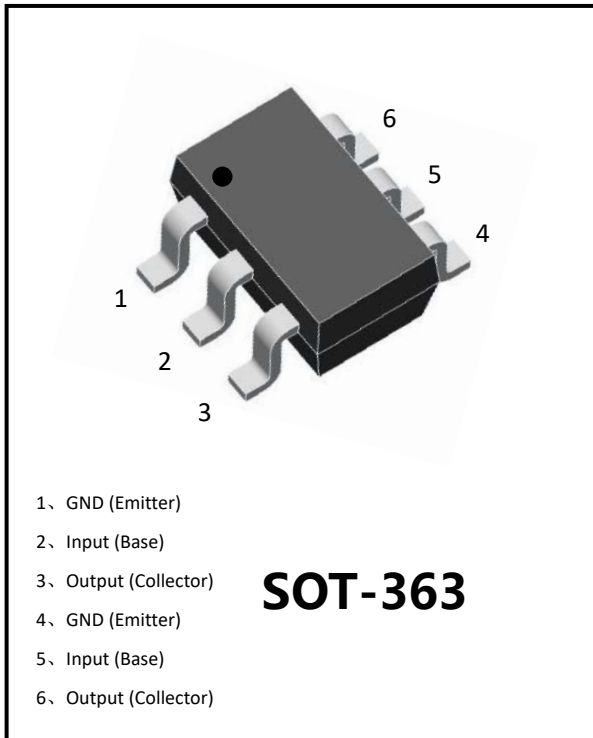


## Dual PNP Digital Transistors (Built-in Resistors)



### Features

- Epoxy meets UL-94 V-0 flammability rating
- Moisture Sensitivity Level 1
- Built-in bias resistors enable the configuration of an inverter circuit without connecting external input resistors
- Only the on/off conditions need to be set for operation, making the circuit design easy
- Simplifies Circuit Design、 Reduces Board Space、 Reduces Component Count
- Part no. with suffix "Q" means AEC-Q101 qualified

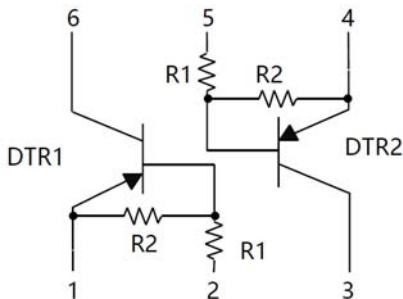
### Application

- Control of IC inputs、 Switching loads、 Digital system

### Mechanical Data

- **Package:** SOT-363
- **Terminals:** Tin plated leads, solderable per J-STD-002 and JESD22-B102
- **Marking:** B1

### ■Equivalent circuit



### ■ Ordering Information (Example)

PREFERED P/N	PACKING CODE	UNIT WEIGHT(g)	MINIMUM PACKAGE(pcs)	INNER BOX QUANTITY(pcs)	OUTER CARTON QUANTITY(pcs)	DELIVERY MODE
UMB1NQ	F2	Approximate 0.009g	3000	30000	120000	7" reel



# UMB1NQ

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

ITEM	SYMBOL	UNIT	VALUE
Collector-Emitter Voltage	V <sub>CEO</sub>	V	-50
Collector-Base Voltage	V <sub>CBO</sub>	V	-50
Emitter-Base Voltage	V <sub>EBO</sub>	V	-10
Supply Voltage	V <sub>CC</sub>	V	-50
Input Voltage	V <sub>IN</sub>	V	-40 to +10
Collector Current	I <sub>C</sub>	mA	-100
Power Dissipation	P <sub>D</sub>	mW	150
Thermal Resistance From Junction to Ambient (*)	R <sub>θJA</sub>	°C/W	833
Junction Temperature	T <sub>J</sub>	°C	-55 to +150
Storage Temperature	T <sub>STG</sub>	°C	-55 to +150

(\*) Device mounted on FR-4 PCB 1.0 x 1.0 x 0.06 inch

## ■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>O</sub> = -100uA	-0.5	-	-
	V <sub>I(on)</sub>	V	V <sub>O</sub> = -0.2V, I <sub>O</sub> = -5mA	-	-	-3
Output voltage	V <sub>O(on)</sub>	V	I <sub>O</sub> = -10mA, I <sub>I</sub> = -0.5 mA	-	-	-0.3
Input current	I <sub>I</sub>	mA	V <sub>I</sub> = -5V	-	-	-0.36
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	56	-	-
Input resistance	R <sub>1</sub>	kΩ		15.4	22	28.6
Resistance ratio	R <sub>2</sub> /R <sub>1</sub>			0.8	1	1.2
Transition frequency	f <sub>T</sub>	MHz	V <sub>CE</sub> =-10V, I <sub>E</sub> =-5mA, f=100MHz	-	250	-



