

## 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

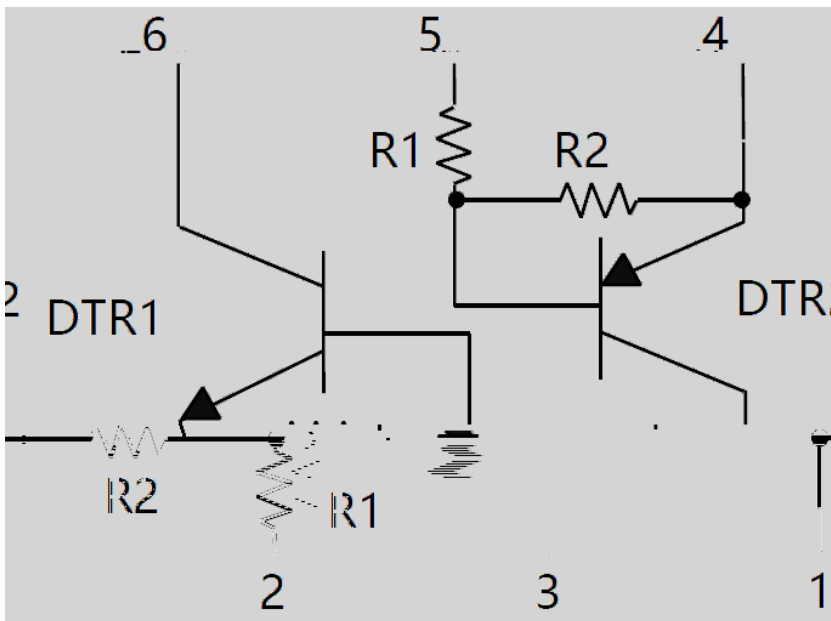
### Mechanical Data

**Package:** SOT-363

**Terminals:** Tin plated leads, solderable per J-STD-002 and JESD22-B102

**Marking:** D9

### Equivalent circuit





**Maximum Ratings** (Ta=25 Unless otherwise specified)

**DTR1-NPN**





# UMD9N

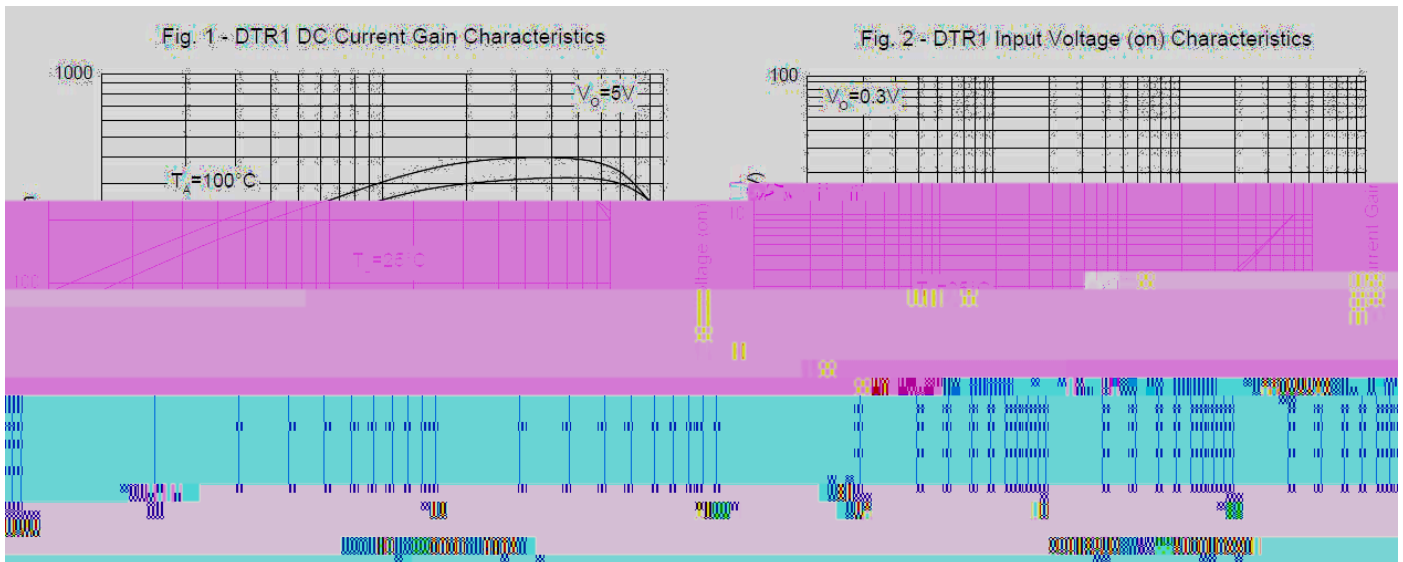
## DTR2-PNP

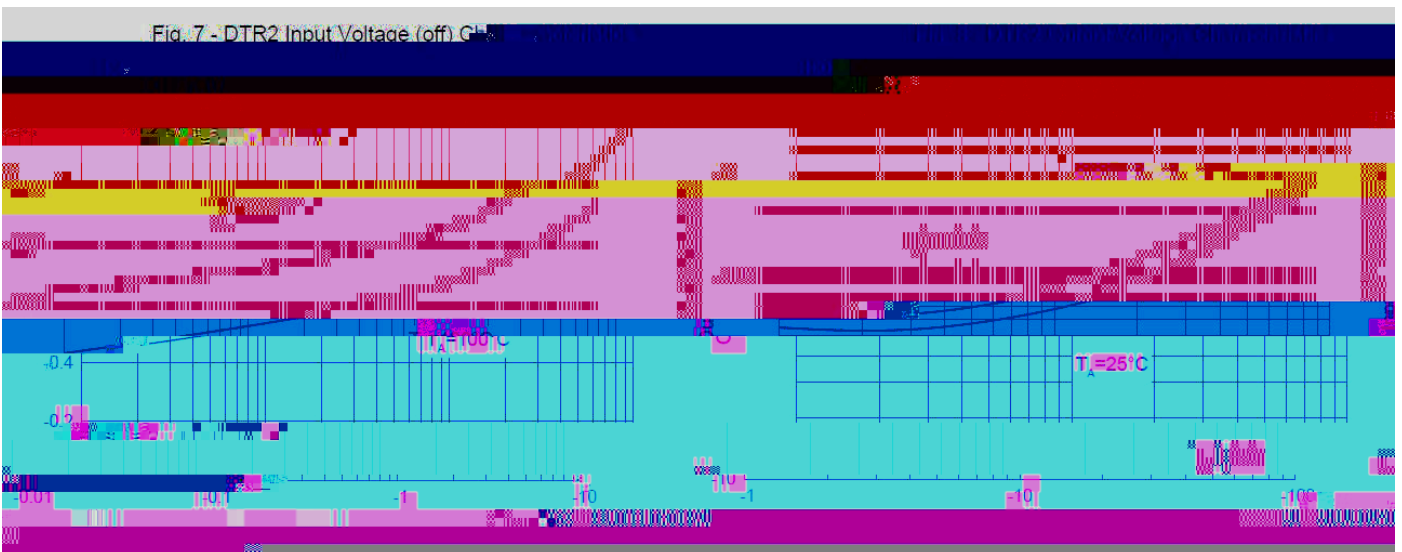
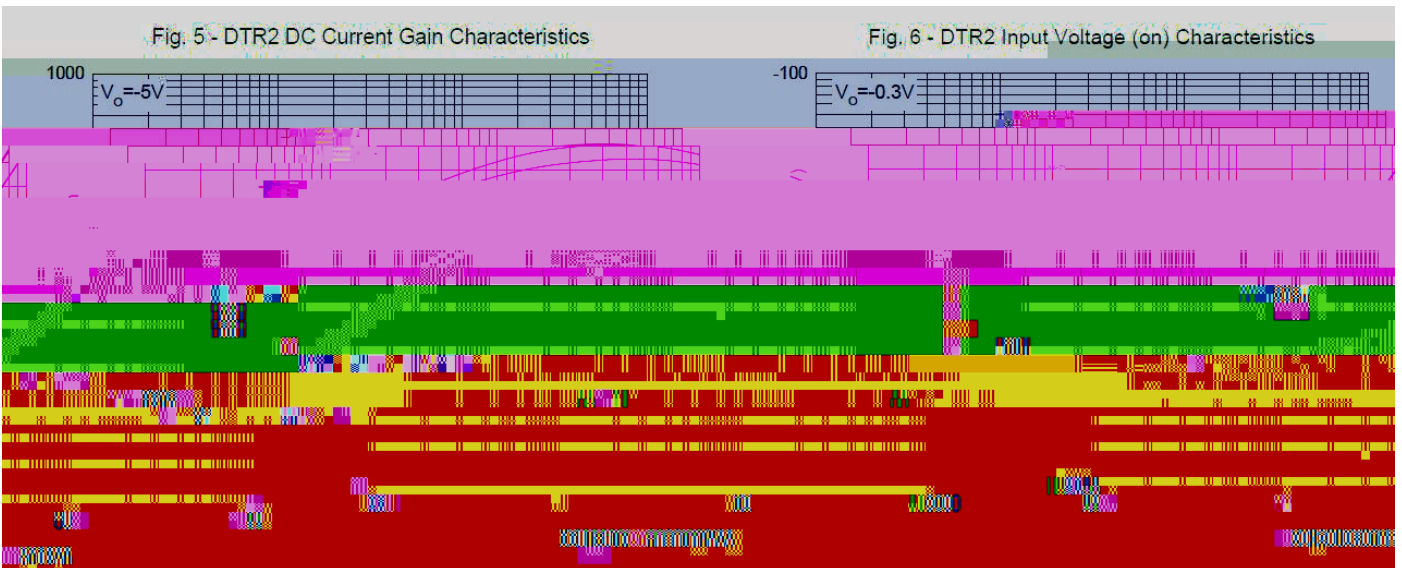
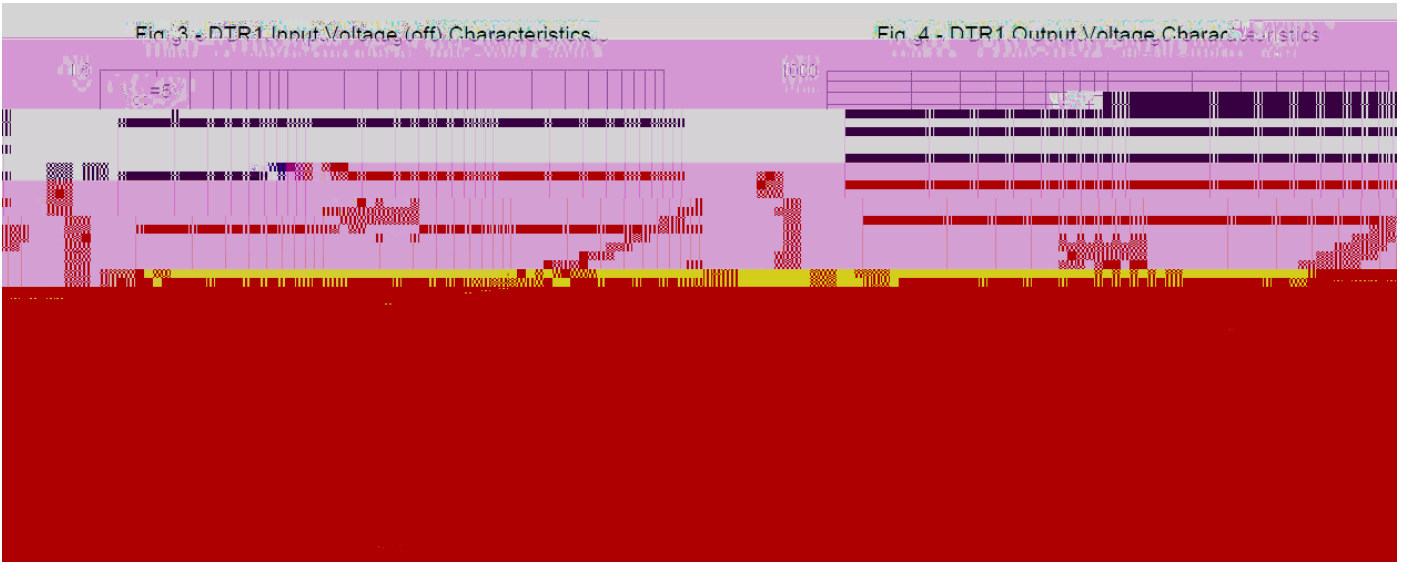
| ITEM                 | SYMBOL       | UNIT    | CONDITIONS                              | MIN  | TYP | MAX   |
|----------------------|--------------|---------|---|------|-----|-------|
| Input voltage        | $V_{I(off)}$ | V       | $V_{CC}=-5V, I_c=-100\mu A$             | -0.3 | -   | -     |
|                      | $V_{I(on)}$  | V       | $V_o=-0.3V, I_c=-1mA$                   | -    | -   | -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       | $I_{O(off)}$ | $\mu A$ | $V_{CC} = -50V, V_i = 0$                | -    | -   | -0.5  |
| DC current gain      | $G_i$        |         | $V_o = -5V, I_o = -5mA$                 | 68   | -   | -     |
| Input resistance     | $R_i$        | k       |   | 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 |
|---------------|--------------|--------------------|----------------------|-------------------------|----------------------------|---------------|
| UMD9N         | F2           | Approximate 0.009g | 3000                 | 30000                   | 120000                     | 7" reel       |

