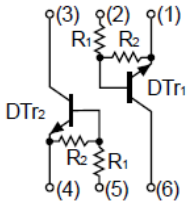
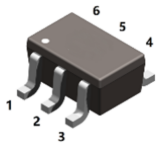
UMH13N

Dual Digital Transistor(NPN+NPN)

Features

- Two DTC143Z transistors are built-in a package
- Built-in biasing resistors (R_1: 4.7kΩ, R_2: 47kΩ)
- Transistor elements are independent, eliminating interference
- Mounting cost and area can be cut in half





SOT-363

Mechanical Data

- Case: SOT-363
- Molding Compound: UL Flammability Classification Rating 94V-0
- Terminals: Matte tin-plated leads; solderability-per MIL-STD-202, Method 208

Ordering Information

Part Number	Package	Shipping Quantity	Marking Code
UMH13N	SOT-363	3000 pcs / Tape & Reel	H13

Maximum Ratings (@ T_A = 25℃ unless otherwise specified)

Symbol	Parameter	Value	Unit
V_{CBO}	Collector-Base Voltage	50	V
V_{CEO}	Collector-Emitter Voltage	50	V
V_{EBO}	Emitter-Base Voltage	5	V
V_{CC}	Supply Voltage	50	V
V_I	Input Voltage	-5 to +30	V
I_O	Output Current	100	mA
$I_{C(Max)}$	Collector Current	100	mA

Thermal Characteristics

Parameter	Symbol	Value	Unit
Power Dissipation *1	P_D	300	mW
Thermal Resistance, Junction to Ambient Air	$R_{\theta JA}$	417	℃ /W
Operating Junction Temperature Range	T_J	-55 ~ +150	℃
Storage Temperature Range	T_{STG}	-55 ~ +150	℃

Note 1: Device mounted on an FR4 Printed-Circuit Board (PCB), single-sided copper, tin-plated and standard footprint

Electrical Characteristics (@ T_A = 25℃ unless otherwise specified)

Parameter	Symbol	Test Condition	Min.	Typ.	Max.	Unit
Collector-base Cut-off Current	I_{CBO}	V_{CB} = 50V, I_E = 0	-	-	100	nA
Collector-emitter Cut-off Current	I_{CEO}	V_{CE} = 30V, I_B = 0	-	-	1	μA
Emitter-base Cut-off Current	I_{EBO}	V_{EB} = 5V, I_C = 0	-	-	170	μA
Input Voltage	$V_{I(OFF)}$	V_{CC} = 5V, I_O = 100μA	0.5	-	-	V
Input Voltage	$V_{I(ON)}$	V_O = 0.3V, I_O = 5mA	-	-	1.3	V
DC Current Gain	h_{FE}	I_C = 10mA, V_{CE} = 5V	100	-	-	-
Collector-Emitter saturation voltage	$V_{CE(sat)}$	I_C/I_B = 5mA/0.25mA	-	-	0.3	V
Input Resistor	R_1		3.29	4.7	6.11	kΩ
Resistance ratio	R_2/R_1		8	10	12	-
Gain-Bandwidth Product	f_T	V_{CE} = 10V, I_E = 5mA f = 100MHz	-	250	-	MHz

Ratings and Characteristic Curves (@ T_A = 25℃ unless otherwise specified)

