

**Features**

- Mounting Possible With SOT-563 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**

- Thermal Resistance: 833°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	$I_O$	100	mA
Power Dissipation	$P_D$	150	mW
Junction Temperature	$T_J$	150	°C
Storage Temperature	$T_{stg}$	-55~+150	°C

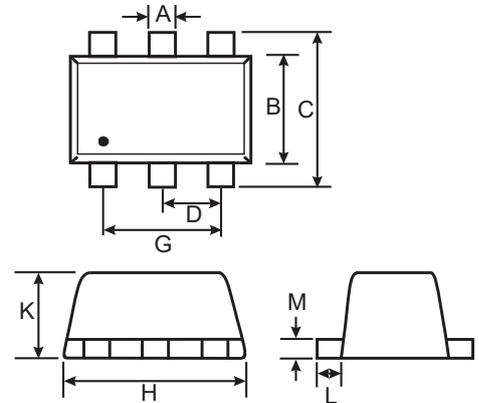
**DTR2-PNP**

Parameter	Symbol	Value	Unit
Supply Voltage	$V_{CC}$	-50	V
Input Voltage	$V_{IN}$	-40~+10	V
Output Current	$I_O$	-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.

**NPN&PNP  
Digital Transistor**

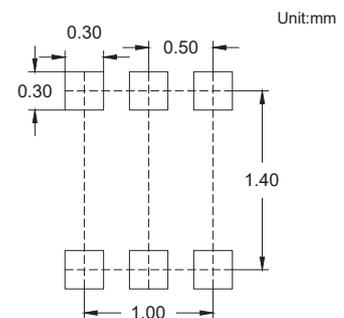
**SOT-563**



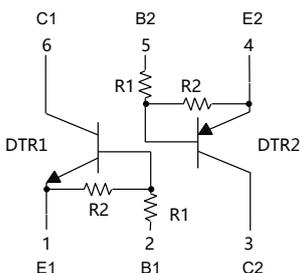
**DIMENSIONS**

DIM	INCHES		MM		NOTE
	MIN	MAX	MIN	MAX	
A	0.006	0.011	0.15	0.30	
B	0.043	0.051	1.10	1.30	
C	0.059	0.067	1.50	1.70	
D	0.020		0.50		TYP.
G	0.035	0.043	0.90	1.10	
H	0.059	0.067	1.50	1.70	
K	0.022	0.026	0.55	0.65	
L	0.004	0.011	0.10	0.30	
M	0.004	0.007	0.10	0.18	

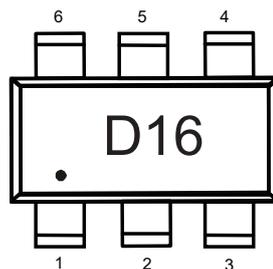
**Suggested Solder Pad Layout**



**Internal Structure**



**Device Marking**



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

Parameter	Symbol	Min	Typ	Max	Unit	Conditions
Input Voltage	$V_{I(off)}$	0.4	---	---	V	$V_{CC}=5V, I_O=100\mu A$
	$V_{I(on)}$	---	---	2.5	V	$V_O=0.3V, I_O=2mA$
Output Voltage	$V_{O(on)}$	---	---	0.3	V	$I_O=10mA, I_I=0.5mA$
Input Current	$I_I$	---	---	120	$\mu A$	$V_I=5V$
Output Current	$I_{O(off)}$	---	---	0.1	$\mu A$	$V_{CC}=50V, V_I=0$
DC Current Gain	$G_I$	56	---	---		$V_O=5V, I_O=5mA$
Input Resistance	$R_I$	15.4	22	28.6	K $\Omega$	
Resistance Ratio	$R_2/R_1$	1.7	2.1	2.6		
Transition Frequency	$f_T$	200	---	---	MHz	$V_O=10V, I_E=5mA, f=100MHz$

**DTR2-PNP**

Parameter	Symbol	Min	Typ	Max	Unit	Conditions
Input Voltage	$V_{I(off)}$	-0.4	---	---	V	$V_{CC}=-5V, I_O=-100\mu A$
	$V_{I(on)}$	---	---	-2.5	V	$V_O=-0.3V, I_O=-2mA$
Output Voltage	$V_{O(on)}$	---	---	-0.3	V	$I_O=-10mA, I_I=-0.5mA$
Input Current	$I_I$	---	---	-120	$\mu A$	$V_I=-5V$
Output Current	$I_{O(off)}$	---	---	-0.1	$\mu A$	$V_{CC}=-50V, V_I=0$
DC Current Gain	$G_I$	56	---	---		$V_O=-5V, I_O=-5mA$
Input Resistance	$R_I$	15.4	22	28.6	K $\Omega$	
Resistance Ratio	$R_2/R_1$	1.7	2.1	2.6		
Transition Frequency	$f_T$	200	---	---	MHz	$V_O=-10V, I_E=-5mA, f=100MHz$

