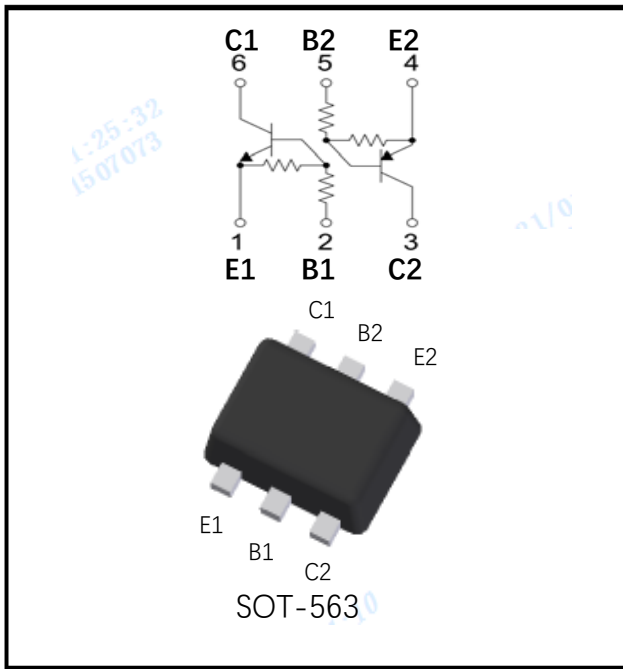


Digital Transistors (Built-in Resistors)



Features

- Epoxy meets UL-94 V-0 flammability rating
- Surface mount package ideally Suited for Automatic Insertion
- NPN+PNP

Mechanical Data

- **Package:** SOT-563
- **Terminals:** Tin plated leads, solderable per J-STD-002 and JESD22-B102
- **Marking:** D9
- **Solid point:** E1 positioning point

■Maximum Ratings (Ta=25°C Unless otherwise specified)

DTR1-NPN

Item	Symbol	Unit	Conditions	Value
Supply Voltage	VCC	V		50
Input Voltage	VIN	V		-6 to +40
Output Current	IO	mA		100
Power Dissipation	PD	mW		150
Junction Temperature	Tj	°C		150
Storage Temperature	TSTG	°C		-55 to +150

DTR2-PNP

Item	Symbol	Unit	Conditions	Value
Supply Voltage	VCC	V		-50
Input Voltage	VIN	V		-40 to +6
Output Current	IO	mA		-100
Power Dissipation	PD	mW		150
Junction Temperature	Tj	°C		150
Storage Temperature	TSTG	°C		-55 to +150



EMD9

■Electrical Characteristics (Ta=25°C unless otherwise specified)

DTR1-NPN

Item	Symbol	Unit	Conditions	Min	TYP	Max
Input voltage	VI(off)	V	VCC=5V,Ic=100uA	0.3		
	VI(on)	V	VO=0.3V,Ic=1mA			1.4
Output voltage	Vo(on)	V	Io /Ii =5mA/0.25 mA			0.3
Input current	Ii	mA	VI=5V			0.88
Output current	IO(off)	uA	VCC=50V, Vi=0			0.5
DC current gain	GI		Vo=5V, Io =5mA	68		
Input resistance	R1	kΩ		7	10	13
Resistance ratio	R2/R1			3.7	4.7	5.7
Transition frequency	fT	MHz	VCE=10V,IE=5mA,f=100MHz		250	

DTR2-PNP

Item	Symbol	Unit	Conditions	Min	TYP	Max
Input voltage	VI(off)	V	VCC=-5V,Ic=-100uA	-0.3		
	VI(on)	V	VO=-0.3V,Ic=-1mA			-1.4
Output voltage	Vo(on)	V	Io /Ii =-5mA/-0.25 mA			-0.3
Input current	Ii	mA	VI=-5V			-0.88
Output current	IO(off)	uA	VCC=-50V, Vi=0			-0.5
DC current gain	GI		Vo=-5V, Io =-5mA	68		
Input resistance	R1	kΩ		7	10	13
Resistance ratio	R2/R1			3.7	4.7	5.7
Transition frequency	fT	MHz	VCE=-10V,IE=-5mA,f=100MHz		250	

