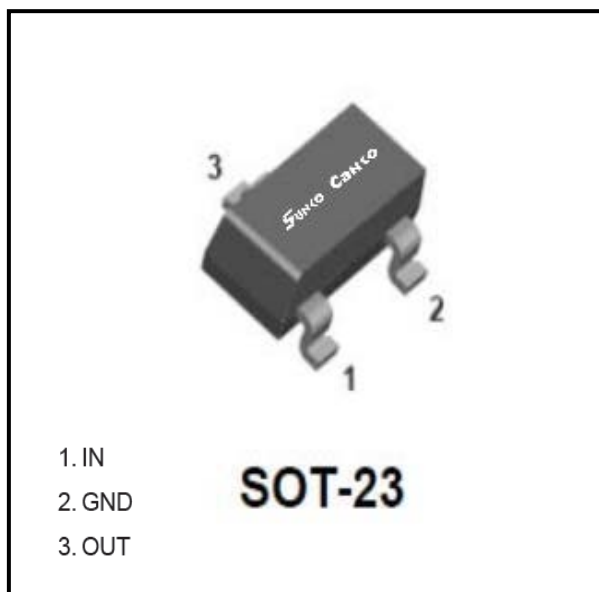


## Digital Transistors (Built-in Resistors)



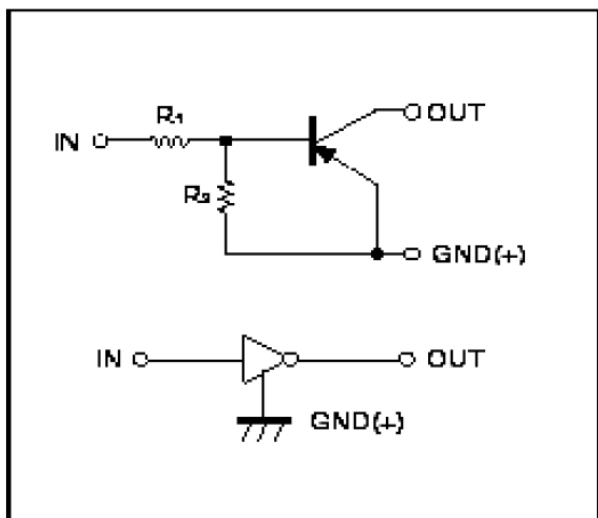
### Features

- 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
- PNP

### Mechanical Data

- **Package:** SOT-23
- **Terminals:** Tin plated leads, solderable per J-STD-002 and JESD22-B102
- **Marking:** 234

### ■Equivalent circuit



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

| ITEM                 | SYMBOL    | UNIT | CONDITIONS | VALUE       |
|----------------------|-----------|------|------------|-------------|
| Supply Voltage       | $V_{CC}$  | V    |            | -50         |
| Input Voltage        | $V_{IN}$  | V    |            | -12 to +5   |
| Output Current       | $I_O$     | mA   |            | -500        |
| Power Dissipation    | $P_D$     | mW   |            | 200         |
| Junction Temperature | $T_J$     | °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          | $V_{CC}=-5V, I_c=-100\mu A$      | -0.5 |     |      |
|                      | $V_{I(on)}$  | V          | $V_o=-0.3V, I_c=-20mA$           |      |     | -2   |
| Output voltage       | $V_{O(on)}$  | V          | $I_o / I_i = -10mA / -0.5 mA$    |      |     | -0.3 |
| Input current        | $I_i$        | mA         | $V_i=-5V$                        |      |     | -3.8 |
| Output current       | $I_{O(off)}$ | $\mu A$    | $V_{CC}=-50V, V_i=0$             |      |     | -0.5 |
| DC current gain      | $G_i$        |            | $V_o=-5V, I_o = -50mA$           | 56   |     |      |
| Input resistance     | $R_i$        | k $\Omega$ |                                  | 1.54 | 2.2 | 2.86 |
| Resistance ratio     | $R_2/R_1$    |            |                                  | 3.6  | 4.5 | 5.5  |
| Transition frequency | $f_T$        | MHz        | $V_{CE}=-10V, I_E=5mA, f=100MHz$ |      | 200 |      |

■ Ordering Information (Example)

| PREFERRED P/N | PACKING CODE | UNIT WEIGHT(g)    | MINIMUM PACKAGE(pcs) | INNER BOX QUANTITY(pcs) | OUTER CARTON QUANTITY(pcs) | DELIVERY MODE |
|---------------|--------------|-------------------|----------------------|-------------------------|----------------------------|---------------|
| DDTA123YCA    | F2           | Approximate 0.009 | 3000                 | 30000                   | 120000                     | 7" reel       |

