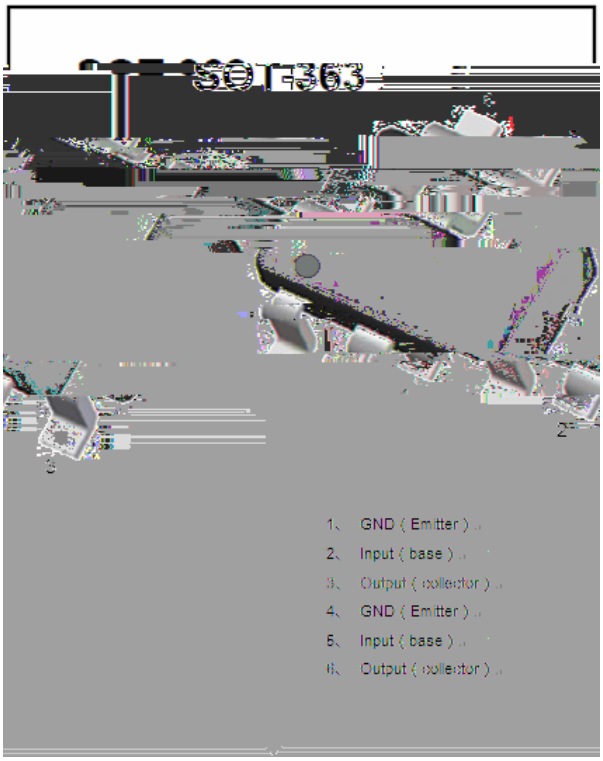
Digital Transistors (Built-in Resistors)



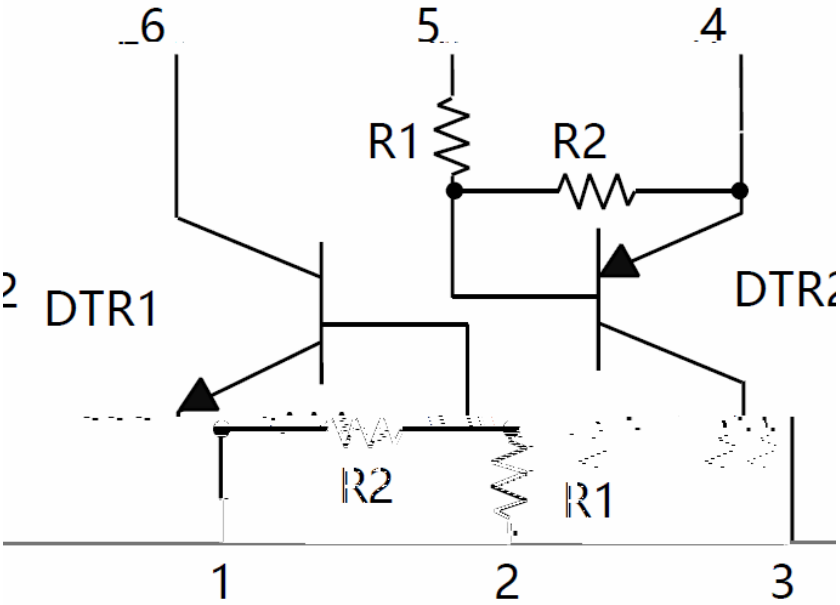
Features

- Epoxy meets UL-94 V-0 flammability rating
- Built-in bias resistors enable the configuration of an inverter circuit without connecting external input resistors
- Surface mount package ideally Suited for Automatic Insertion

Mechanical Data

- **Package:** SOT-363
- **Terminals:** Tin plated leads, solderable per J-STD-002 and JESD22-B102
- **Marking:** D9

