

**Features**

- Both the DTA114Y Chip and DTC114Y Chip In a Package
- Mounting Possible With SOT-363 Automatic Mounting Machines
- Transistor Elements Independent, Eliminating Interference
- 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**

**DTR1**

| Parameter            | Symbol       | Value   | Unit |
|----------------------|--------------|---------|------|
| Supply Voltage       | $V_{CC}$     | 50      | V    |
| Input Voltage        | $V_{IN}$     | -6~40   | V    |
| Output Current       | $I_O$        | 70      | 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   |

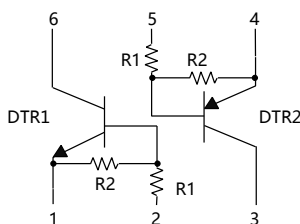
**DTR2**

| 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    | 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.

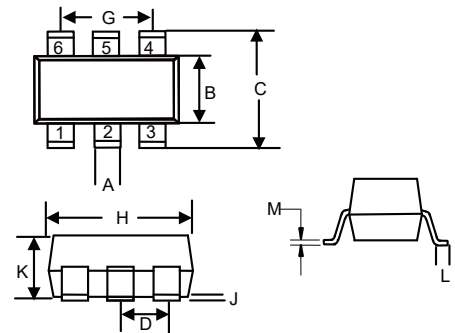
**Device Marking: D9**

**Internal Structure**



**NPN&PNP  
Digital Transistor**

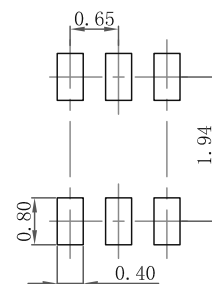
**SOT-363**



**DIMENSIONS**

| DIM | INCHES |       | MM    |      | NOTE |
|-----|--------|-------|-------|------|------|
|     | MIN    | MAX   | MIN   | MAX  |      |
| A   | 0.006  | 0.014 | 0.15  | 0.35 |      |
| B   | 0.045  | 0.053 | 1.15  | 1.35 |      |
| C   | 0.079  | 0.096 | 2.00  | 2.45 |      |
| D   | 0.026  |       | 0.65  |      | TYP. |
| G   | 0.047  | 0.055 | 1.20  | 1.40 |      |
| H   | 0.071  | 0.087 | 1.80  | 2.20 |      |
| J   | -----  | 0.004 | ----- | 0.10 |      |
| K   | 0.031  | 0.043 | 0.80  | 1.10 |      |
| L   | 0.010  | 0.018 | 0.26  | 0.46 |      |
| M   | 0.003  | 0.006 | 0.08  | 0.15 |      |

**Suggested Solder Pad Layout**



**Electrical Characteristics @ 25°C Unless Otherwise Specified**
**DTR1 NPN**

| Parameter            | Symbol       | Min | Typ | Max  | Unit       | Conditions                       |
|----------------------|--------------|-----|-----|------|------------|----------------------------------|
| Input Voltage        | $V_{I(off)}$ | 0.3 | --- | ---  | V          | $V_{CC}=5V, I_O=100\mu A$        |
|                      | $V_{I(on)}$  | --- | --- | 1.4  | V          | $V_O=0.3V, I_O=1mA$              |
| Output Voltage       | $V_{O(on)}$  | --- | --- | 0.3  | V          | $I_O=5mA, I_I=0.25mA$            |
| Input Current        | $I_I$        | --- | --- | 0.88 | mA         | $V_I=5V$                         |
| Output Current       | $I_{O(off)}$ | --- | --- | 0.5  | $\mu A$    | $V_{CC}=50V, V_I=0$              |
| DC Current Gain      | $G_I$        | 68  | --- | ---  |            | $V_O=5V, I_O=5mA$                |
| Input Resistance     | $R_I$        | 7   | 10  | 13   | K $\Omega$ |                                  |
| Resistance Ratio     | $R_2/R_1$    | 3.7 | 4.7 | 5.7  |            |                                  |
| Transition Frequency | $f_T$        | --- | 250 | ---  | MHz        | $V_{CE}=10V, I_E=-5mA, f=100MHz$ |