■ Characteristics (Typical)

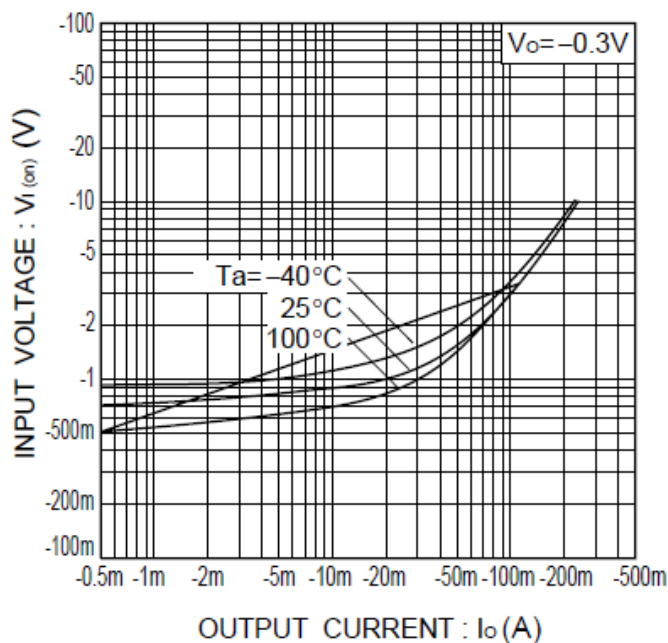


Fig.1 Input voltage vs. output current (ON characteristics)

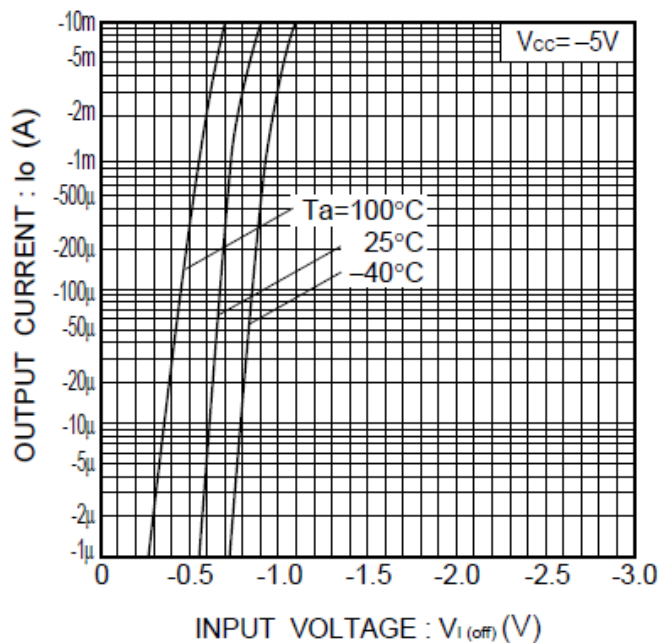
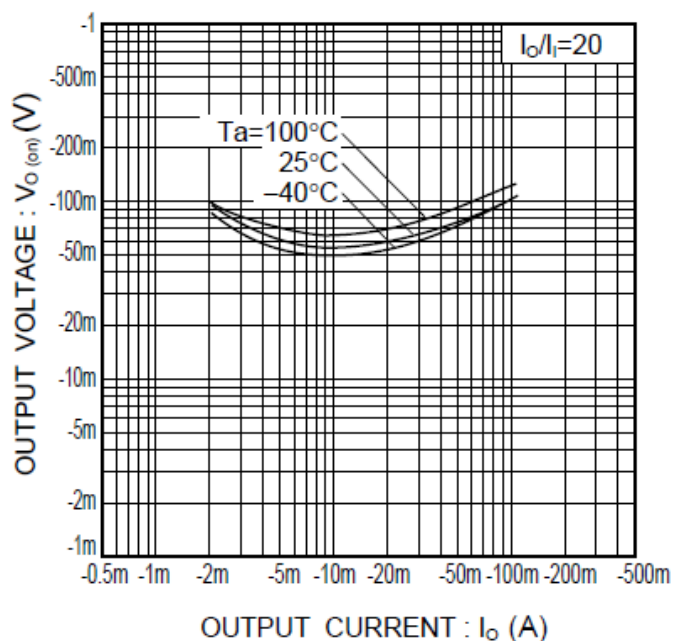
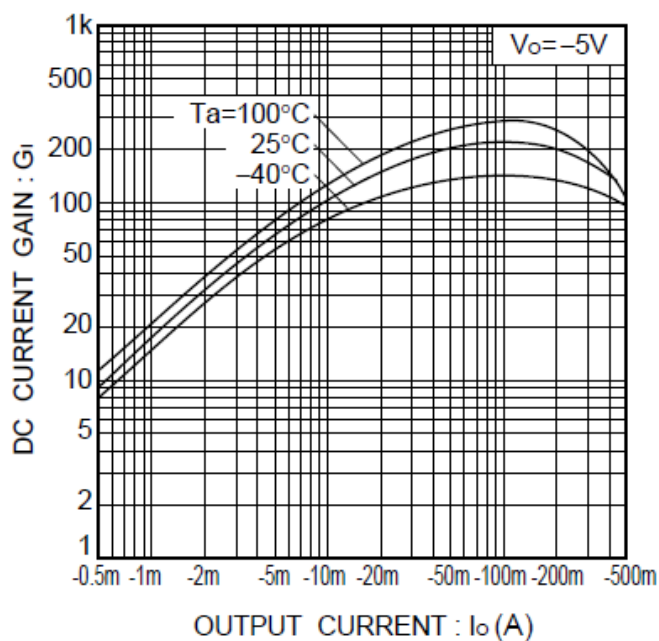
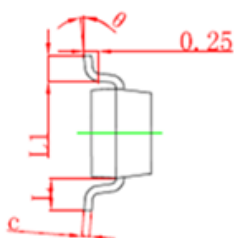
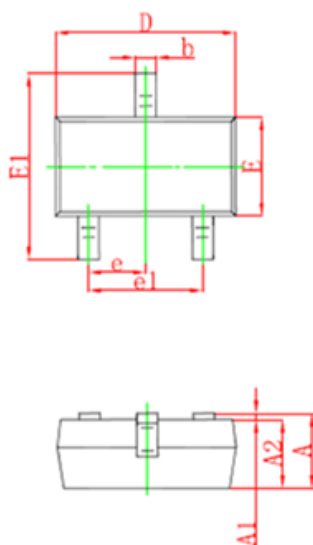


