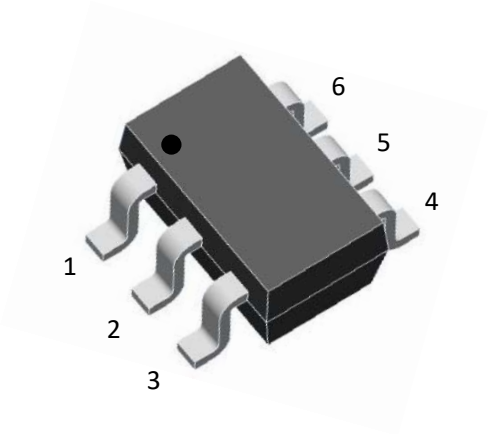
Dual NPN Digital Transistors (Built-in Resistors)



1、GND (Emitter)
2、Input (Base)
3、Output (Collector)
4、GND (Emitter)
5、Input (Base)
6、Output (Collector)

SOT-363

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

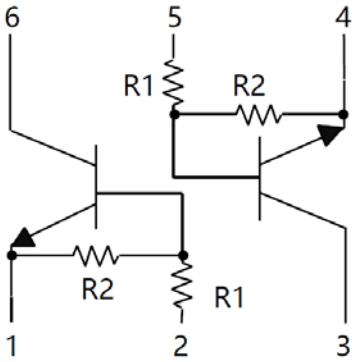
Application

- 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**：H15

■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
UMH15NQ	F2	Approximate 0.009g	3000	30000	120000	7” reel

■Maximum Ratings (Ta=25℃ Unless otherwise specified)

ITEM	SYMBOL	UNIT	VALUE
Collector-Emitter Voltage	V_{CEO}	V	50
Collector-Base Voltage	V_{CBO}	V	50
Emitter-Base Voltage	V_{EBO}	V	10
Supply Voltage	V_{CC}	V	50
Input Voltage	V_{IN}	V	-10 to +30
Output Current	I_C	mA	100
Power Dissipation	P_D	mW	150
Thermal Resistance From Junction to Ambient (*)	$R_{\theta JA}$	℃/W	833
Junction Temperature	Tj	℃	150
Storage Temperature	T_{STG}	℃	-55 to +150

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

■Electrical Characteristics (Ta=25℃ unless otherwise specified)

ITEM	SYMBOL	UNIT	CONDITIONS	MIN	TYP	MAX
Input voltage	$V_{I(off)}$	V	V_{CC}=5V, I_O=100uA	0.5	-	-
	$V_{I(on)}$	V	V_O=0.3V, I_O=20mA	-	-	3
Output voltage	$Vo_{(on)}$	V	I_O=10mA, I_I=0.5 mA	-	-	0.3
Input current	I_I	mA	V_I=5V	-	-	1.8
Output current	$I_{O(off)}$	uA	V_{CC}=50V, Vi=0	-	-	0.5
DC current gain	G_I		Vo=5V, Io=10mA	20	-	-
Input resistance	R_1	kΩ		3.29	4.7	6.11
Resistance ratio	R_2/R_1			0.8	1	1.2
Transition frequency	f_T	MHz	V_{CE}=10V,I_C=5mA,f=100MHz	-	250	-

■ Characteristics (Typical)

