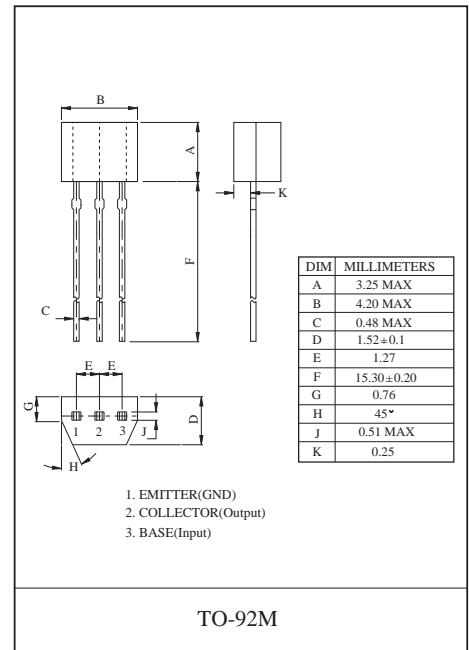


Bias Resistor Transistor

PNP Silicon Surface Mount Transistor with Monolithic Bias Resistor Network

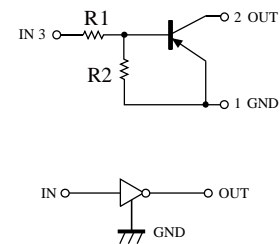
This new series of digital transistors is designed to replace a single device and its external resistor bias network. The BRT (Bias Resistor Transistor) contains a single transistor with a monolithic bias network resistor. The BRT eliminates these individual components by integrating them into a single device. The use of a BRT can reduce both system cost and board space.

- Simplifies Circuit Design
- Reduces Board Space and Component Count



Absolute maximum ratings(Ta=25°C)

| Parameter | Symbol | Value | Unit |
|----------------------|--------------|---------|------|
| Supply voltage | V_{CC} | -50 | V |
| Input voltage | V_{IN} | -40~6 | V |
| Output current | I_O | -70 | mA |
| | $I_{C(MAX)}$ | -100 | |
| Power dissipation | P_d | 300 | mW |
| Junction temperature | T_j | 150 | °C |
| Storage temperature | T_{stg} | -55~150 | °C |



Electrical characteristics (Ta=25°C)

| Parameter | Symbol | Min. | Typ | Max. | Unit | Conditions |
|----------------------|--------------|------|-----|-------|------------|----------------------------------|
| Input voltage | $V_{(off)}$ | | | -0.3 | V | $V_{CC}=-5V, I_O=-100\mu A$ |
| | $V_{(on)}$ | -1.3 | | | | $V_O=-0.3V, I_O=-1mA$ |
| Output voltage | $V_{O(on)}$ | | | -0.3 | V | $I_O/I_I=-5mA/-0.25mA$ |
| Input current | I_I | | | -0.88 | mA | $V_I=-5V$ |
| Output current | $I_{O(off)}$ | | | -0.5 | μA | $V_{CC}=-50V, V_I=0$ |
| DC current gain | G_I | 68 | | | | $V_O=-5V, I_O=-5mA$ |
| Input resistance | R_1 | 7 | 10 | 13 | K Ω | |
| Resistance ratio | R_2/R_1 | 3.7 | 4.7 | 5.7 | | |
| Transition frequency | f_T | | 250 | | MHz | $V_{CE}=-10V, I_E=5mA, f=100MHz$ |

Typical Characteristics

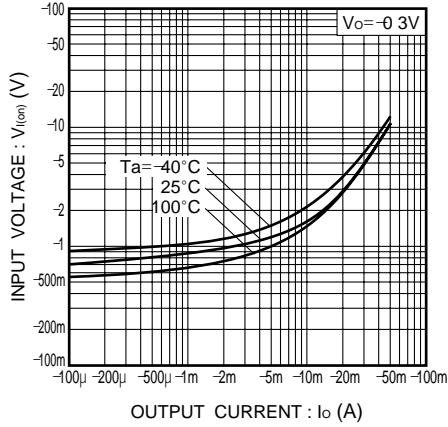


Fig.1 Input voltage vs. output current (ON characteristics)

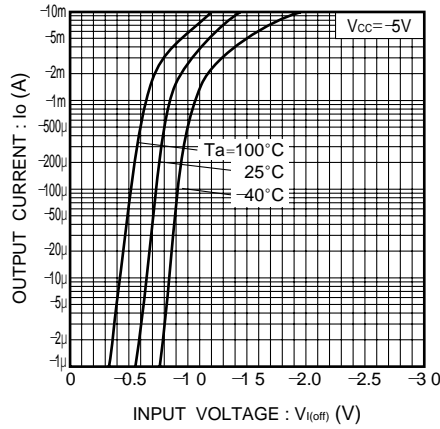


Fig.2 Output current vs. input voltage (OFF characteristics)

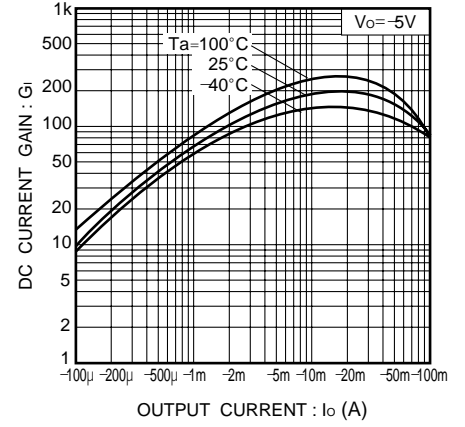


Fig.3 DC current gain vs. output current

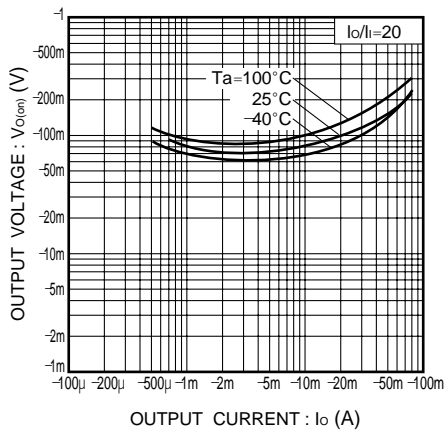


Fig.4 Output voltage vs. output current