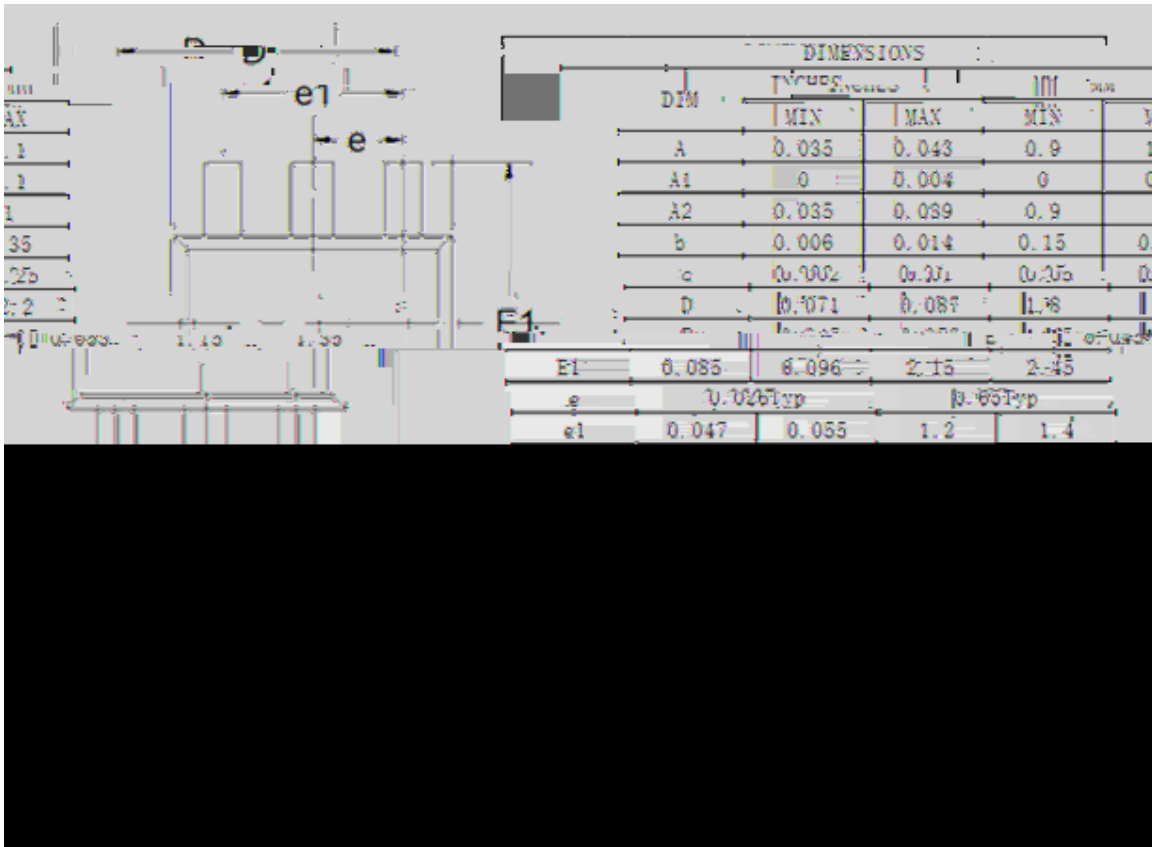
### Characteristics (Typical)







## SOT-363 Package Outline Dimensions



## SOT-363 Suggested Pad Layout