■Equivalent circuit



■**Maximum Ratings** (Ta=25 Unless otherwise specified

DTR1-NPN

DTR2-PNP

ITEM	SYMBOL	UNIT	CONDITIONS	MIN	TYP	MAX
Input voltage	$VI_{(off)}$	V	V_{CC}=-5V,Ic=-100uA	-0.3	-	-
	$VI_{(on)}$	V	V_O=-0.3V,Ic=-1mA	-	-	-1.4
Output voltage	$Vo_{(on)}$	V	Io /Ii =-5mA/-0.25 mA	-	-	-0.3
Input current	I_I	mA	V_I=-5V	-	-	-0.88
Output current	$I_{O(off)}$	uA	V_{CC}=-50V, Vi=0	-	-	-0.5
DC current gain	G_I		Vo=-5V, Io =-5mA	68	-	-
Input resistance	R_1	kΩ		7	10	13
Resistance ratio	R_2/R_1			3.7	4.7	5.7
Transition frequency	f_T	MHz	V_{CE}=-10V,I_E=-5mA,f=100MHz	-	250	-

■ **Ordering Information** (Example)

PREFERED P/N	PACKING CODE	UNIT WEIGHT(g)	MINIMUM PACKAGE(pcs)	INNER BOX QUANTITY(pcs)	OUTER CARTON QUANTITY(pcs)	DELIVERY MODE
UMD9N	F2	Approximate 0.009g	3000	30000	120000	7” reel

■ **Characteristics** (Typical)

Fig. 1 - DTR1 DC Current Gain Characteristics

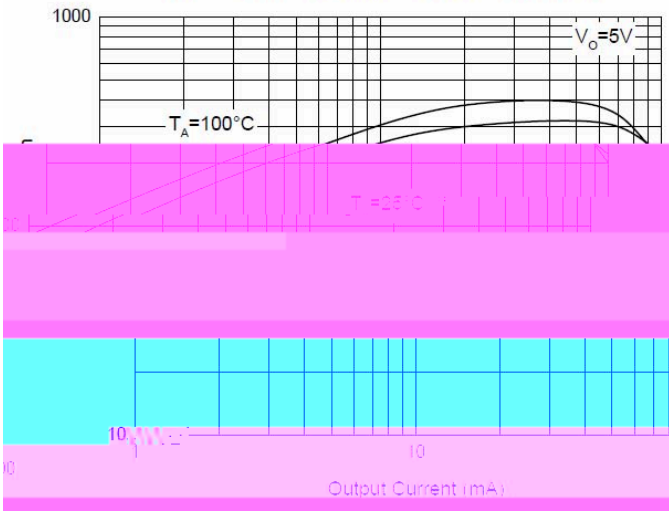


Fig. 2 - DTR1 Input Voltage (on) Characteristics

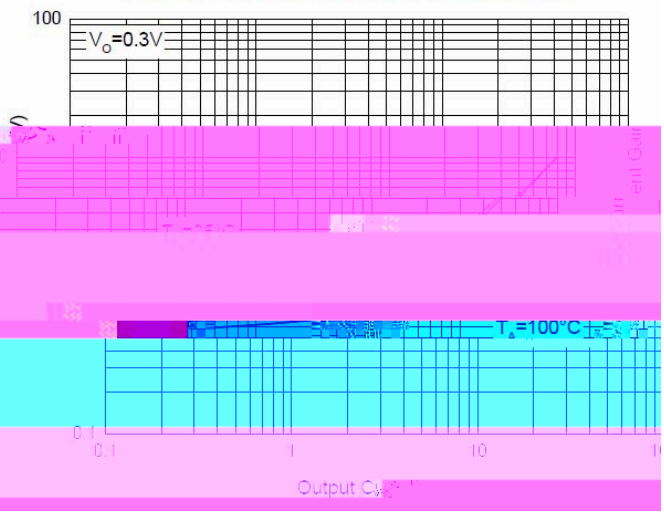


Fig. 3 - DTR1 Input Voltage (off)

