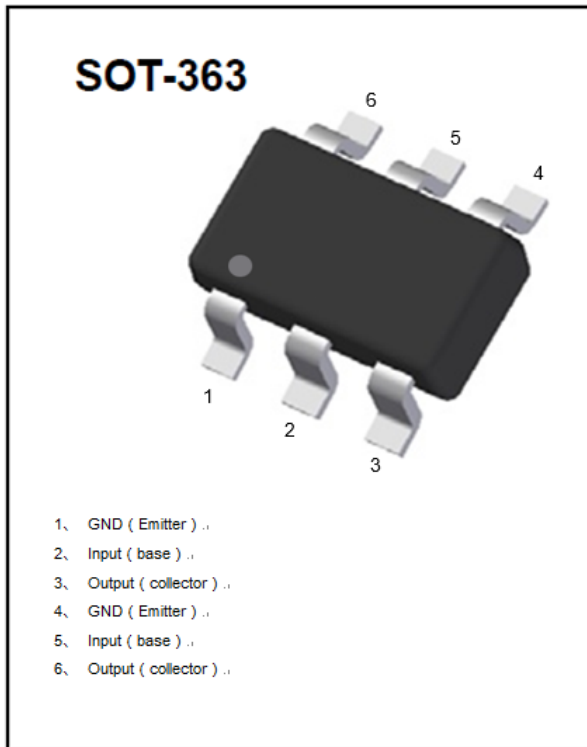


## Dual NPN Digital Transistors (Built-in Resistors)



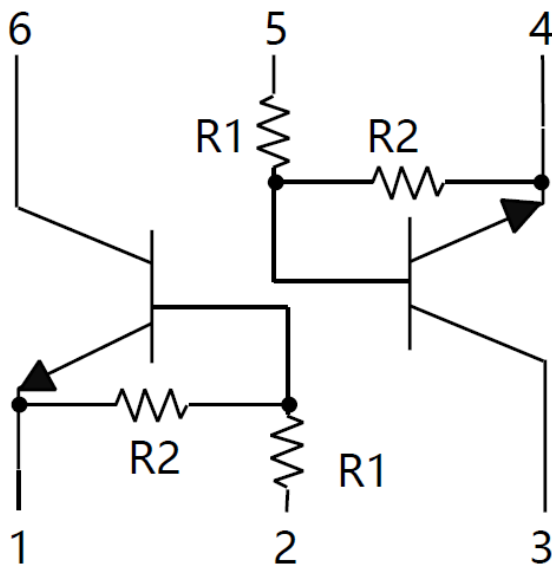
### Features

- 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:**H9

### ■Equivalent circuit





# UMH9N

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

ITEM	SYMBOL	UNIT	CONDITIONS	VALUE
Supply Voltage	V <sub>CC</sub>	V		50
Input Voltage	V <sub>IN</sub>	V		-6 to +40
Output Current	I <sub>o</sub>	mA		100
Power Dissipation	P <sub>D</sub>	mW		150
Junction Temperature (Single)	T <sub>j</sub>	°C		150
Storage Temperature	T <sub>STG</sub>	°C		-55 to +150

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

ITEM	SYMBOL	UNIT	CONDITIONS	MIN	TYP	MAX
Input voltage	V <sub>I(off)</sub>	V	V <sub>CC</sub> =5V, I <sub>c</sub> =100uA	0.3	-	-
	V <sub>I(on)</sub>	V	V <sub>O</sub> =0.3V, I <sub>c</sub> =10mA	-	-	1.4
Output voltage	V <sub>O(on)</sub>	V	I <sub>o</sub> / I <sub>i</sub> = 5mA / 0.25 mA	-	-	0.3
Input current	I <sub>i</sub>	mA	V <sub>i</sub> =5V	-	-	0.88
Output current	I <sub>O(off)</sub>	uA	V <sub>CC</sub> =50V, V <sub>i</sub> =0	-	-	0.5
DC current gain	G <sub>i</sub>		V <sub>O</sub> =5V, I <sub>o</sub> =5mA	68	-	-
Input resistance	R <sub>1</sub>	kΩ		7	10	13
Resistance ratio	R <sub>2</sub> /R <sub>1</sub>			3.7	4.7	5.7
Transition frequency	f <sub>T</sub>	MHz	V <sub>CE</sub> =10V, I <sub>E</sub> =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
UMH9N	F2	Approximate 0.009g	3000	30000	120000	7" reel



