

UMD15N-TP Datasheet

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| | |
|------------------------------|---|
| DiGi Electronics Part Number | UMD15N-TP-DG |
| Manufacturer | Micro Commercial Co |
| Manufacturer Product Number | UMD15N-TP |
| Description | Interface |
| Detailed Description | Pre-Biased Bipolar Transistor (BJT) NPN - Pre-Biased 50V 100mA 250MHz 150mW Surface Mount SOT-363 |



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Purchase and inquiry

Manufacturer Product Number:

UMD15N-TP

Series:

-

Transistor Type:

NPN - Pre-Biased

Voltage - Collector Emitter Breakdown (Max):

50V

Resistor - Emitter Base (R2):

4.7kOhms

Vce Saturation (Max) @ Ib, Ic:

300mV @ 500µA, 10mA

Frequency - Transition:

250MHz

Mounting Type:

Surface Mount

Supplier Device Package:

SOT-363

Manufacturer:

Micro Commercial Co

Product Status:

Active

Current - Collector (Ic) (Max):

100mA

Resistor - Base (R1):

4.7kOhms

DC Current Gain (hFE) (Min) @ Ic, Vce:

20 @ 10mA, 5V

Current - Collector Cutoff (Max):

500nA

Power - Max:

150mW

Package / Case:

6-TSSOP, SC-88, SOT-363

Base Product Number:

UMD15

Environmental & Export classification

REACH Status:

REACH Unaffected

HTSUS:

8541.21.0075

ECCN:

EAR99

Features

- Both the DTA143E Chip and DTC143E 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} | -10~30 | V |
| Output Current | I_O | 100 | 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 |

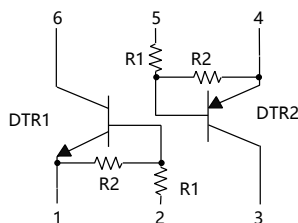
DTR2

| Parameter | Symbol | Value | Unit |
|----------------------|--------------|---------|------|
| Supply Voltage | V_{CC} | -50 | V |
| Input Voltage | V_{IN} | -30~10 | V |
| Output Current | I_O | -100 | 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.

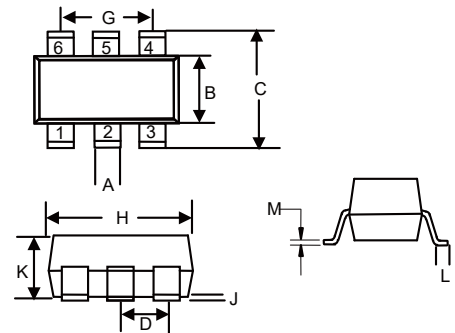
Device Marking: D15

Internal Structure



NPN&PNP Digital Transistor

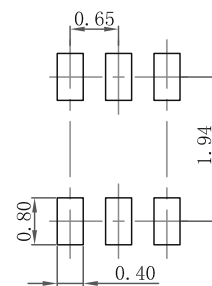
SOT-363



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 | $V_{I(off)}$ | 0.5 | --- | --- | V | $V_{CC}=5V, I_O=100\mu A$ |
| | $V_{I(on)}$ | --- | --- | 3.0 | V | $V_O=0.3V, I_O=20mA$ |
| Output Voltage | $V_{O(on)}$ | --- | --- | 0.3 | V | $I_O=10mA, I_I=0.5mA$ |
| Input Current | I_I | --- | --- | 1.8 | mA | $V_I=5V$ |
| Output Current | $I_{O(off)}$ | --- | --- | 0.5 | μA | $V_{CC}=50V, V_I=0$ |
| DC Current Gain | G_I | 20 | --- | --- | | $V_O=5V, I_O=10mA$ |
| Input Resistance | R_I | 3.29 | 4.7 | 6.11 | K Ω | |
| Resistance Ratio | R_2/R_1 | 0.8 | 1 | 1.2 | | |
| 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 | $V_{I(off)}$ | -0.5 | --- | --- | V | $V_{CC}=-5V, I_O=-100\mu A$ |
| | $V_{I(on)}$ | --- | --- | -3.0 | V | $V_O=-0.3V, I_O=-20mA$ |
| Output Voltage | $V_{O(on)}$ | --- | --- | -0.3 | V | $I_O=-10mA, I_I=-0.5mA$ |
| Input Current | I_I | --- | --- | -1.8 | mA | $V_I=-5V$ |
| Output Current | $I_{O(off)}$ | --- | --- | -0.5 | μA | $V_{CC}=-50V, V_I=0$ |
| DC Current Gain | G_I | 30 | --- | --- | | $V_O=-5V, I_O=-10mA$ |
| Input Resistance | R_I | 3.29 | 4.7 | 6.11 | K Ω | |
| Resistance Ratio | R_2/R_1 | 0.8 | 1.0 | 1.2 | | |
| Transition Frequency | f_T | --- | 250 | --- | MHz | $V_{CE}=-10V, I_E=5mA, f=100MHz$ |