■ Ordering Information (Example)

Preferred P/N	Packing Code	Unit Weight(G)	Minimum Package(Pcs)	Inner Box Quantity(Pcs)	Outer Carton Quantity(Pcs)	Delivery Mode
EMD9	F2	Approximate 0.0035	3000	30000	120000	7" reel



■ Characteristics (Typical)

Fig. 1 - DTR1 DC Current Gain Characteristics

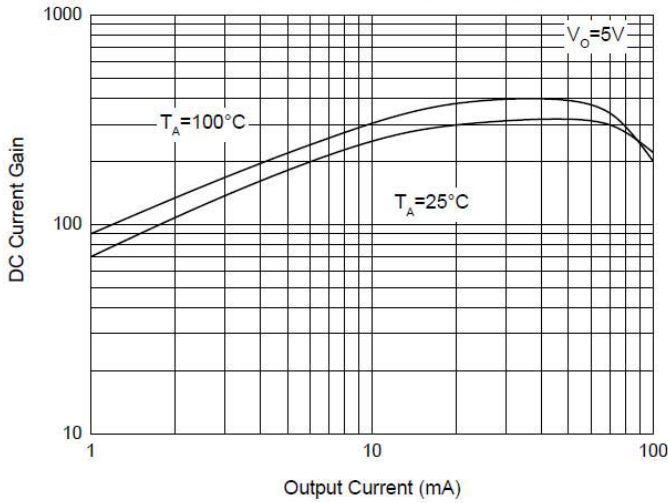


Fig. 2 - DTR1 Input Voltage (on) Characteristics

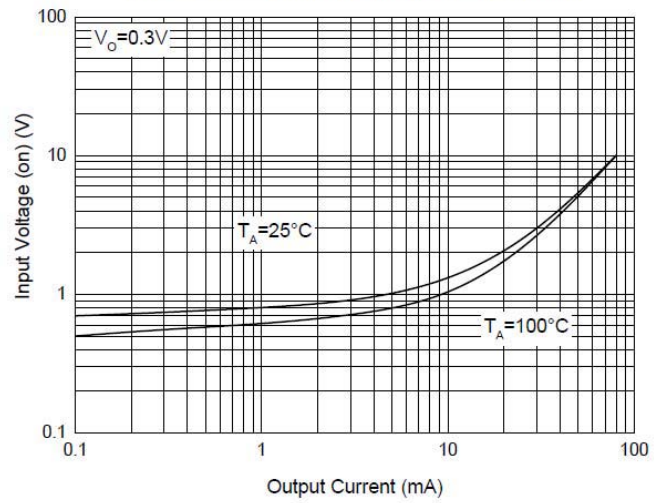


Fig. 3 - DTR1 Input Voltage (off) Characteristics

