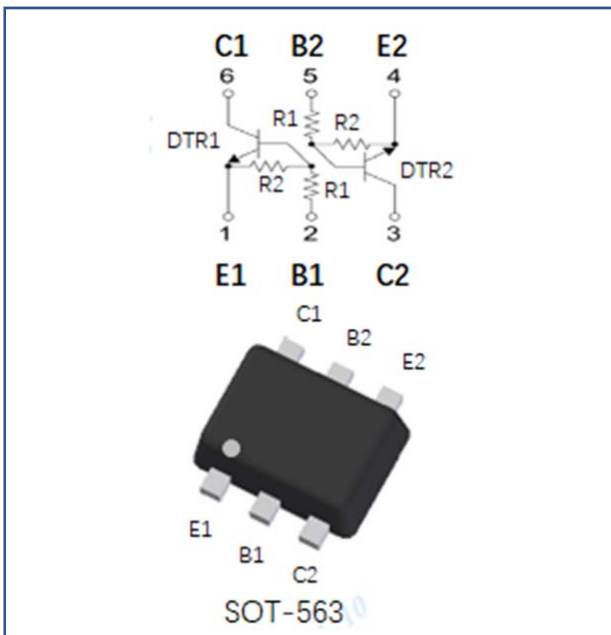


## Dual NPN Digital Transistors (Built-in Resistors)



### Features

- Moisture sensitivity level 1
- Halogen free and RoHS compliant
- Surface mount package ideally suited for automatic Insertion

### Application

- Signal amplification
- Switching circuit

### Mechanical data

- **Package:** SOT-563
- **Terminals:** Tin plated leads, solderable per J-STD-002 and JESD22-B102

### ■ Maximum Ratings ( $T_a=25^\circ\text{C}$ Unless otherwise specified)

Item	Symbol	Unit	Conditions	Value
Device marking code				H10
Supply voltage	$V_{CC}$	V		50
Input voltage	$V_{IN}$	V		-5 to +12
Output current	$I_o$	mA		100
Power dissipation	$P_D$	mW		150
Junction temperature	$T_J$	$^\circ\text{C}$		-55 to +150
Storage temperature	$T_{STG}$	$^\circ\text{C}$		-55 to +150



## ■ Electrical Characteristics (T<sub>a</sub>=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	0.5		
	V <sub>I(on)</sub>	V	V <sub>O</sub> =0.3V, I <sub>c</sub> =5mA			1.1
Output voltage	V <sub>O(on)</sub>	V	I <sub>O</sub> / I <sub>i</sub> =5mA/0.25 mA		0.1	0.3
Input current	I <sub>i</sub>	mA	V <sub>i</sub> =5V			3.6
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> =10mA	80		
Input resistance	R <sub>1</sub>	kΩ		1.54	2.2	2.86
Resistance ratio	R <sub>2</sub> /R <sub>1</sub>			17	21	26
Transition frequency	f <sub>T</sub>	MHz	V <sub>CE</sub> =10V, I <sub>E</sub> =5mA, f=100MHz		250	

## ■ Thermal Characteristics

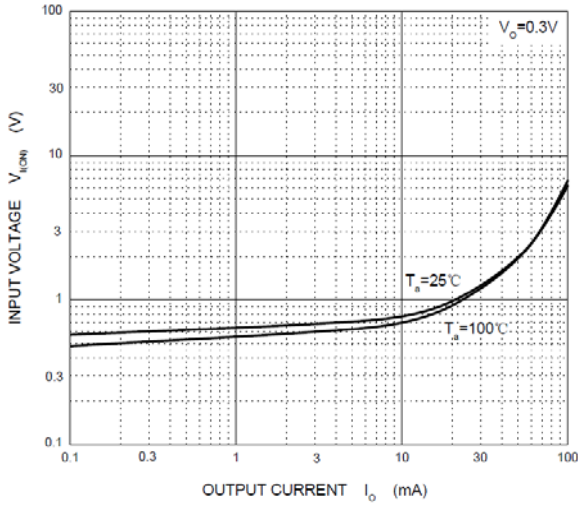
Parameter	Symbol	Unit	Value
Thermal resistance, junction-to-ambient	R <sub>θJ-A</sub> <sup>(1)</sup>	°C/W	833
Thermal resistance, junction-to-case	R <sub>θJ-C</sub> <sup>(1)</sup>	°C/W	667

