## 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)

# NPN&PNP Digital Transistor

## 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 |

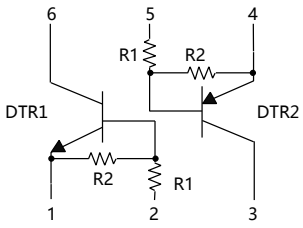
**DTR2**

| 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 |

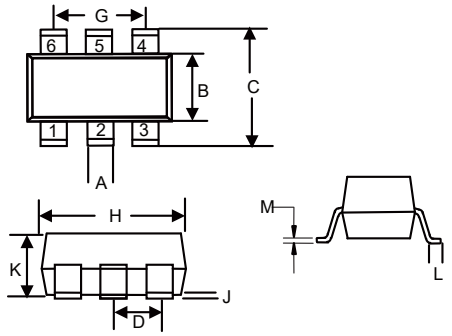
Note: 1. Halogen free "Green” products are defined as those which contain <900ppm bromine, <900ppm chlorine (<1500ppm total Br + Cl) and <1000ppm antimony compounds.

**Device Marking：D9**

Internal Structure

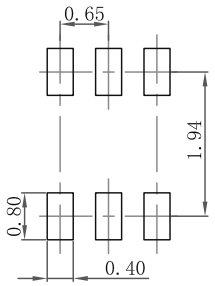



## SOT-363




| 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, $I_O$=100μA |
| | $V_{I(on)}$ | --- | --- | 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 | 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 | KΩ | |
| 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, $I_O$=-100μA |
| | $V_{I(on)}$ | --- | --- | -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 | μA | $V_{CC}$=-50V, $V_I$=0 |
| DC Current Gain | $G_I$ | 68 | --- | --- | | $V_O$=-5V, $I_O$=-5mA |
| Input Resistance | $R_1$ | 7.0 | 10 | 13 | KΩ | |
| 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