■ Characteristics (Typical)

Fig. 1 - ON Characteristics

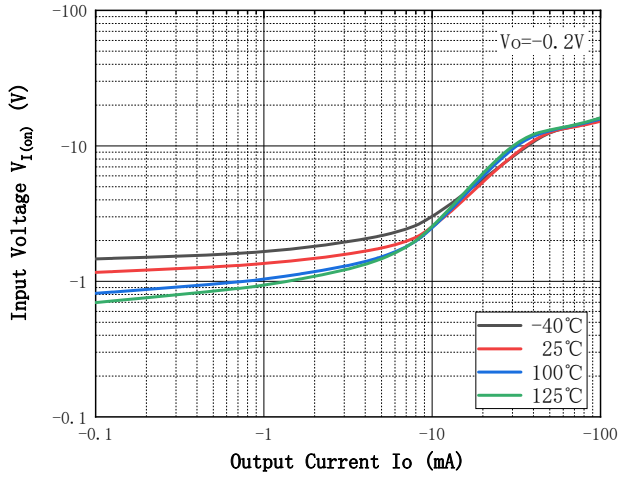


Fig. 2 - OFF Characteristics

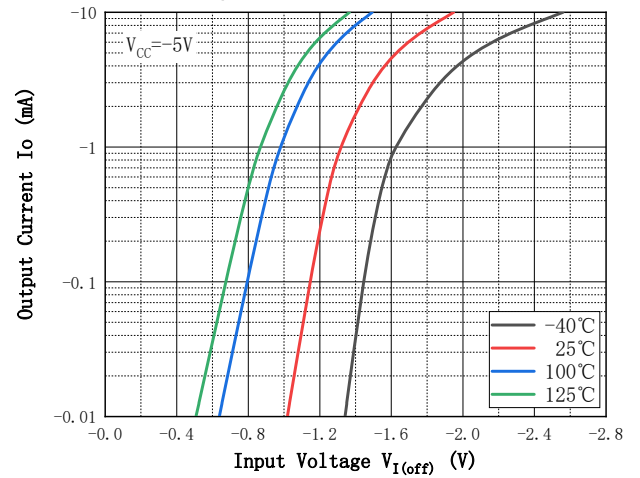


Fig. 3 - Output Voltage Characteristics

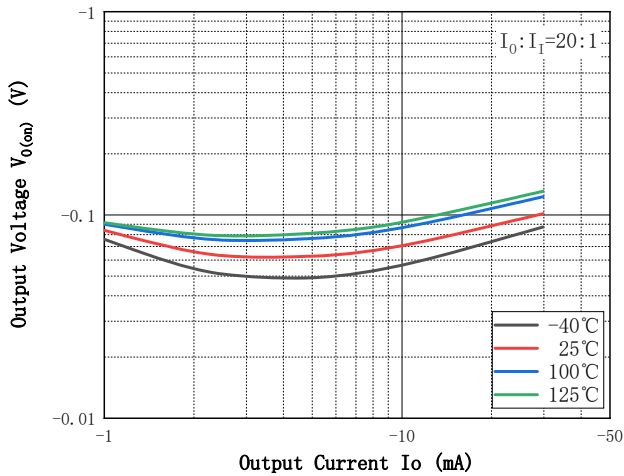


Fig. 4 - DC Current Gain Characteristics

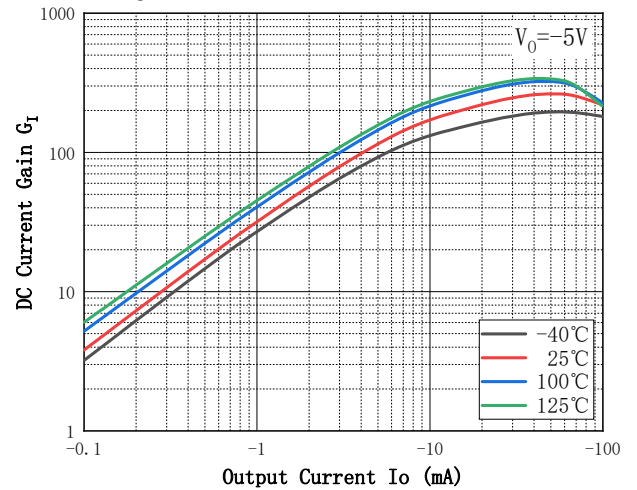


Fig. 5 -  $C_o - V_{CB}$

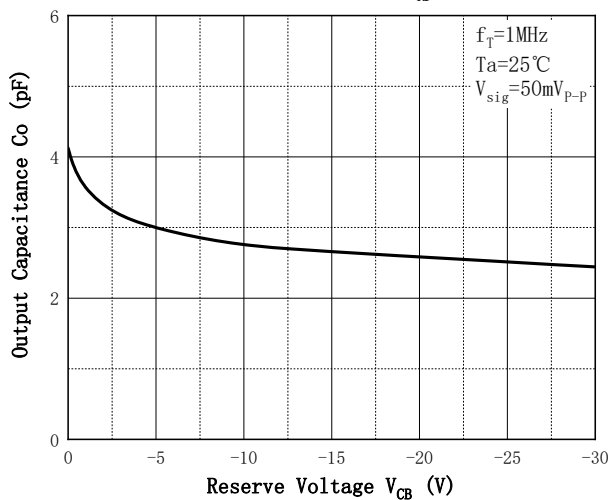
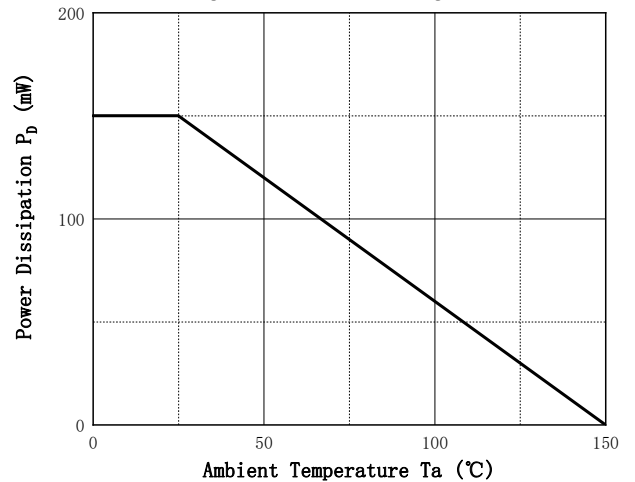


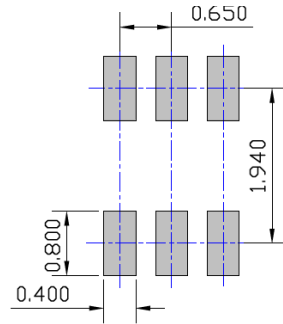
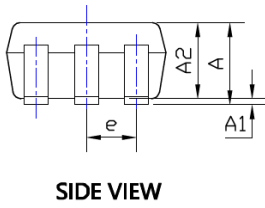
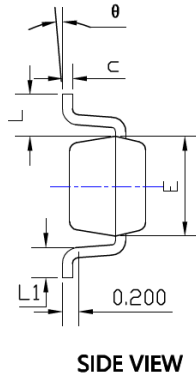
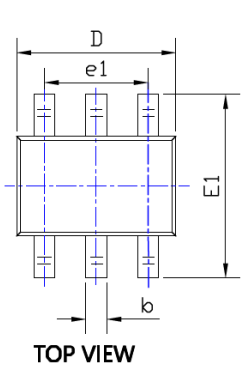
Fig. 6 - Power Derating Curve





# UMB1NQ

## ■SOT-363 Package Outline Dimensions & Suggested Pad Layout



UNIT: mm

SUGGESTED SOLDER PAD LAYOUT

SYMBOL	DIMENSIONS			
	INCHES		Millimeter	
	MIN.	MAX.	MIN.	MAX.
A	0.035	0.043	0.900	1.100
A1	0.000	0.004	0.000	0.100
A2	0.035	0.039	0.900	1.000
b	0.006	0.014	0.150	0.350
c	0.004	0.010	0.100	0.250
D	0.071	0.087	1.800	2.200
E	0.045	0.053	1.150	1.350
E1	0.085	0.096	2.150	2.450
e	0.026TYP		0.650TYP	
e1	0.047	0.055	1.200	1.400
L	0.021REF		0.525REF	
L1	0.010	0.018	0.260	0.460
theta	0°	8°	0°	8°

**NOTE:**

1. PACKAGE BODY SIZES EXCLUDE MOLD FLASH AND GATE BURRS.
2. TOLERANCE 0.1mm UNLESS OTHERWISE SPECIFIED.
3. THE PAD LAYOUT IS FOR REFERENCE PURPOSES ONLY.



## UMB1NQ

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