**DTR2 PNP**

| Parameter            | Symbol       | Min  | Typ | Max   | Unit       | Conditions                       |
|----------------------|--------------|------|-----|-------|------------|----------------------------------|
| Input Voltage        | $V_{I(off)}$ | -0.3 | --- | ---   | V          | $V_{CC}=-5V, I_O=-100\mu A$      |
|                      | $V_{I(on)}$  | ---  | --- | -1.4  | V          | $V_O=-0.3V, I_O=-1mA$            |
| Output Voltage       | $V_{O(on)}$  | ---  | --- | -0.3  | V          | $I_O=-5mA, I_I=-0.25mA$          |
| Input Current        | $I_I$        | ---  | --- | -0.88 | mA         | $V_I=-5V$                        |
| Output Current       | $I_{O(off)}$ | ---  | --- | -0.5  | $\mu A$    | $V_{CC}=-50V, V_I=0$             |
| DC Current Gain      | $G_I$        | 68   | --- | ---   |            | $V_O=-5V, I_O=-5mA$              |
| Input Resistance     | $R_I$        | 7.0  | 10  | 13    | K $\Omega$ |                                  |
| Resistance Ratio     | $R_2/R_1$    | 3.7  | 4.7 | 5.7   |            |                                  |
| Transition Frequency | $f_T$        | ---  | 250 | ---   | MHz        | $V_{CE}=-10V, I_E=5mA, f=100MHz$ |

