

## Features

- AEC-Q101 Qualified
- 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

- Thermal Resistance: 625°C/W Junction to Ambient

### DTR1 NPN

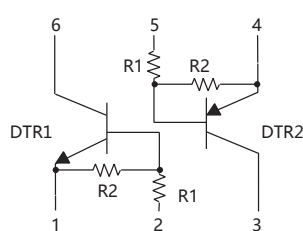
Parameter	Symbol	Value	Unit
Supply Voltage	$V_{CC}$	50	V
Input Voltage	$V_{IN}$	-10~+40	V
Output Current	$I_O$	50	mA
Peak Collector Current	$I_{CM}$	100	mA
Power Dissipation	$P_D$	200	mW
Junction Temperature	$T_J$	150	°C
Storage Temperature	$T_{stg}$	-55~+150	°C

### DTR2 PNP

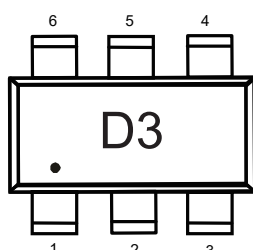
Parameter	Symbol	Value	Unit
Supply Voltage	$V_{CC}$	-50	V
Input Voltage	$V_{IN}$	-40~+10	V
Output Current	$I_O$	-50	mA
Peak Collector Current	$I_{CM}$	-100	mA
Power Dissipation	$P_D$	200	mW
Junction Temperature	$T_J$	150	°C
Storage Temperature	$T_{stg}$	-55~+150	°C

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

### Internal Structure

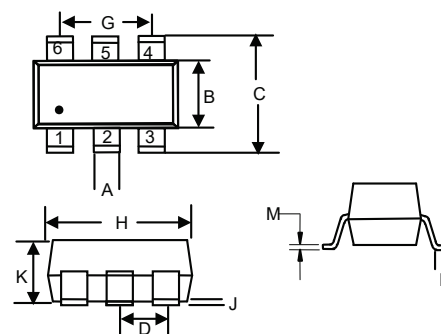


### Device Marking



## NPN&PNP Digital Transistor

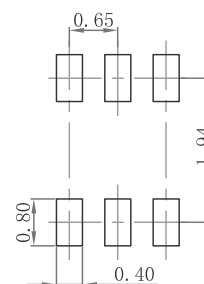
### SOT-363



### 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	$V_O=0.3V, I_O=10mA$
Output Voltage	$V_{O(on)}$	---	---	0.3	V	$I_O=10mA, I_I=0.5mA$
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	$G_I$	30	---	---		$V_O=5V, I_O=5mA$
Input Resistance	$R_I$	7	10	13	K $\Omega$	
Resistance Ratio	$R_2/R_1$	0.8	1.0	1.2		
Transition Frequency	$f_T$	---	250	---	MHz	$V_{CE}=10V, I_E=5mA, f=100MHz$

### 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	$V_O=-0.3V, I_O=-10mA$
Output Voltage	$V_{O(on)}$	---	---	-0.3	V	$I_O=-10mA, I_I=-0.5mA$
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	$G_I$	30	---	---		$V_O=-5V, I_O=-5mA$
Input Resistance	$R_I$	7	10	13	K $\Omega$	
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

