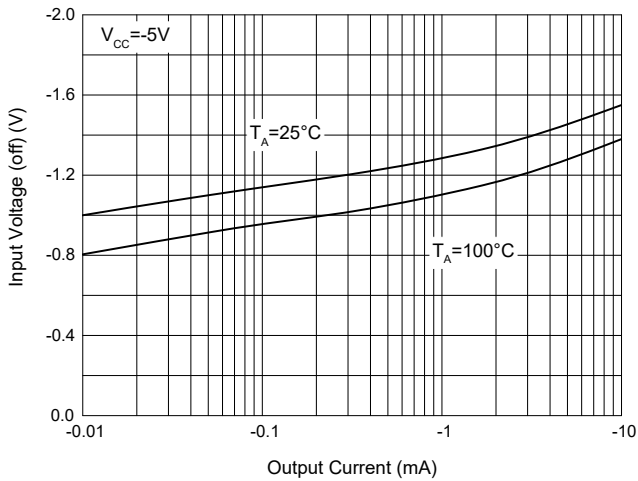


Fig. 4 - Output Voltage Characteristics

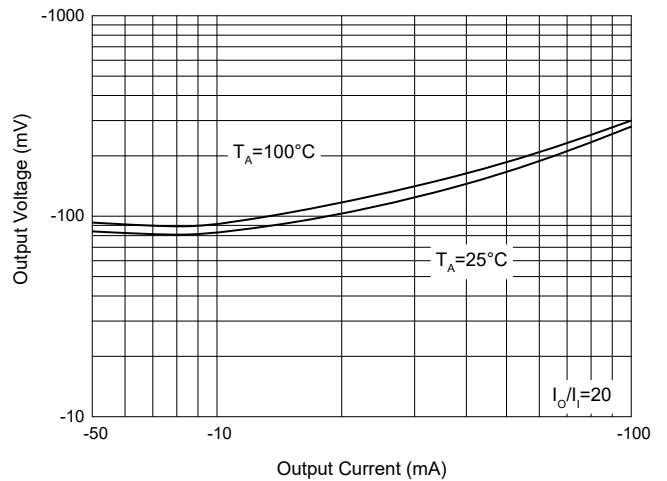
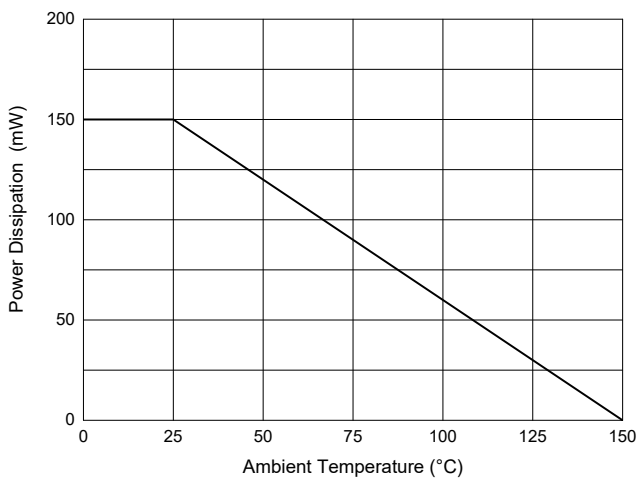


Fig. 5 - Power Derating Curve



Ordering Information

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

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