Curve Characteristics

Fig. 1 - DTR1 DC Current Gain Characteristics

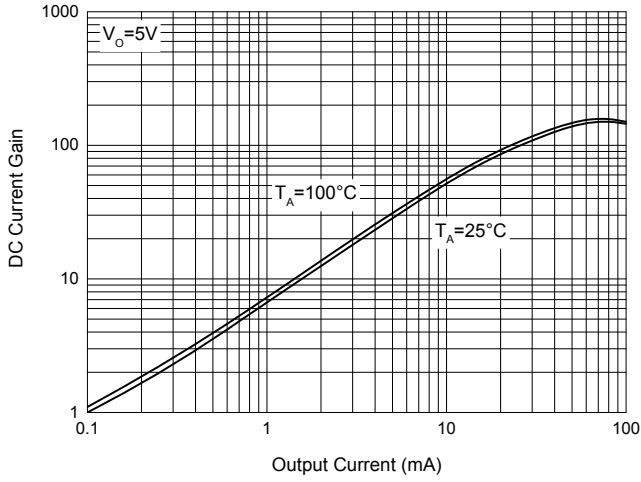


Fig. 2 - DTR1 Input Voltage (on) Characteristics

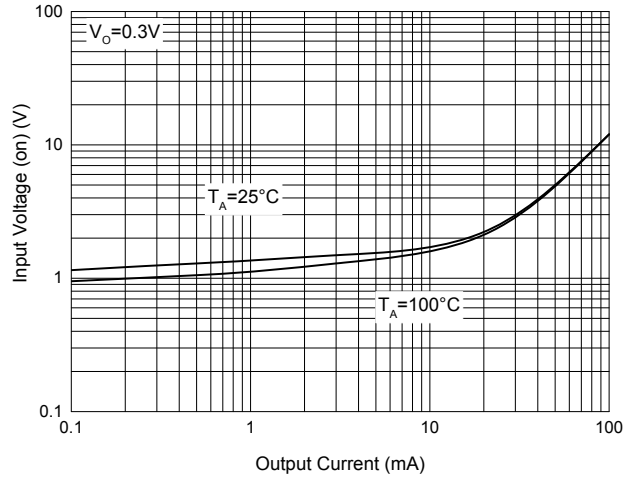


Fig. 3 - DTR1 Input Voltage (off) Characteristics

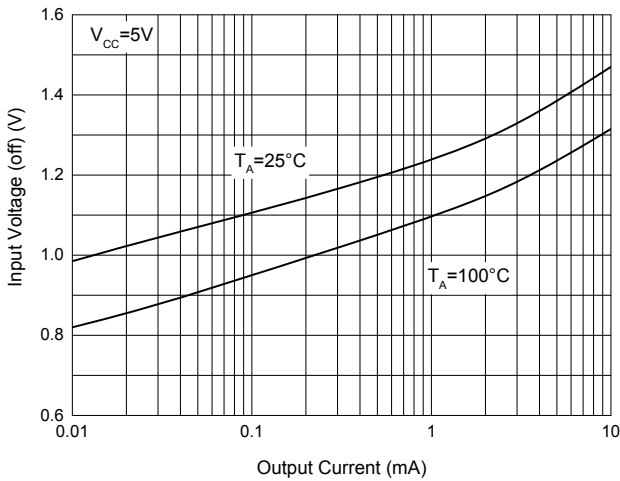


Fig. 4 - DTR1 Output Voltage Characteristics

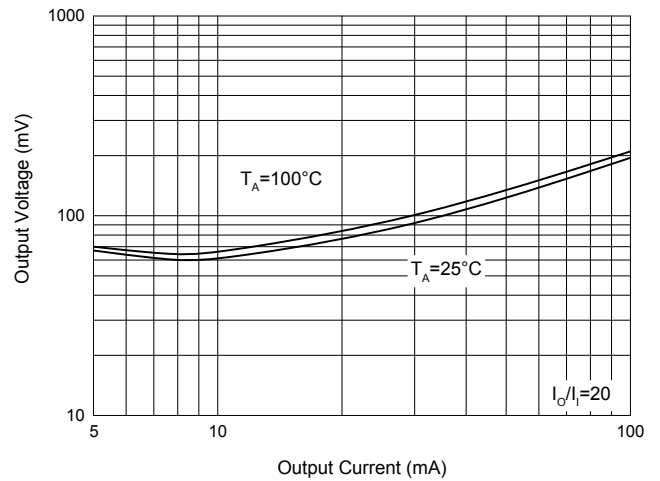


Fig. 5 - DTR2 DC Current Gain Characteristics

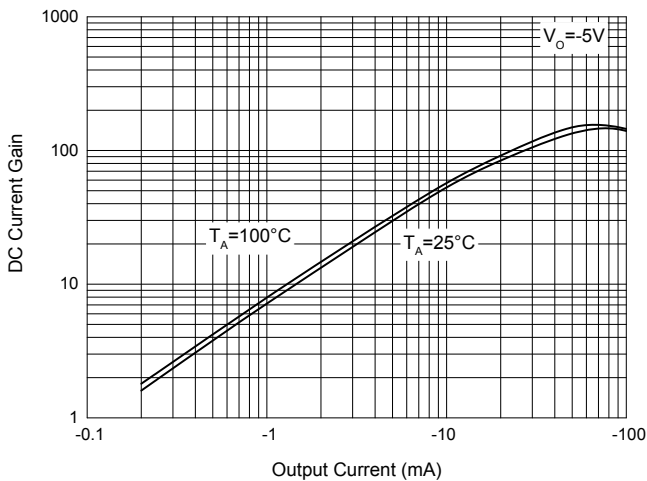
