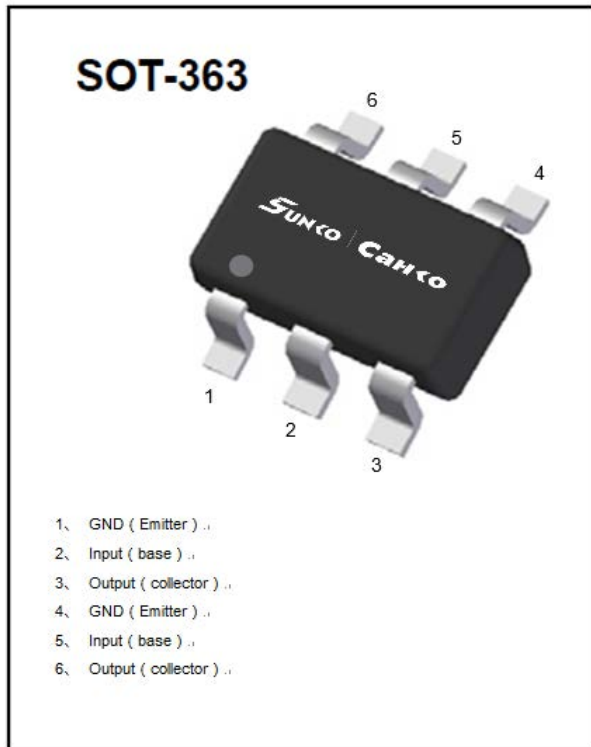


Digital Transistors (Built-in Resistors)



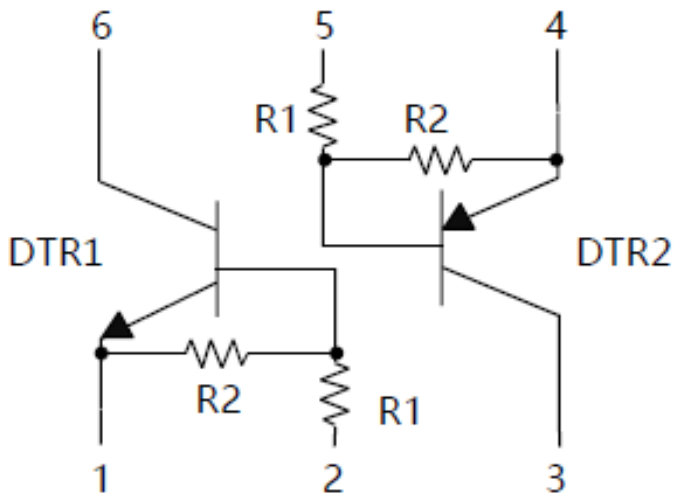
Features

- 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:** D2

■Equivalent circuit



UMD2N

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

DTR1-NPN

ITEM	SYMBOL	UNIT	CONDITIONS	VALUE
Supply Voltage	V_{CC}	V		50
Input Voltage	V_{IN}	V		-10 to +40
Output Current	I_O	mA		100
Power Dissipation	P_D	mW		150
Junction Temperature (Single)	T_j	°C		150
Storage Temperature	T_{STG}	°C		-55 to +150

DTR2-PNP

ITEM	SYMBOL	UNIT	CONDITIONS	VALUE
Supply Voltage	V_{CC}	V		-50
Input Voltage	V_{IN}	V		-40 to +10
Output Current	I_O	mA		-100
Power Dissipation	P_D	mW		150
Junction Temperature	T_j	°C		150
Storage Temperature	T_{STG}	°C		-55 to +150

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

DTR1-NPN

ITEM	SYMBOL	UNIT	CONDITIONS	MIN	TYP	MAX
Input voltage	$V_{I(off)}$	V	$V_{CC}=5V, I_c=100\mu A$	0.5	-	-
	$V_{I(on)}$	V	$V_O=0.2V, I_c=5mA$	-	-	3
Output voltage	$V_{O(on)}$	V	$I_O/I_i=10mA/0.5mA$	-	-	0.3
Input current	I_i	mA	$V_i=5V$	-	-	0.36
Output current	$I_{O(off)}$	uA	$V_{CC}=50V, V_i=0$	-	-	0.5
DC current gain	G_i		$V_O=5V, I_O=5mA$	56	-	-
Input resistance	R_1	kΩ		15.4	22	28.6
Resistance ratio	R_2/R_1			0.8	1	1.2
Transition frequency	f_T	MHz	$V_{CE}=10V, I_E=5mA, f=100MHz$	-	250	-