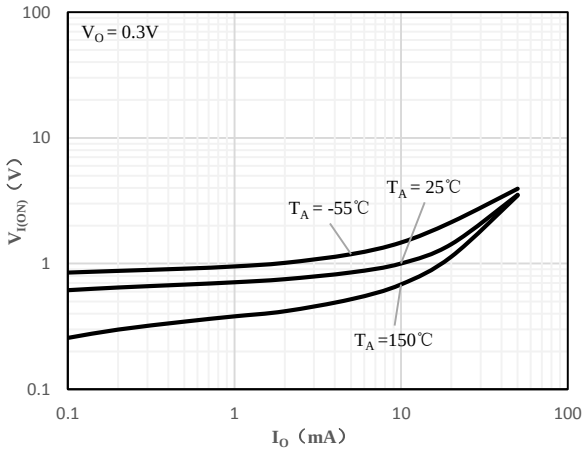


Fig 1 Input Voltage vs Output Current

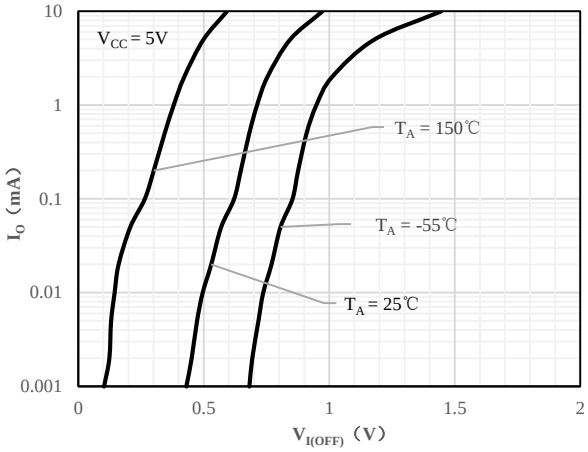


Fig 2 Output Current vs Input Voltage

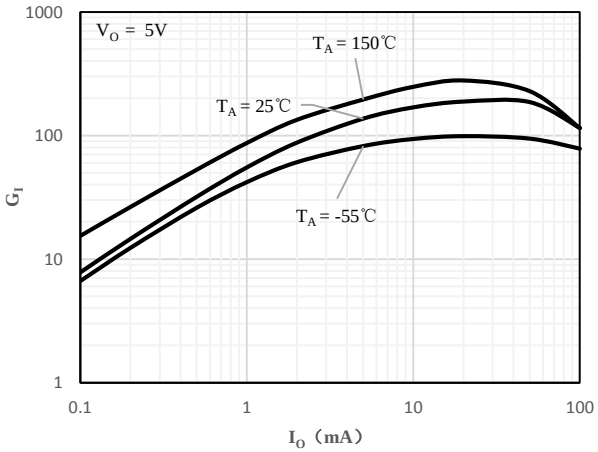


Fig 3 DC Current Gain vs Output Current

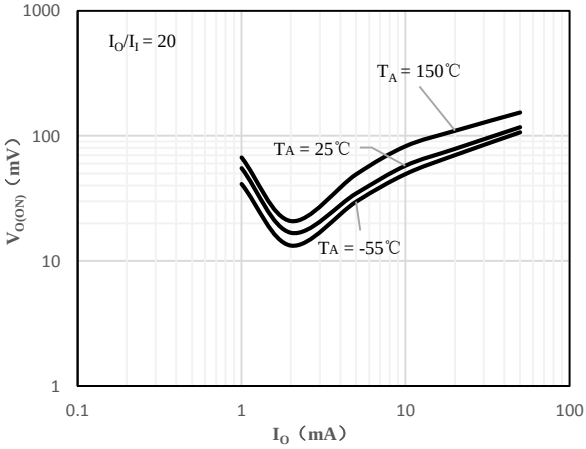
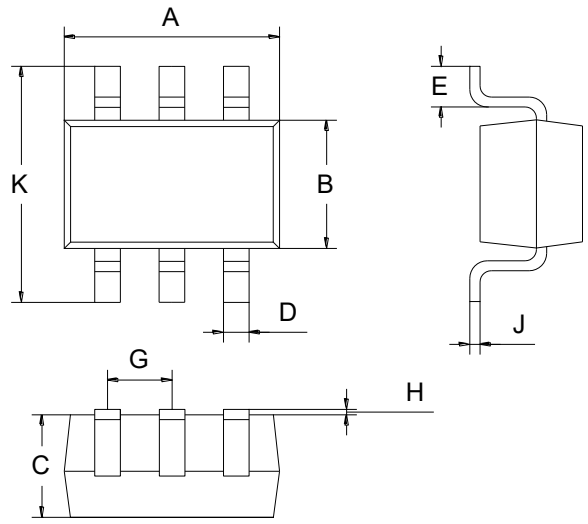


Fig 4 Output Voltage vs Output Current

Package Outline Dimensions (Unit: mm)



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Dimension	**Min.**	**Max.**
A	2.00	2.20
B	1.15	1.35
C	0.85	1.05
D	0.15	0.35
E	0.25	0.40
G	0.60	0.70
H	0.02	0.10
J	0.05	0.15
K	2.20	2.40

Mounting Pad Layout (Unit: mm)

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