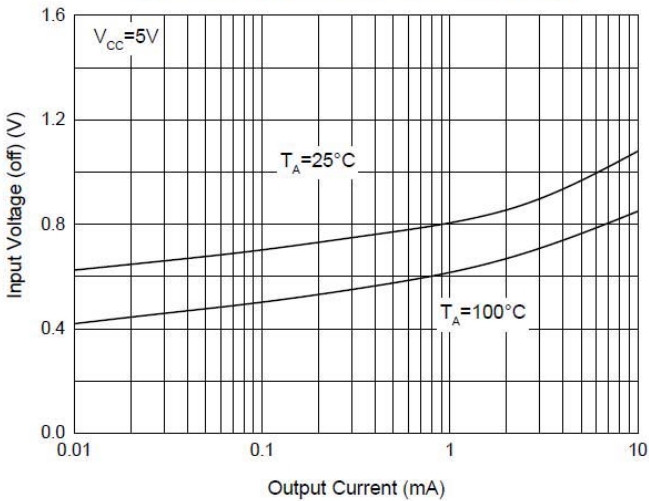


Fig. 4 - DTR1 Output Voltage Characteristics

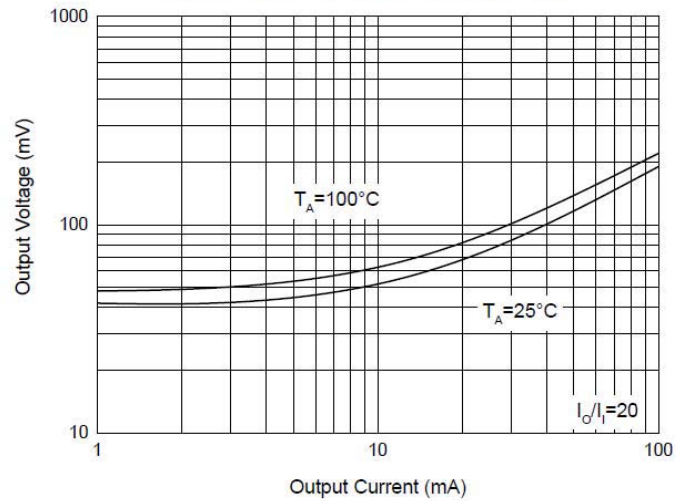


Fig. 5 - DTR2 DC Current Gain Characteristics

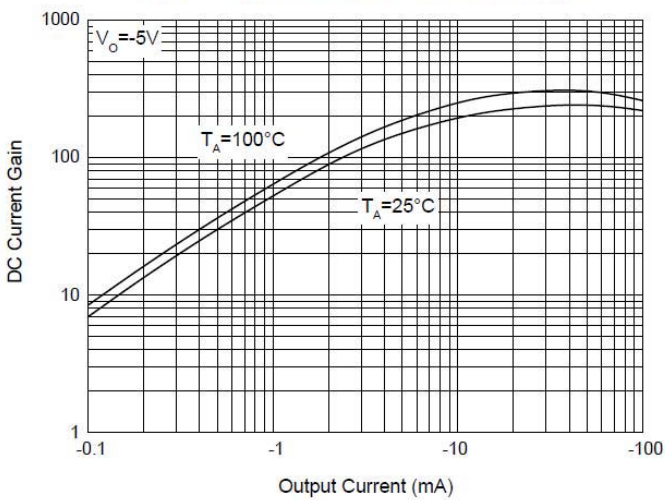


Fig. 6 - DTR2 Input Voltage (on) Characteristics

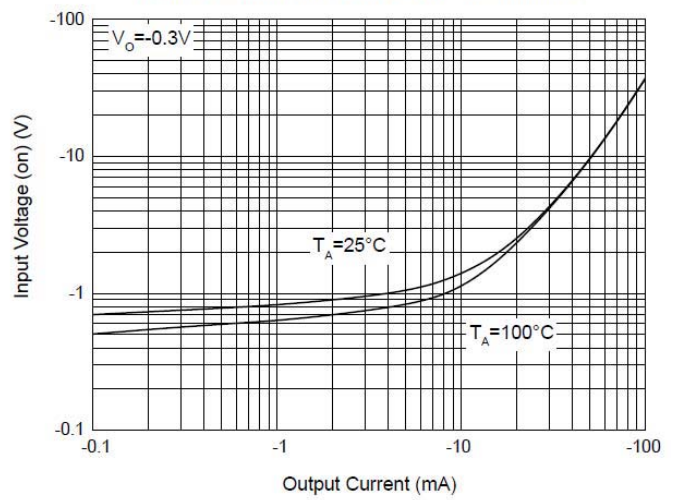




Fig. 7 - DTR2 Input Voltage (off) Characteristics

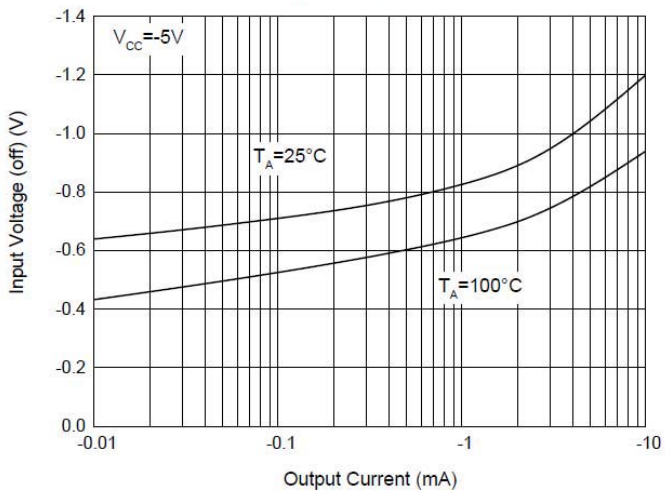
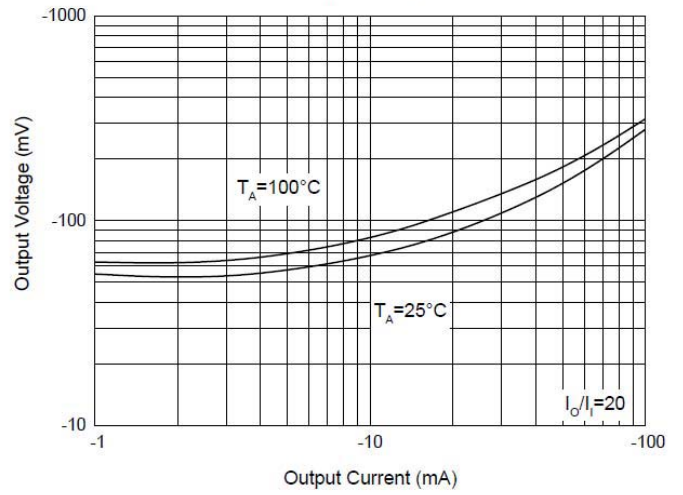
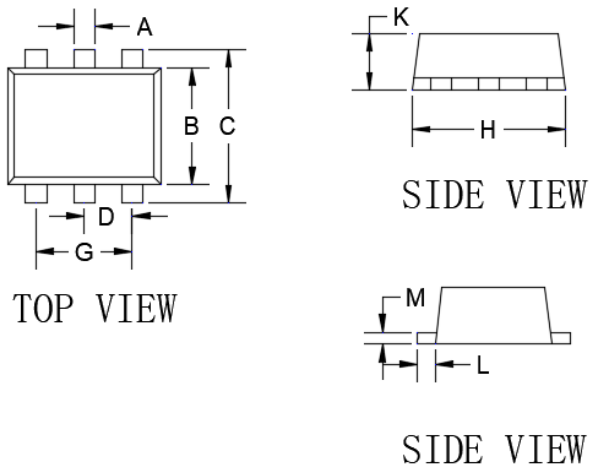