DTR2-PNP

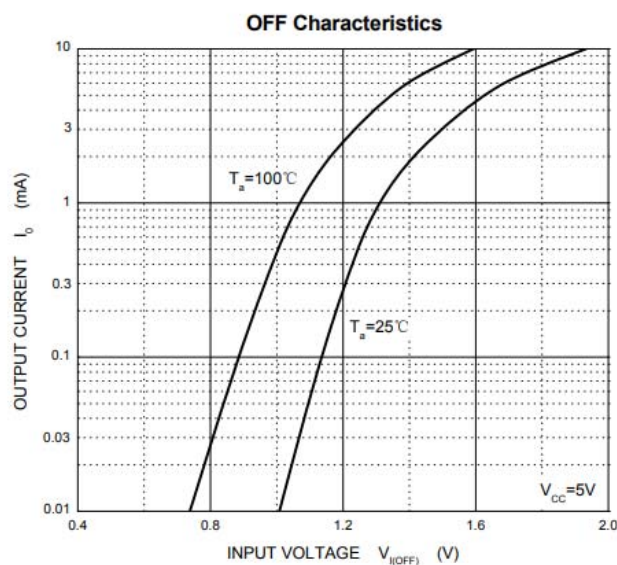
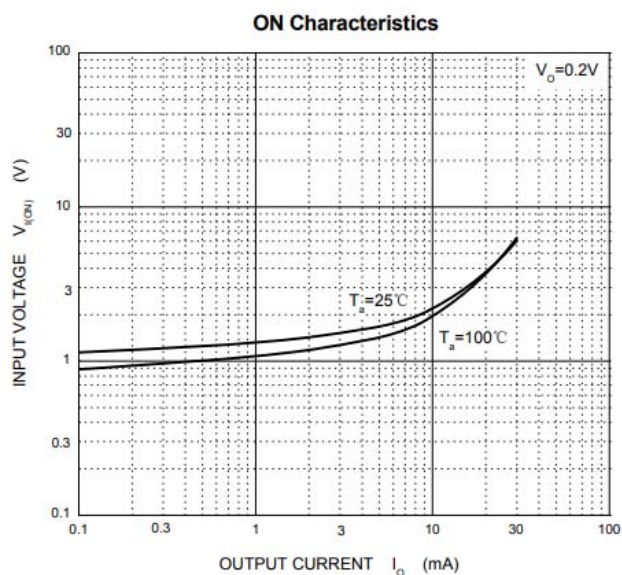
ITEM	SYMBOL	UNIT	CONDITIONS	MIN	TYP	MAX
Input voltage	$V_{I(off)}$	V	$V_{CC}=-5V, I_c=-100\mu A$	-0.5	-	-
	$V_{I(on)}$	V	$V_o=-0.2V, I_c=-5mA$	-	-	-3
Output voltage	$V_{O(on)}$	V	$I_o/I_i=-10mA/-0.5mA$	-	-	-0.3
Input current	I_i	mA	$V_i=-5V$	-	-	-0.36
Output current	$I_{O(off)}$	μA	$V_{CC}=-50V, V_i=0$	-	-	-0.5
DC current gain	G_I		$V_o=-5V, I_o=-5mA$	56	-	-
Input resistance	R_i	$k\Omega$		15.4	22	28.6
Resistance ratio	R_2/R_1			0.8	1	1.2
Transition frequency	f_T	MHz	$V_{CE}=-10V, I_E=-5mA, f=100MHz$	-	250	-