Fig.1 - ON Characteristics

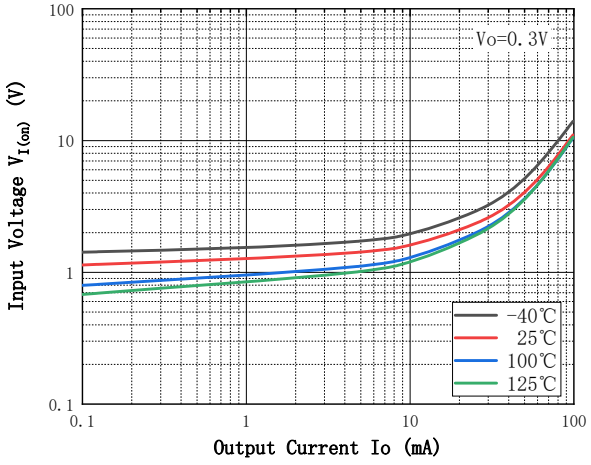


Fig.2 - OFF Characteristics

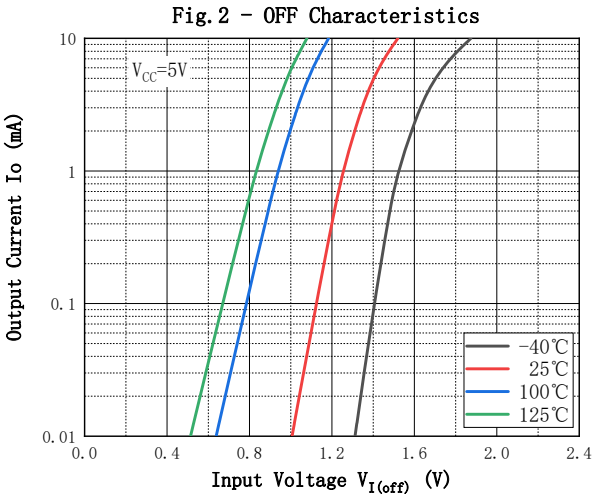


Fig.3 - Output Voltage Characteristics

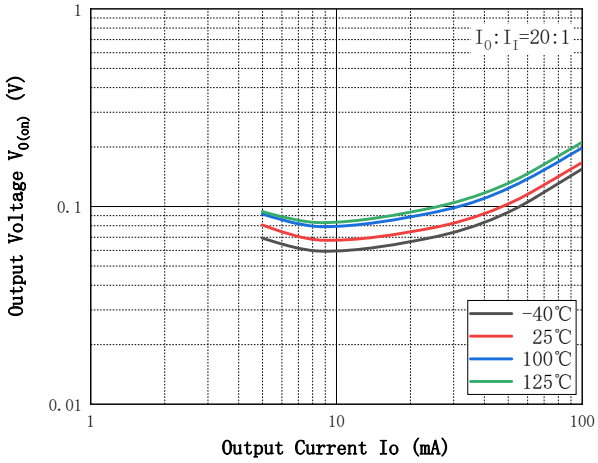


Fig.4 - DC Current Gian Characteristics

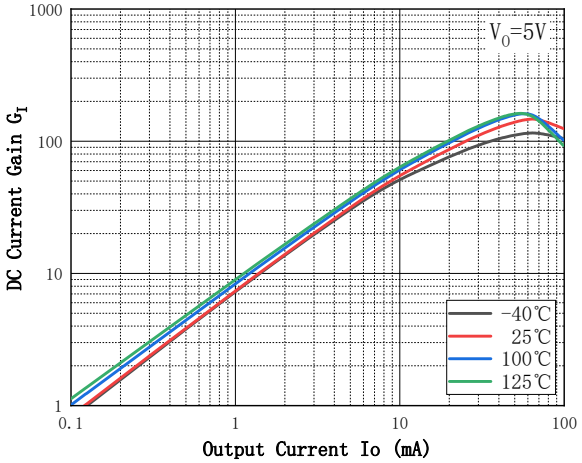
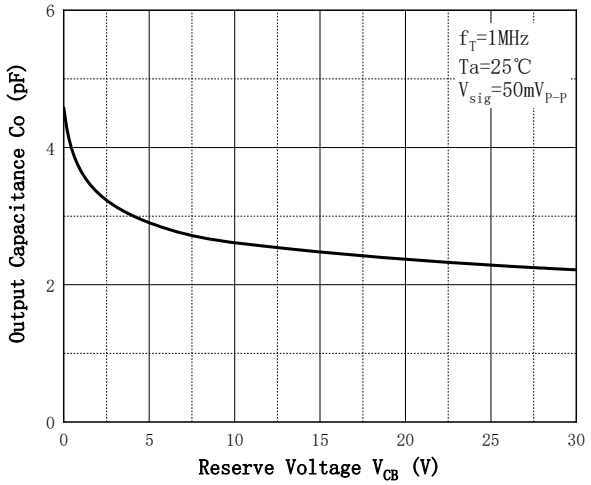
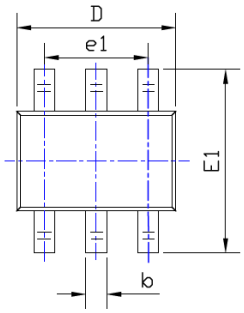


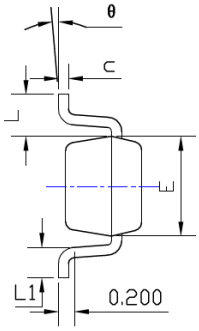
Fig.5 - Co — V_{CB}



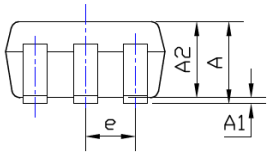
■SOT-363 Package Outline Dimensions & Suggested Pad Layout



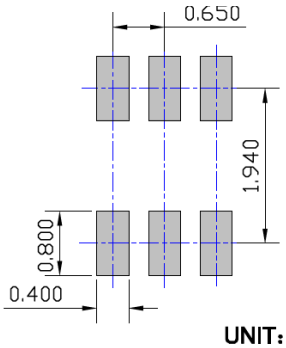
TOP VIEW



SIDE VIEW



SIDE VIEW



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
θ	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.

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