Curve Characteristics

Fig. 1 - DTR1 DC Current Gain Characteristics

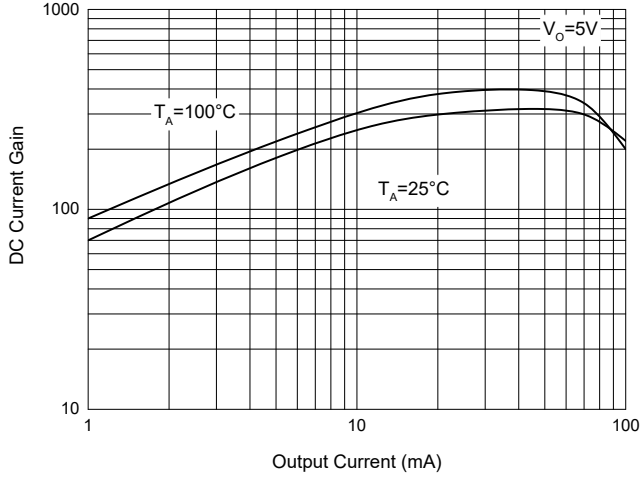


Fig. 2 - DTR1 Input Voltage (on) Characteristics

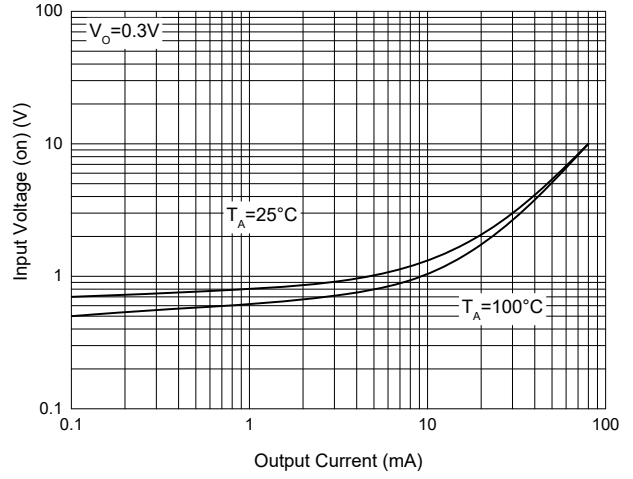


Fig. 3 - DTR1 Input Voltage (off) Characteristics

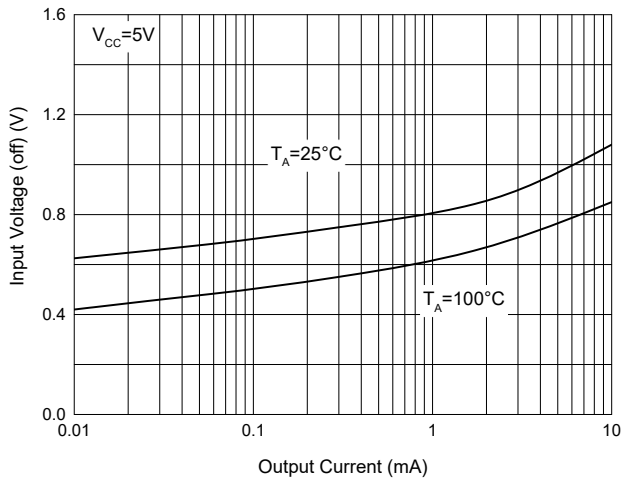


Fig. 4 - DTR1 Output Voltage Characteristics

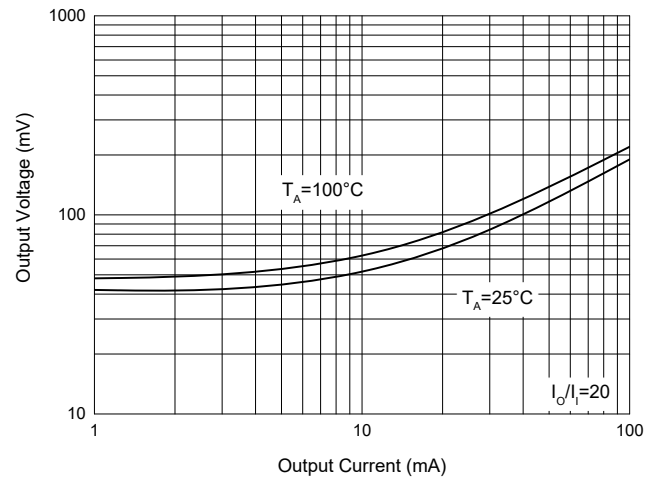


Fig. 5 - DTR2 DC Current Gain Characteristics

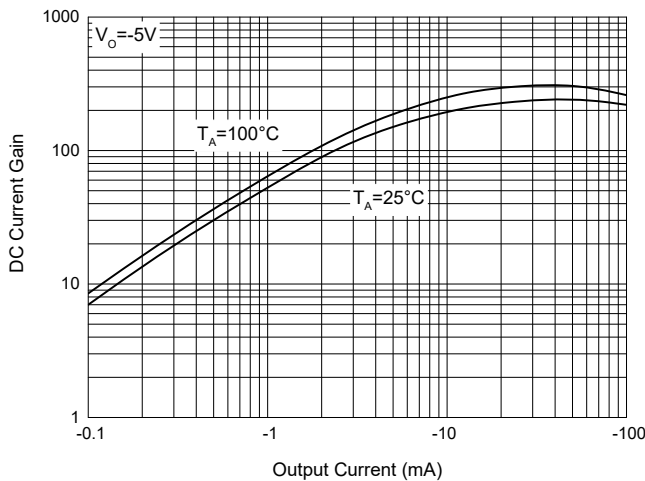
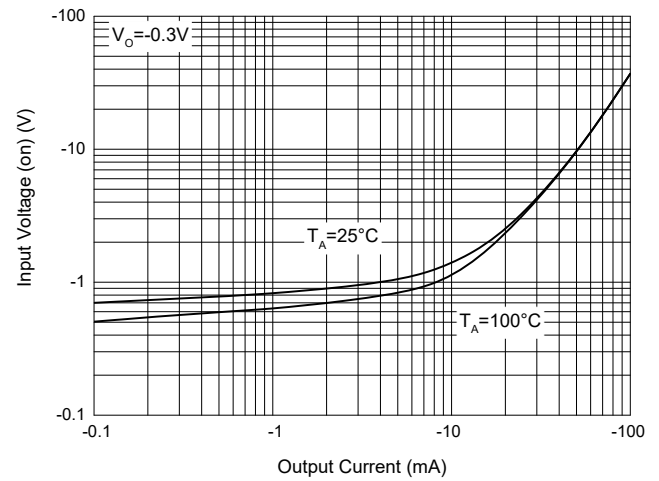