### Note:

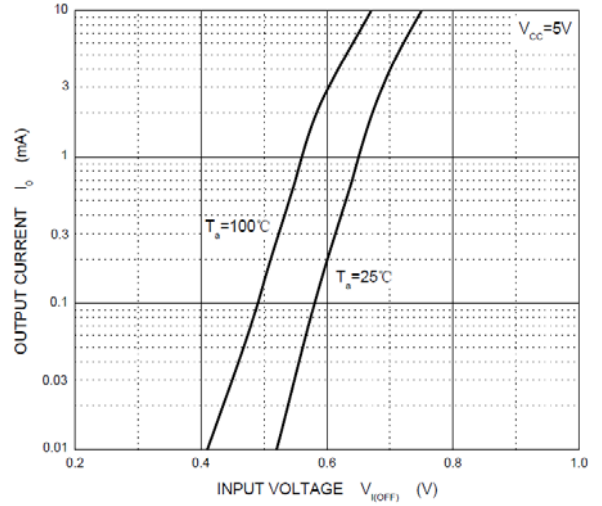
(1) Thermal resistance from junction to ambient and from junction to lead mounted on P.C.B. with 25.4mm\*25.4mm copper pad areas

## ■ Characteristics

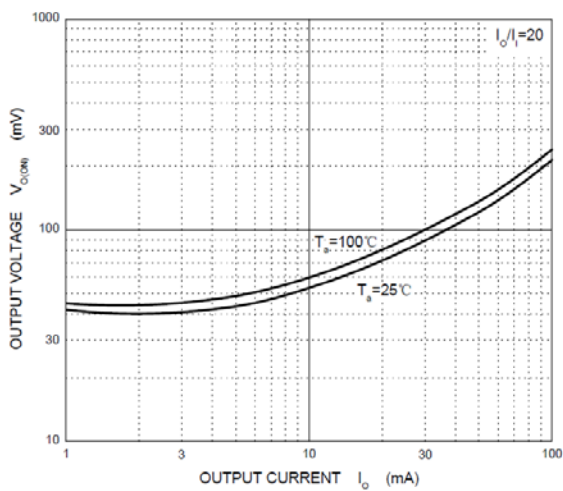
**Fig 1: Input Voltage (On) Characteristics**



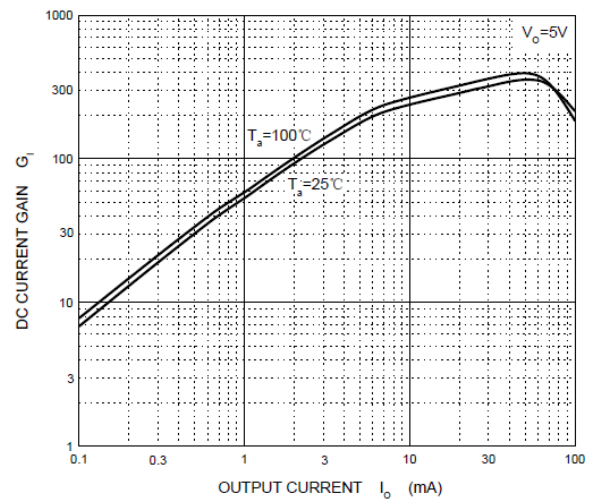
**Fig 2: Input Voltage (Off) Characteristics**