Fig.2 Output current vs. input voltage (OFF characteristics)

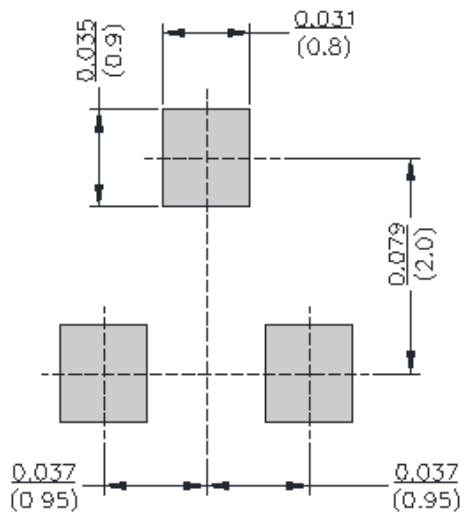


#### ■SOT-23 Package Outline Dimensions



| Symbol | Dimensions In Millimeters |       | Dimensions In Inches |       |
|--------|---------------------------|-------|----------------------|-------|
|        | Min                       | Max   | Min                  | Max   |
| A      | 0.900                     | 1.150 | 0.035                | 0.045 |
| A1     | 0.000                     | 0.100 | 0.000                | 0.004 |
| A2     | 0.900                     | 1.050 | 0.035                | 0.041 |
| b      | 0.300                     | 0.500 | 0.012                | 0.020 |
| c      | 0.100                     | 0.200 | 0.004                | 0.008 |
| D      | 2.800                     | 3.000 | 0.110                | 0.118 |
| E      | 1.200                     | 1.400 | 0.047                | 0.055 |
| E1     | 2.250                     | 2.550 | 0.089                | 0.100 |
| e      | 0.950TYP                  |       | 0.037TYP             |       |
| e1     | 1.800                     | 2.000 | 0.071                | 0.079 |
| L      | 0.550REF                  |       | 0.022REF             |       |
| L1     | 0.300                     | 0.500 | 0.012                | 0.020 |
| theta  | 0°                        | 8°    | 0°                   | 8°    |

■SOT-23 Suggested Pad Layout



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