Fig. 6 - DTR2 Input Voltage (on) Characteristics



Curve Characteristics

Fig. 7 - DTR2 Input Voltage (off) Characteristics

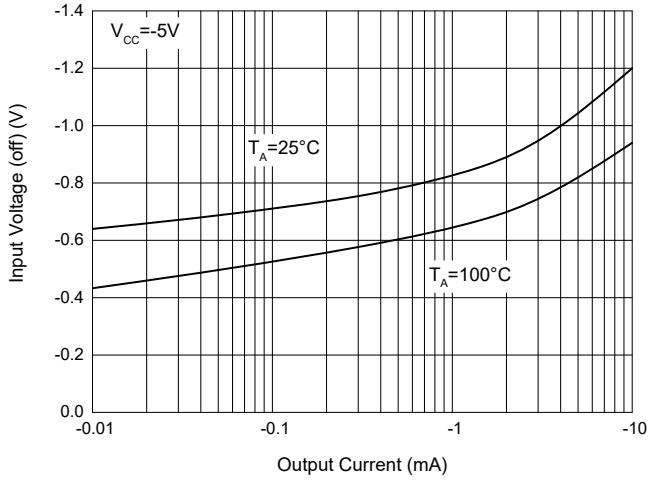


Fig. 8 - DTR2 Output Voltage Characteristics

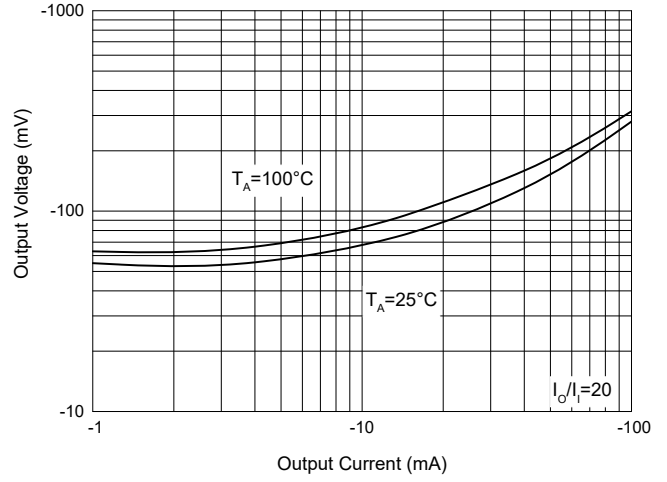
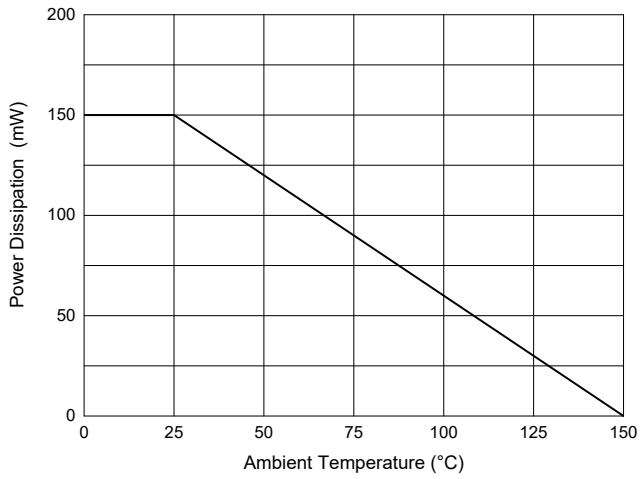


Fig. 9 - Power Derating Curve



## Ordering Information

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

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