**Fig 3: Output Voltage Characteristics**



**Fig 4: DC Current Gain Characteristics**



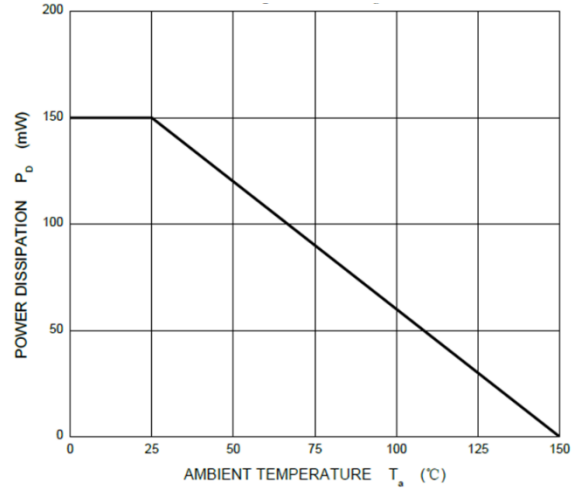
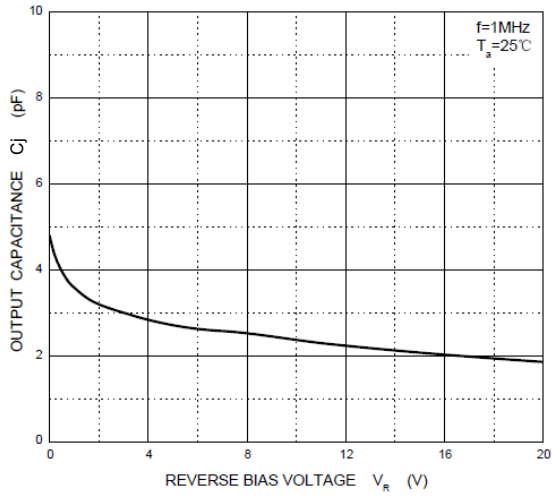
**Fig 5: Capacitance Capability**

**Fig 6: P<sub>D</sub>-T<sub>a</sub> Curve**



# EMH10

RoHS  
COMPLIANT





# EMH10

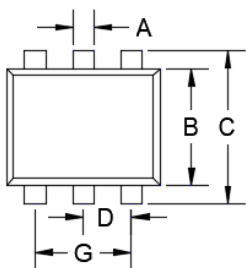
RoHS  
COMPLIANT

## Ordering Information

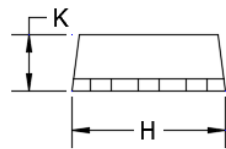
Preferred P/N	Packing code	Unit weight(g)	Minimum package(pcs)	Inner box quantity(pcs)	Outer carton quantity(pcs)	Delivery mode
EMH10	F2	Approximate 0.0035	3000	30000	120000	7" reel

## Outline Dimensions

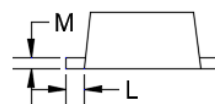
SOT-563



TOP VIEW



SIDE VIEW

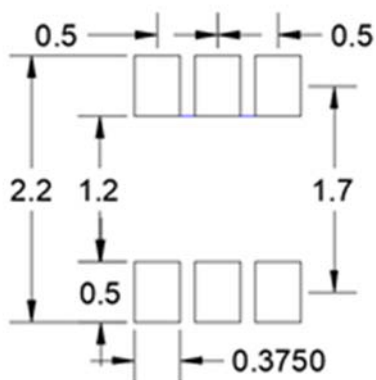


SIDE VIEW

### DIMENSIONS

DIM	INCHES		MM	
	MIN	MAX	MIN	MAX
A	0.006	0.011	0.150	0.300
B	0.043	0.051	1.100	1.300
C	0.059	0.067	1.500	1.700
D	0.016	0.024	0.400	0.600
G	0.035	0.043	0.900	1.100
H	0.059	0.067	1.500	1.700
K	0.021	0.026	0.550	0.650
L	0.004	0.011	0.100	0.300
M	0.004	0.007	0.100	0.180

## Suggested Pad Layout



UNIT:mm



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