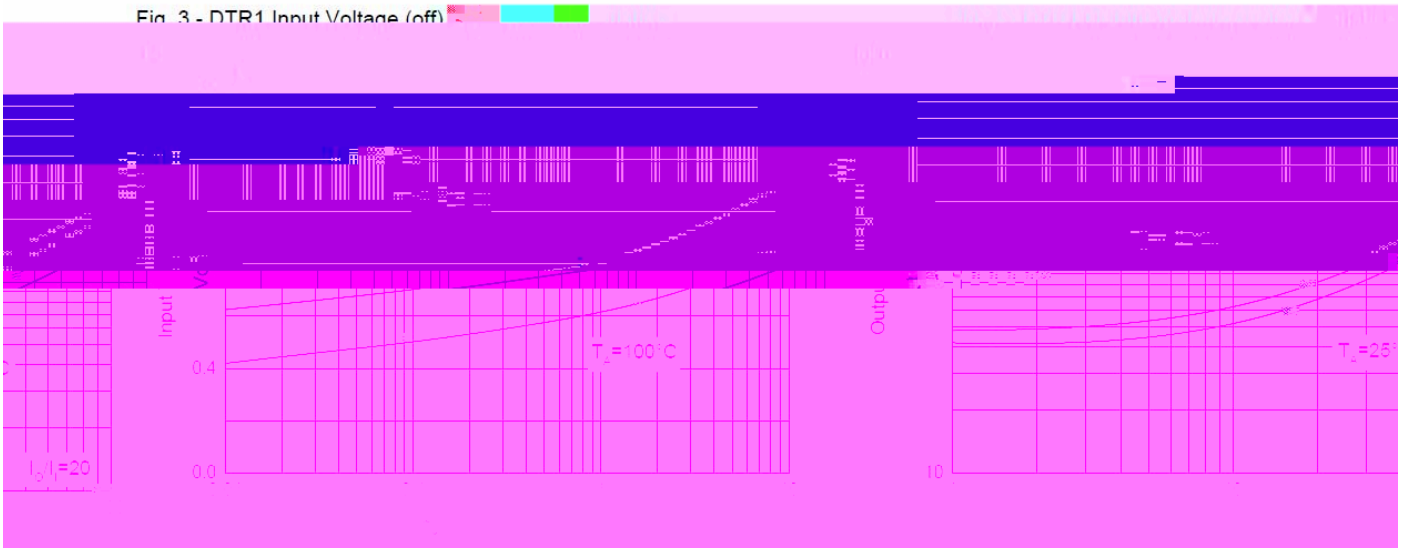


Fig. 5

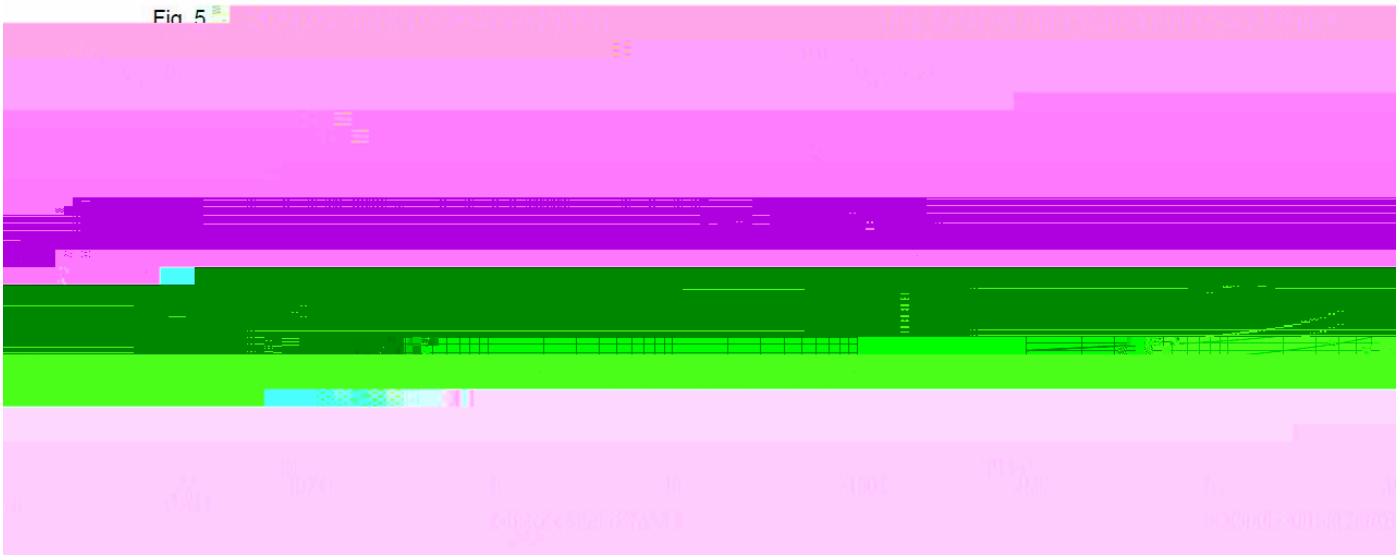