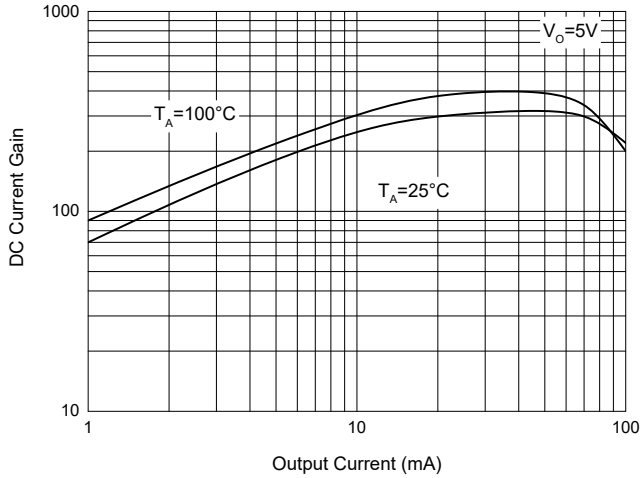



Fig. 2 - DTR1 Input Voltage (on) Characteristics

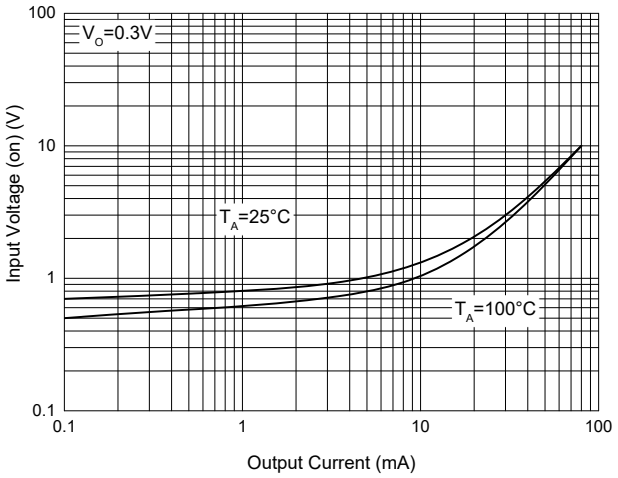



Fig. 3 - DTR1 Input Voltage (off) Characteristics

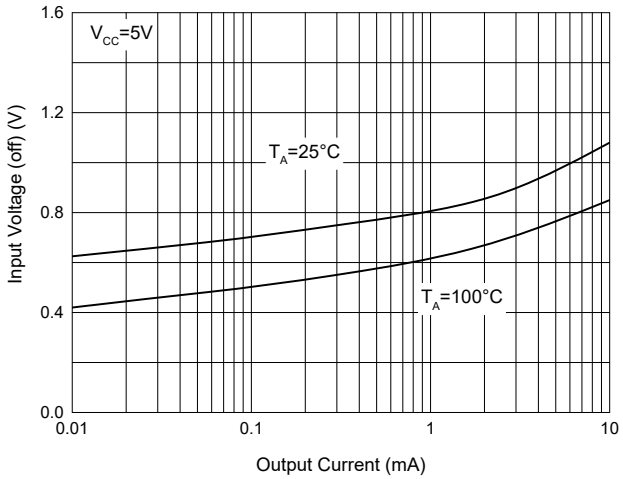



Fig. 4 - DTR1 Output Voltage Characteristics

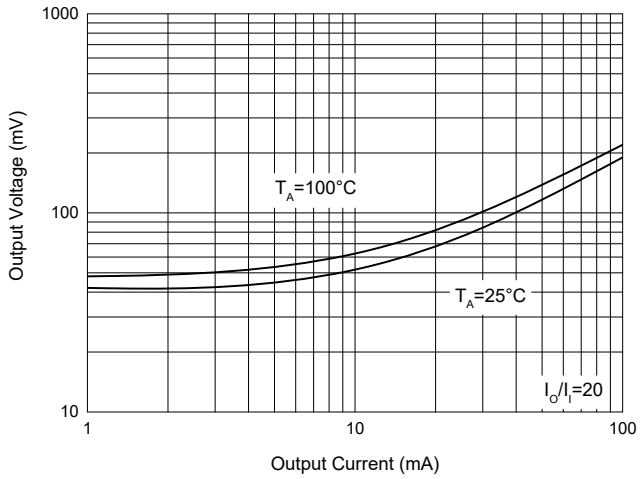



Fig. 5 - DTR2 DC Current Gain Characteristics

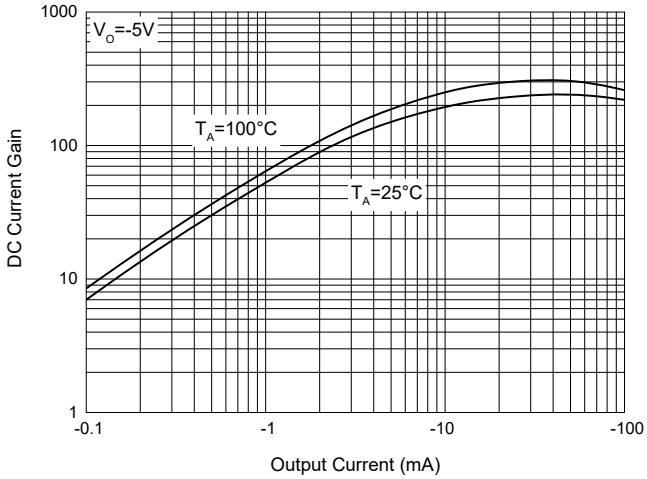
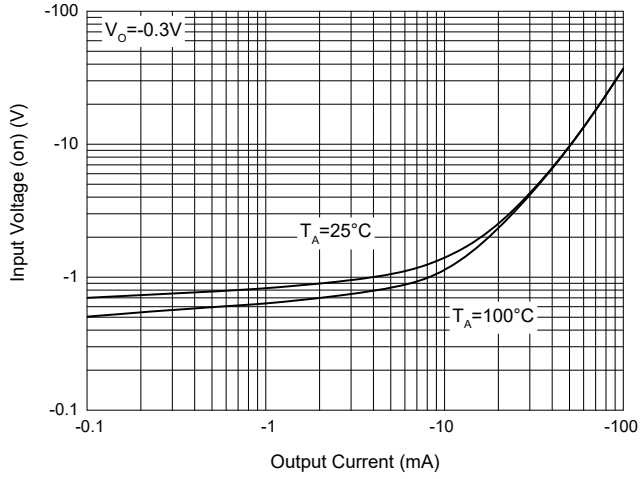