### DTR1-NPN

Fig. 1 - DC Current Gain Characteristics

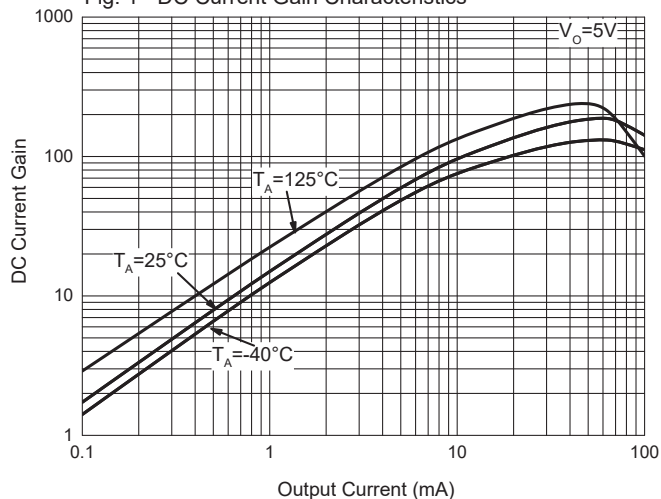


Fig. 2 - Input Voltage (on) Characteristics

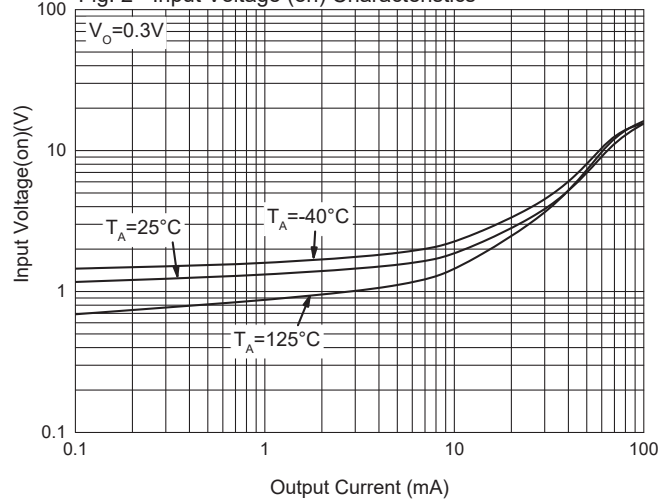


Fig. 3 - Input Voltage (off) Characteristics

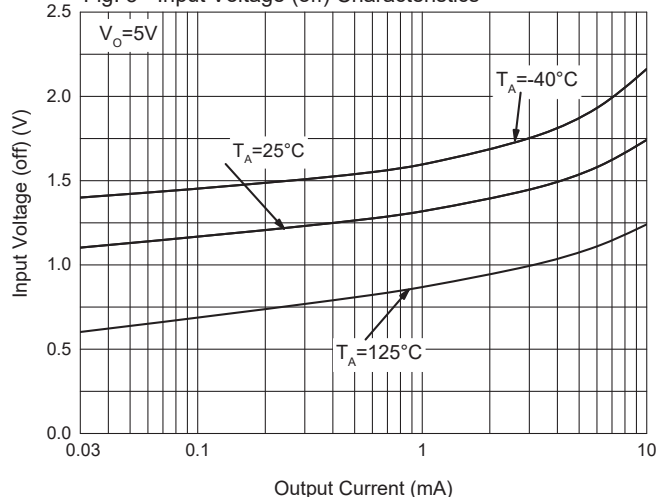


Fig. 4 - Output Voltage Characteristics

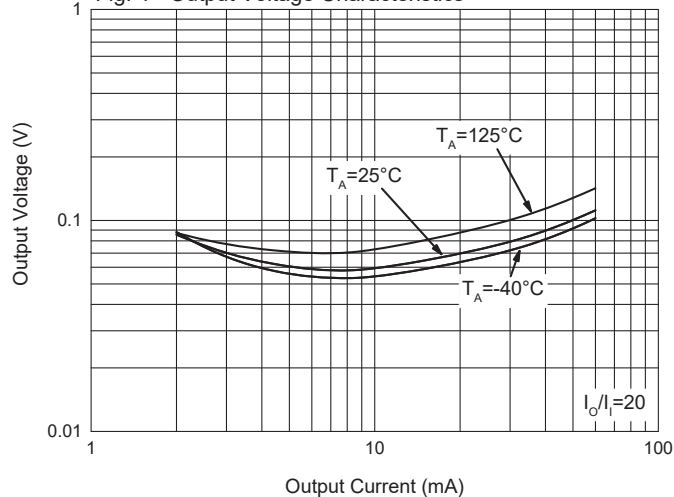
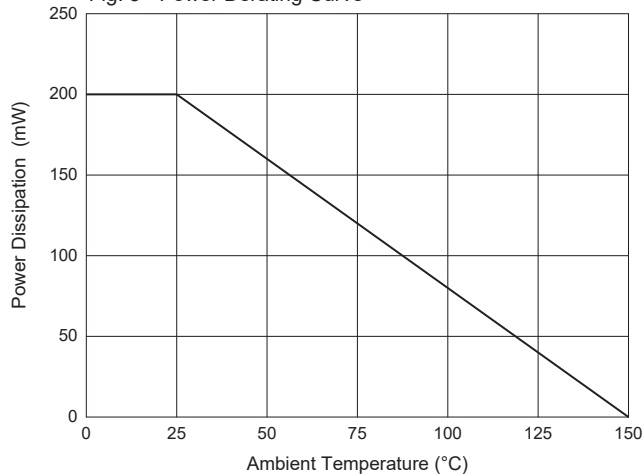