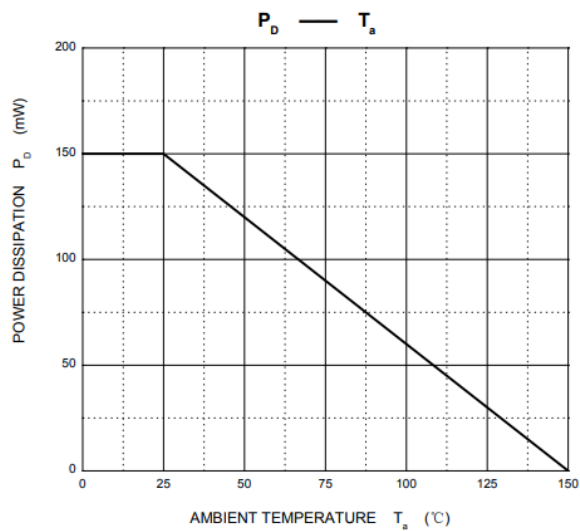
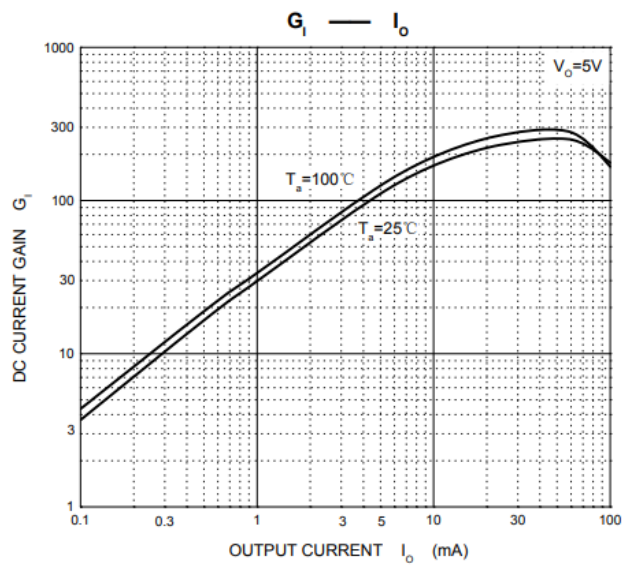
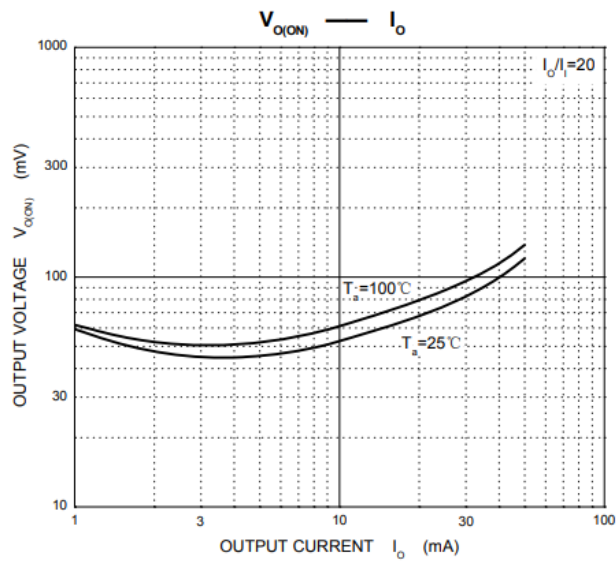
■ Ordering Information (Example)

PREFERRED P/N	PACKING CODE	UNIT WEIGHT(g)	MINIMUM PACKAGE(pcs)	INNER BOX QUANTITY(pcs)	OUTER CARTON QUANTITY(pcs)	DELIVERY MODE
UMD2N	F2	Approximate 0.009g	3000	30000	120000	7" reel