## ■ Characteristics (Typical)

Fig. 1 - DC Current Gain Characteristics

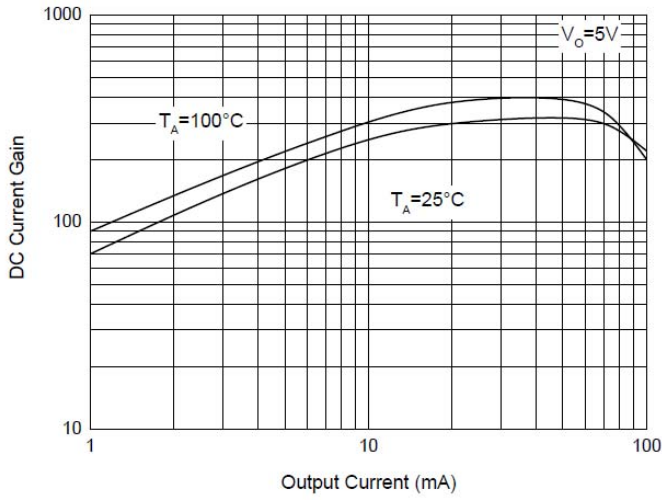


Fig. 2 - Input Voltage (on) Characteristics

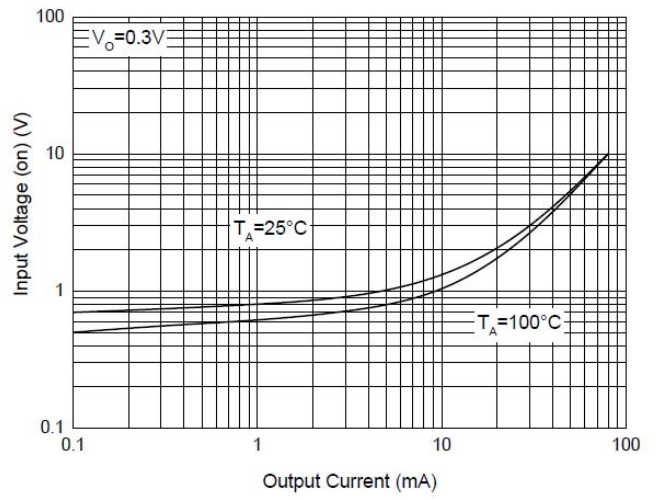


Fig. 3 - Input Voltage (off) Characteristics

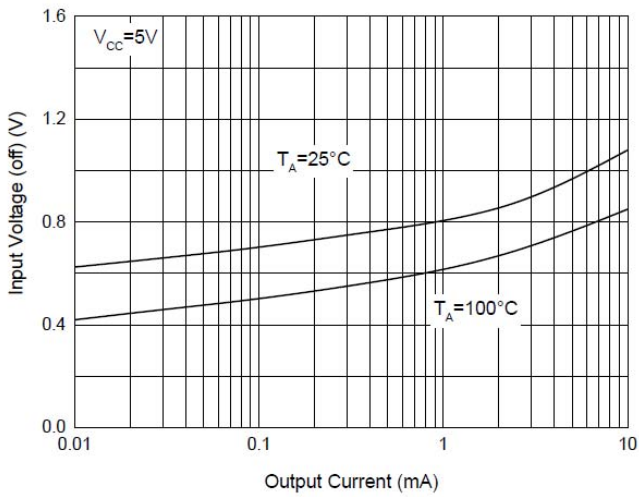
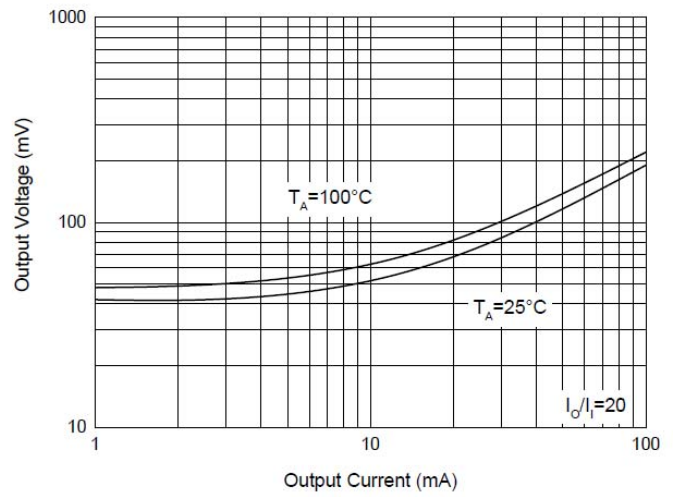