Fig. 5 - Power Derating Curve



## Curve Characteristics DTR2-PNP

Fig. 1 - DC Current Gain Characteristics

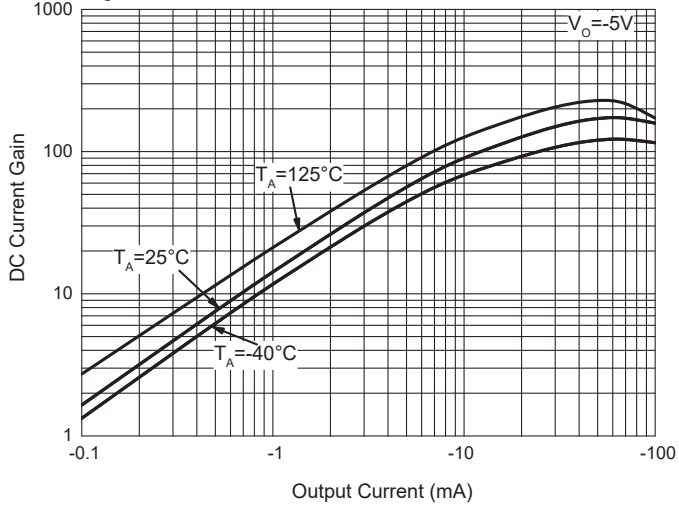


Fig. 2 - Input Voltage (on) Characteristics

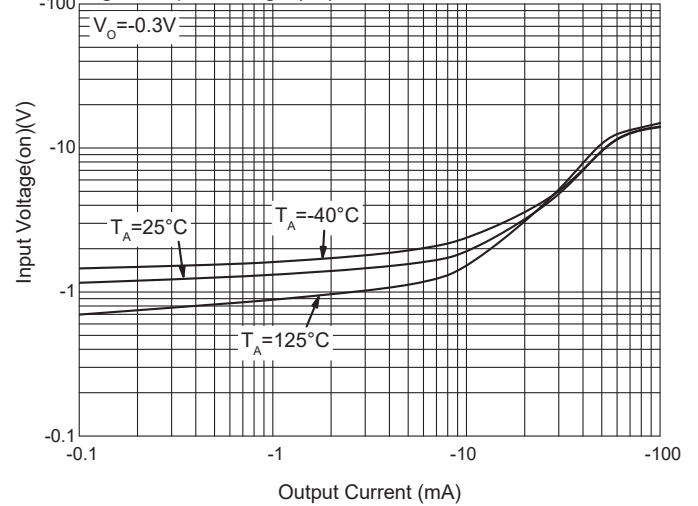


Fig. 3 - Input Voltage (off) Characteristics

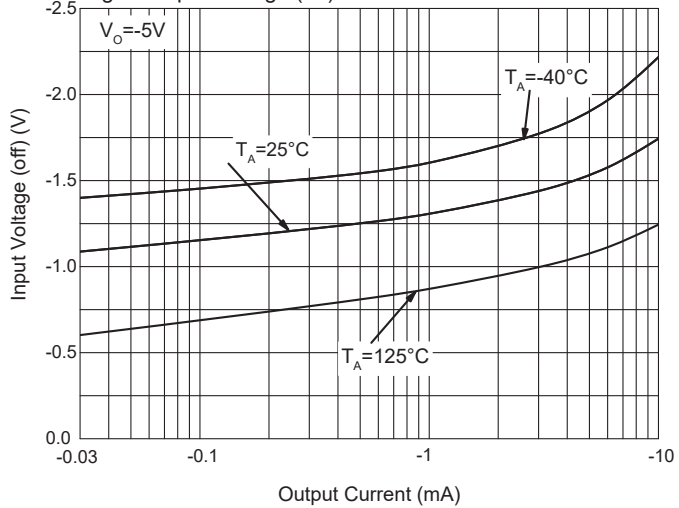


Fig. 4 - Output Voltage Characteristics

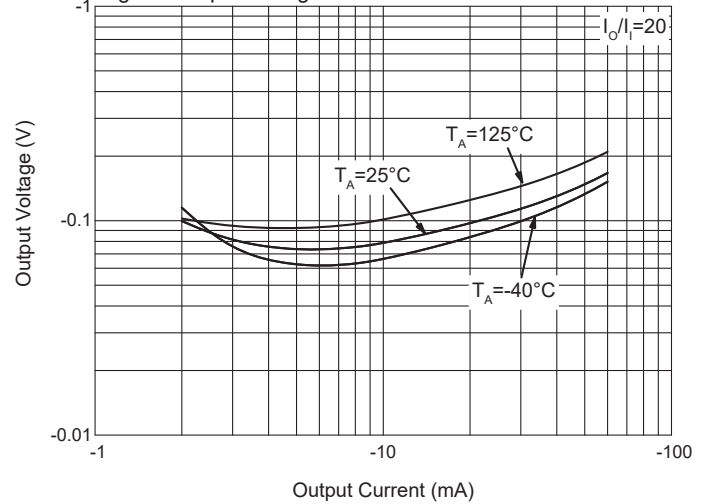
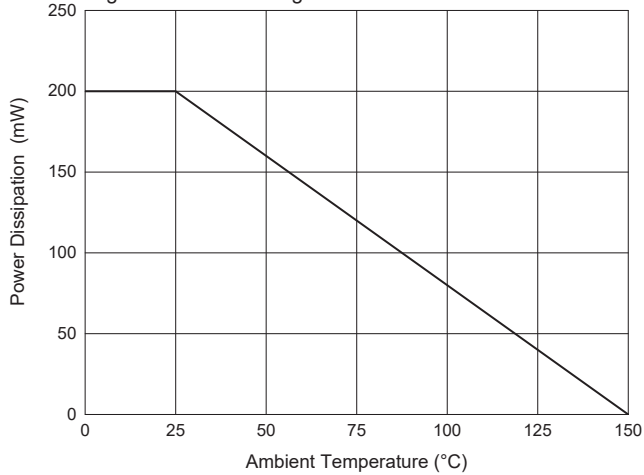


Fig. 5 - Power Derating Curve



## Ordering Information

Device	Packing
UMD3NHE3-TP	Tape&Reel:3Kpcs/Reel

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