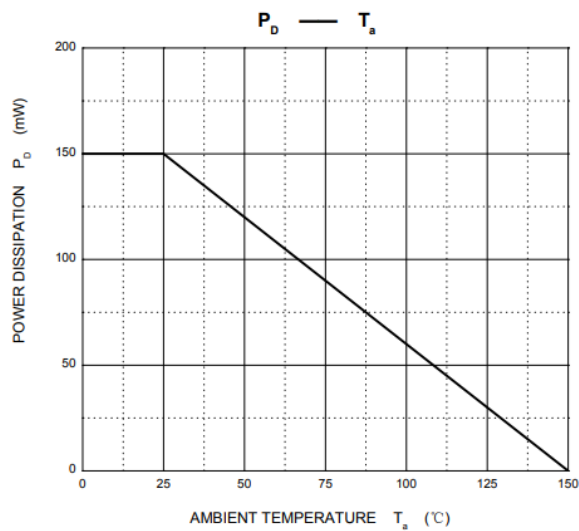
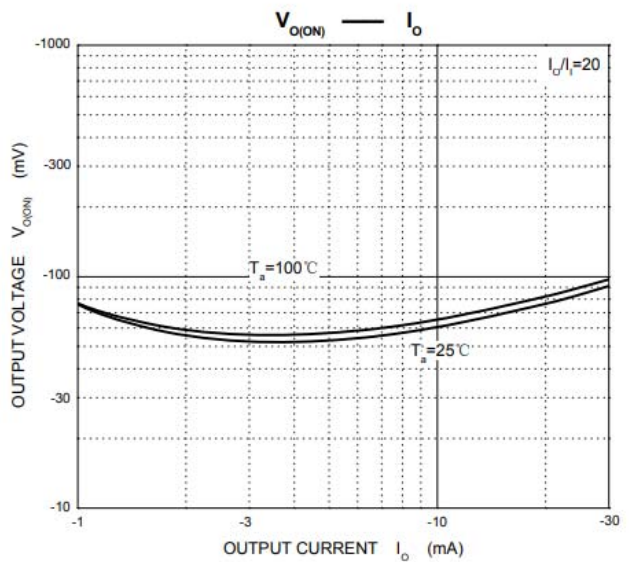
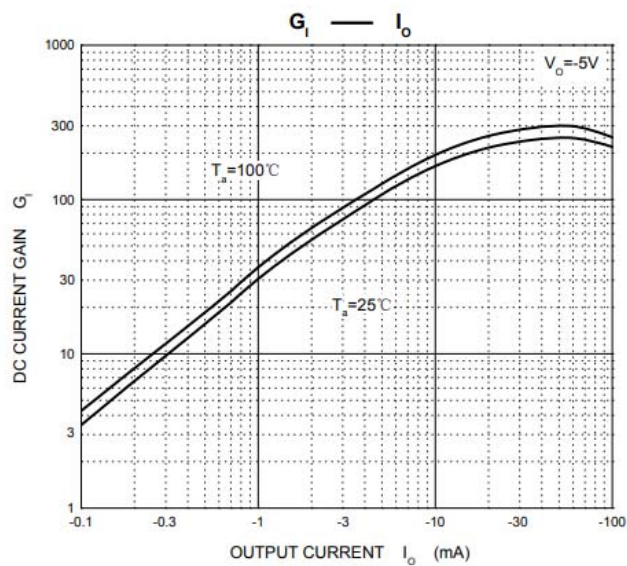
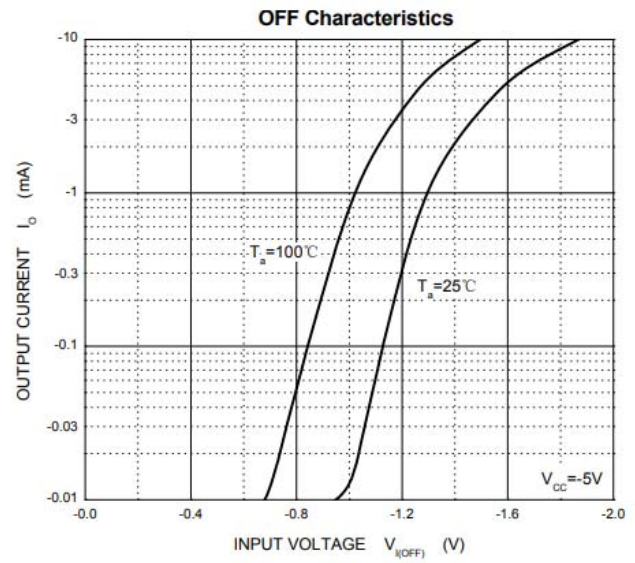
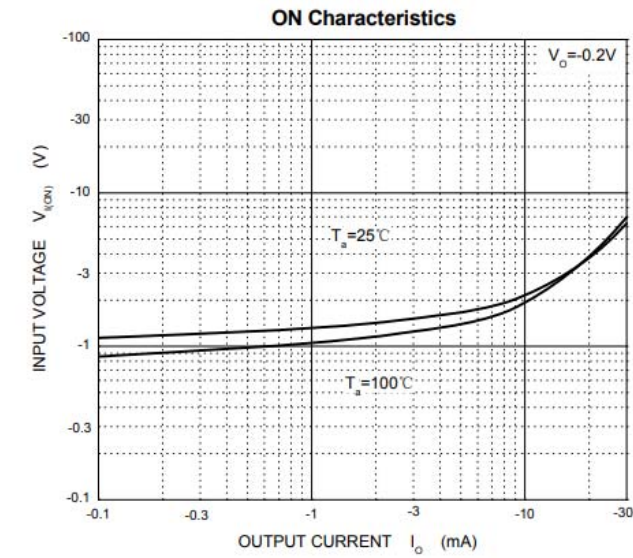
■ Characteristics (Typical)