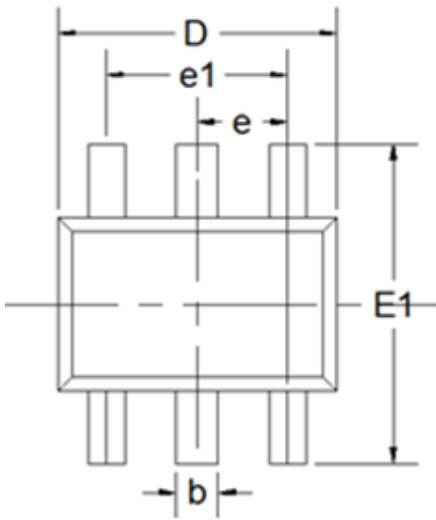
Fig. 4 - Output Voltage Characteristics



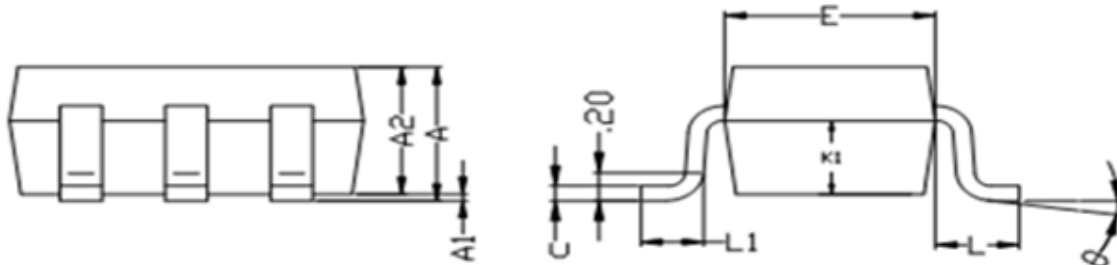


# UMH9N

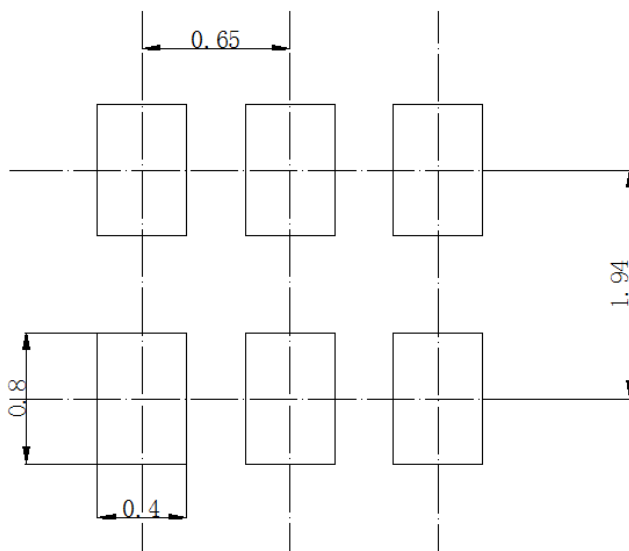
## ■SOT-363 Package Outline Dimensions



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
φ	0°	8°	0°	8°



## ■SOT-363 Suggested Pad Layout



Unit: mm



## UMH9N

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