**Curve Characteristics**

**DTR1-NPN**

Fig. 1 - DC Current Gain Characteristics

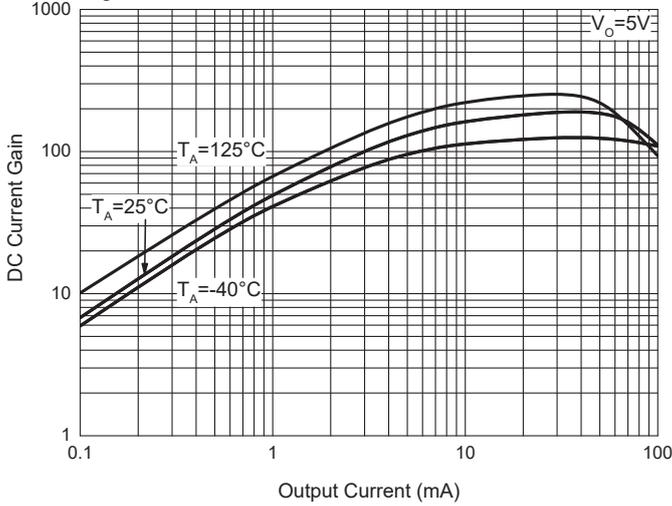


Fig. 2 - Input Voltage (on) Characteristics

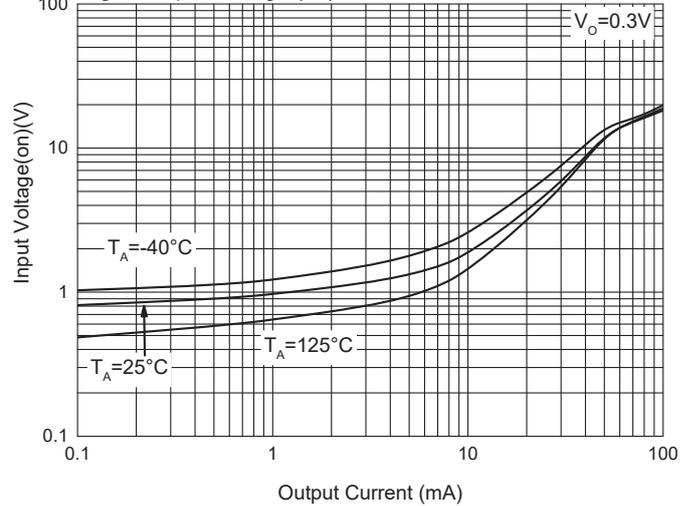


Fig. 3 - Input Voltage (off) Characteristics

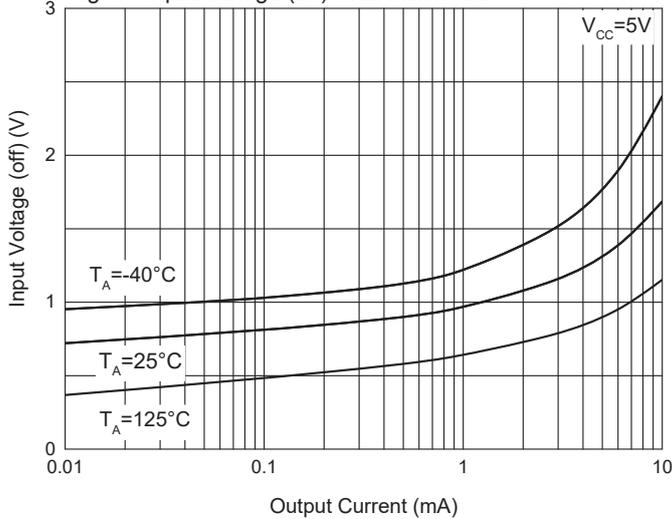


Fig. 4 - Output Voltage Characteristics

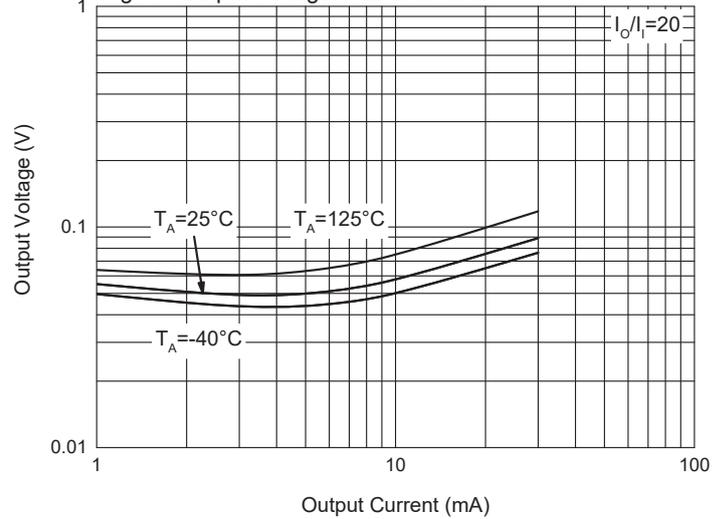
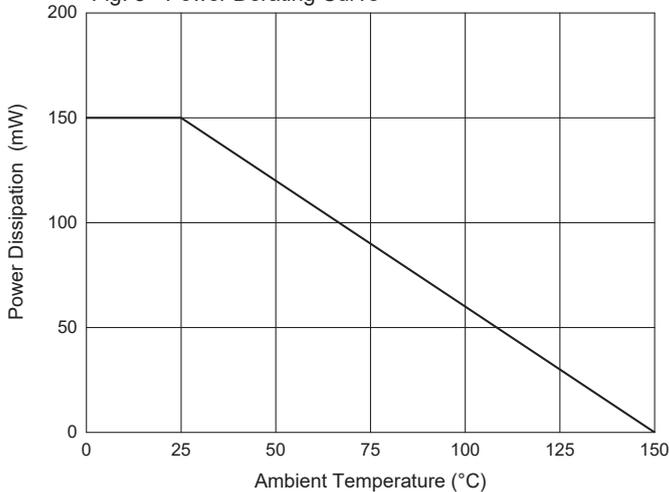