DTR1-NPN:

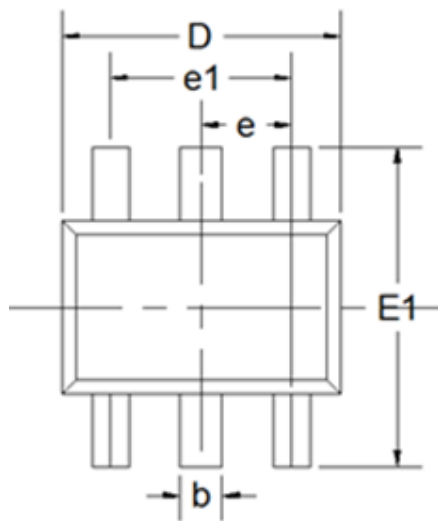




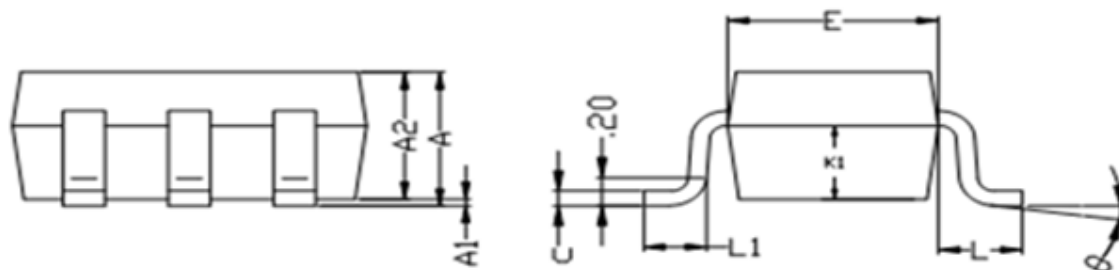
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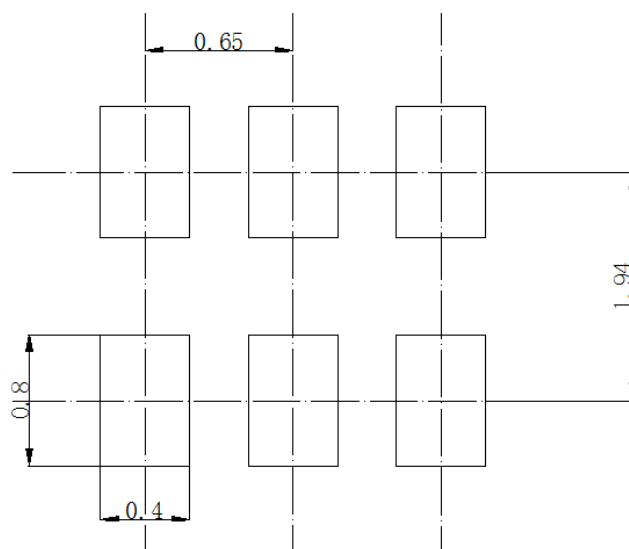
■SOT-363 Package Outline Dimensions



DIM	DIMENSIONS			
	INCHES		MM	
	MIN	MAX	MIN	MAX
A	0.035	0.043	0.9	1.1
A1	0	0.004	0	0.1
A2	0.035	0.039	0.9	1
b	0.006	0.014	0.15	0.35
c	0.002	0.01	0.05	0.25
D	0.071	0.087	1.8	2.2
E	0.045	0.053	1.15	1.35
E1	0.085	0.096	2.15	2.45
e	0.026Typ		0.65Typ	
e1	0.047	0.055	1.2	1.4
L	0.021Typ		0.525Typ	
L1	0.01	0.018	0.26	0.46
θ	0°		8°	



■SOT-363 Suggested Pad Layout



Unit: mm

Disclaimer

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