Fig. 8 - DTR2 Output Voltage Characteristics



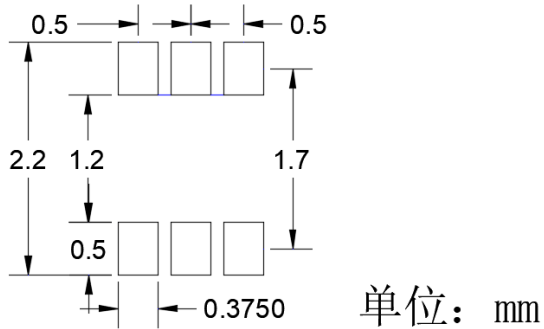
■ Outline Dimensions

SOT-563



DIMENSIONS				
DIM	INCHES		MM	
	MIN	MAX	MIN	MAX
A	0.006	0.011	0.150	0.300
B	0.043	0.051	1.100	1.300
C	0.059	0.067	1.500	1.700
D	0.016	0.024	0.400	0.600
G	0.035	0.043	0.900	1.100
H	0.059	0.067	1.500	1.700
K	0.021	0.026	0.550	0.650
L	0.004	0.011	0.100	0.300
M	0.004	0.007	0.100	0.180

■ Suggested Pad Layout



SUGGESTED SOLDER PAD LAYOUT



EMD9

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