Fig. 5 - Power Derating Curve



**Curve Characteristics**

**DTR2-PNP**

Fig. 1 - DC Current Gain Characteristics

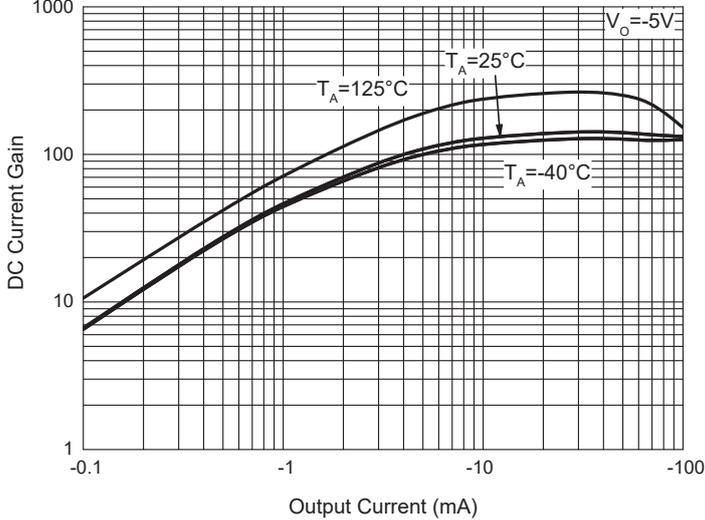


Fig. 2 - Input Voltage (on) Characteristics

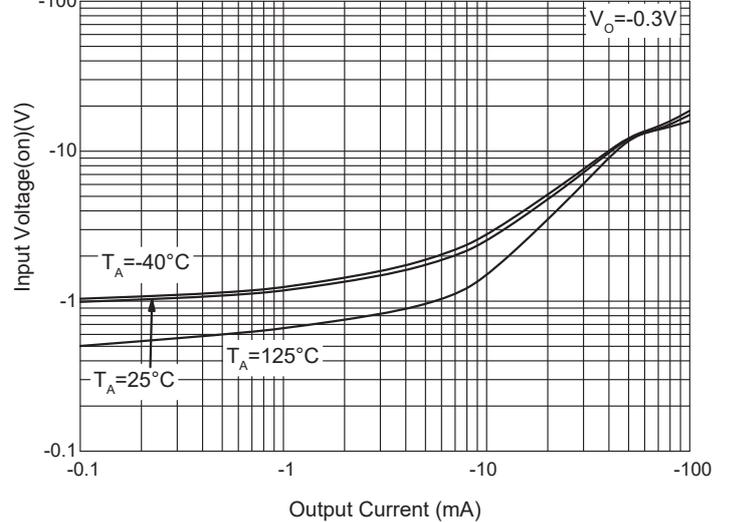


Fig. 3 - Input Voltage (off) Characteristics