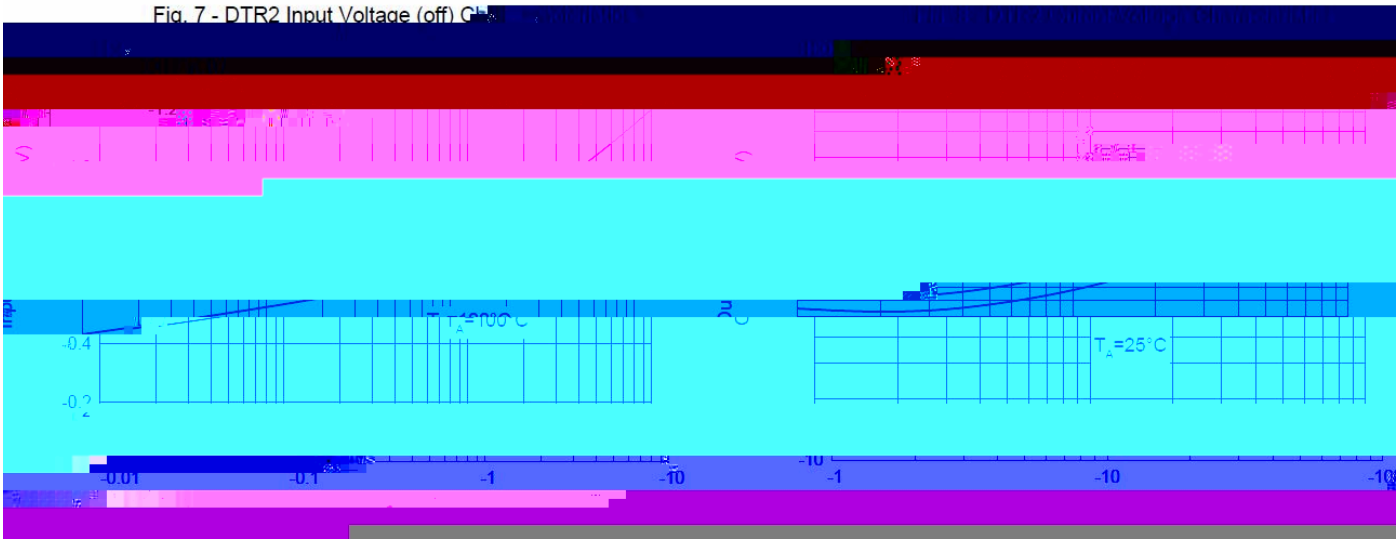
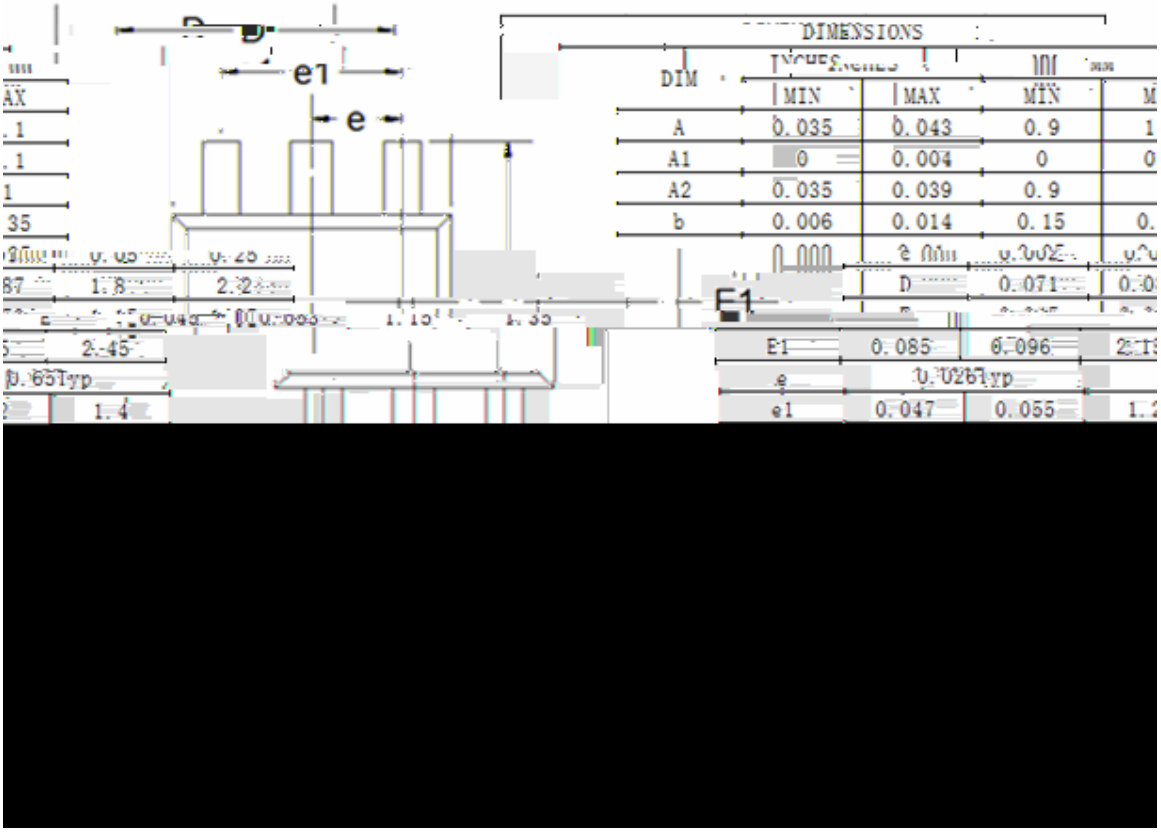