Fig. 6 - DTR2 Input Voltage (on) Characteristics



## Curve Characteristics

Fig. 7 - DTR2 Input Voltage (off) Characteristics

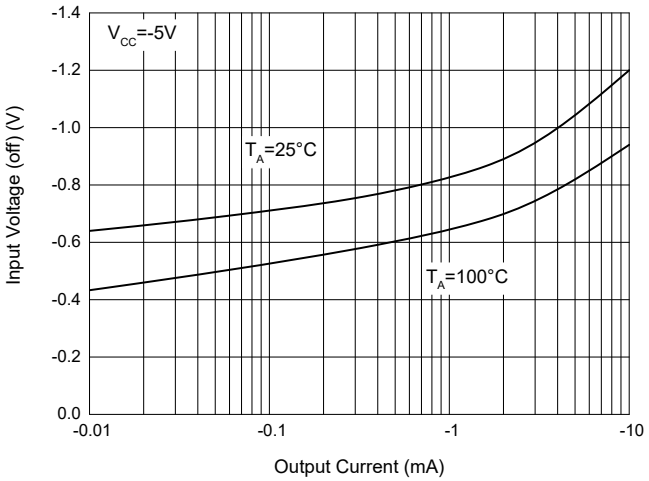



Fig. 8 - DTR2 Output Voltage Characteristics

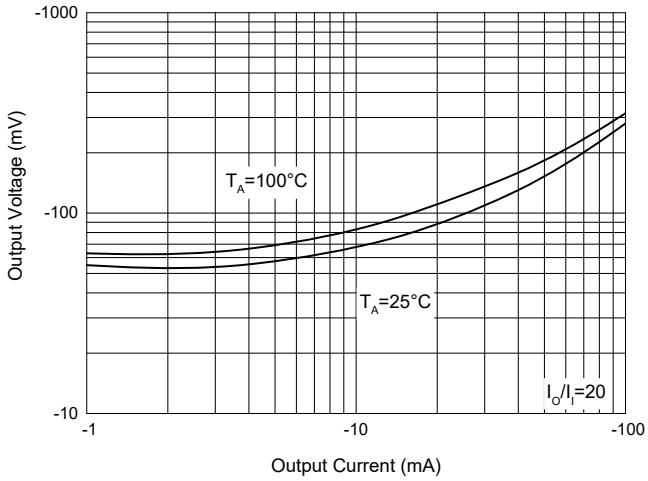
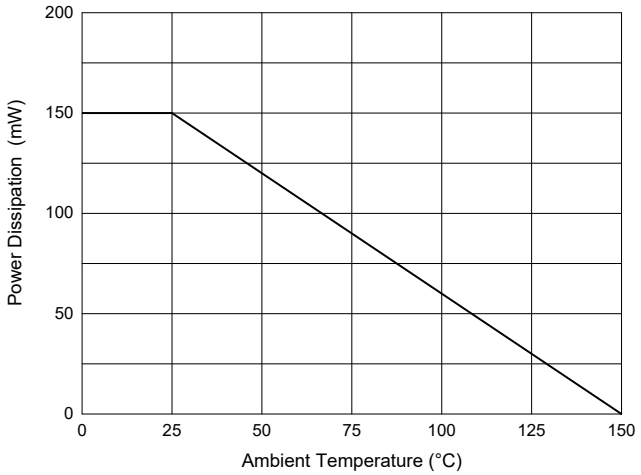



Fig. 9 - Power Derating Curve



## Ordering Information

| Device | Packing |
|---|---|
| Part Number-TP | Tape&Reel:3Kpcs/Reel |
| Part Number-TPQ2 | Tape&Reel:3Kpcs/Reel |
| Part Number-13P | Tape&Reel:10Kpcs/Reel |

For packaging details,go to our website at https://www.mccsemi.com/pdf/ProductPackaging/SOT-363%20Package.pdf


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