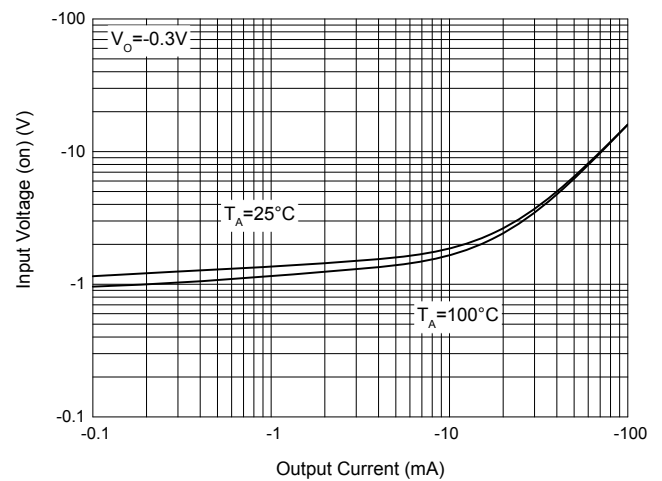


Fig. 6 - DTR2 Input Voltage (on) Characteristics



Curve Characteristics

Fig. 3 - DTR2 Input Voltage (off) Characteristics

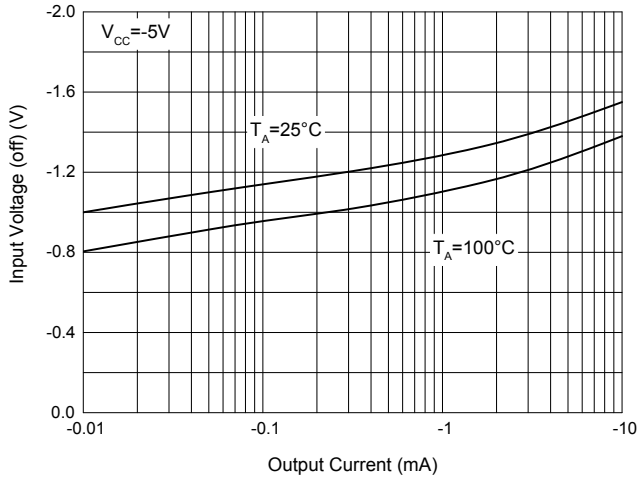


Fig. 8 - DTR2 Output Voltage Characteristics

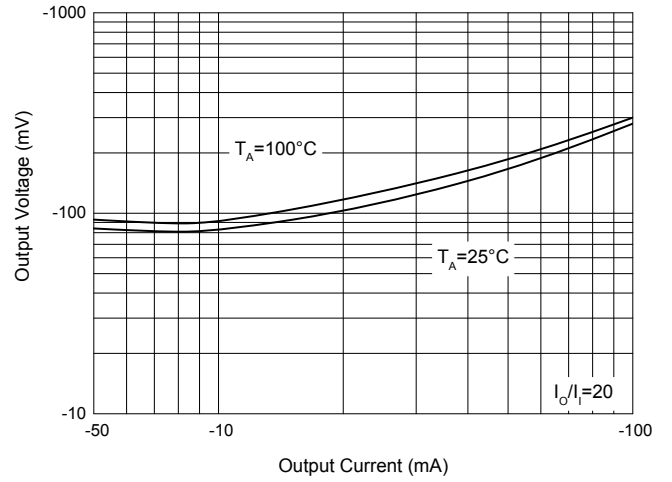
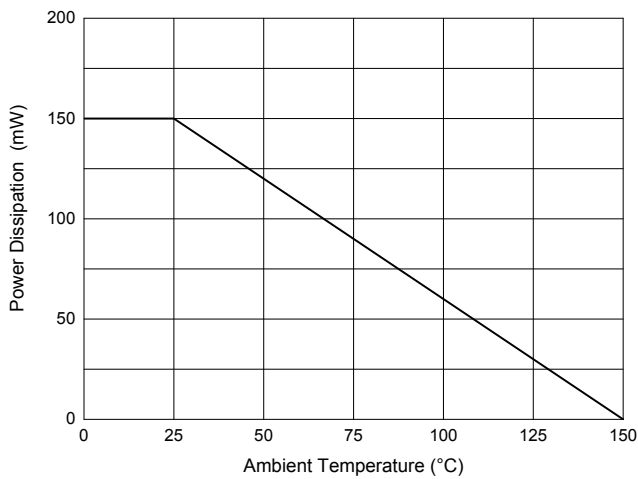


Fig. 9 - Power Derating Curve



Ordering Information

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

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