Fig. 7 - DTR2 Input Voltage (off) Ch

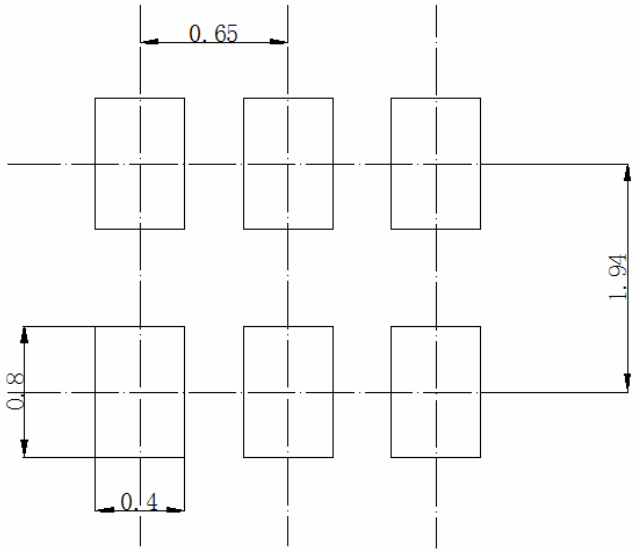


■SOT-363 Package Outline Dimensions



DIM	MIN	MAX	MIN	M
DIMENSIONS				
A	0.035	0.043	0.9	1
A1	0	0.004	0	0
A2	0.035	0.039	0.9	
b	0.006	0.014	0.15	0.
D		0.071		0.
E1	0.085	0.096		
e		0.026Typ		
e1	0.047	0.055		1.

■SOT-363 Suggested Pad Layout



Unit mm