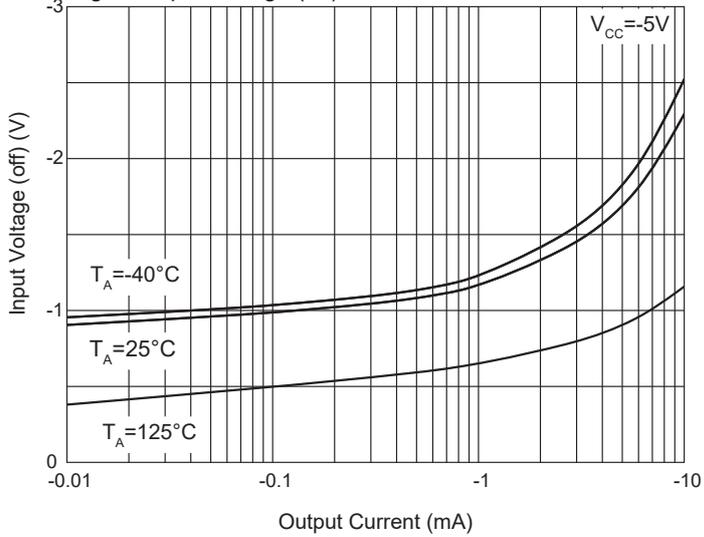


Fig. 4 - Output Voltage Characteristics

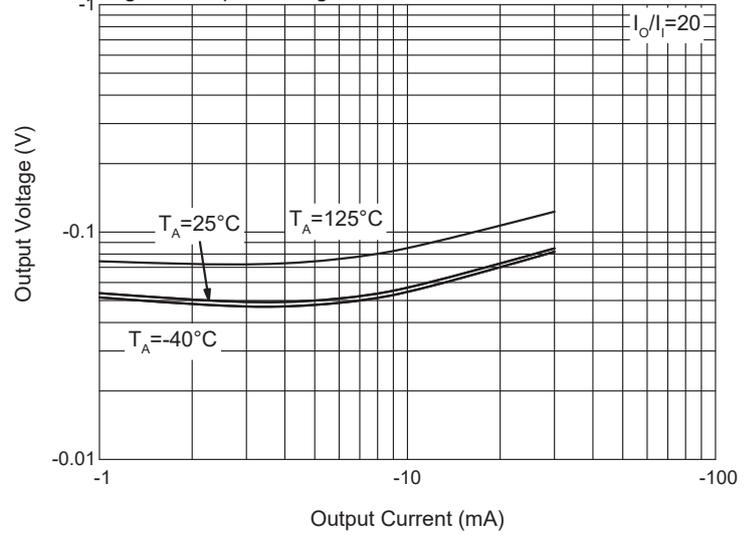
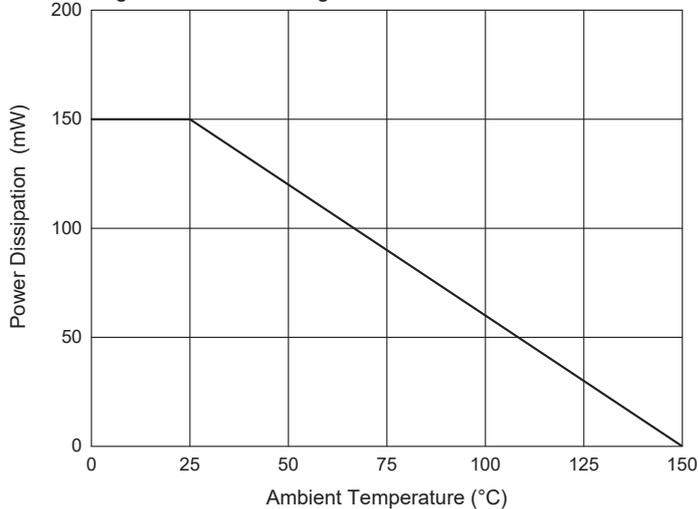


Fig. 5 - Power Derating Curve



## Ordering Information

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

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