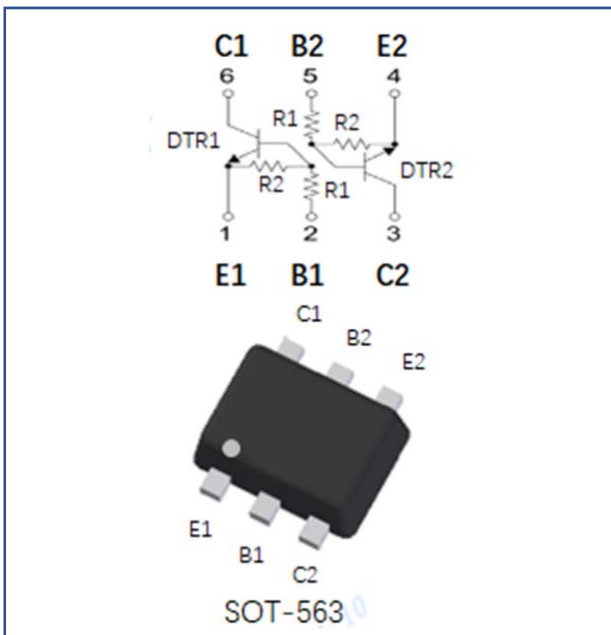


Dual NPN Digital Transistors (Built-in Resistors)



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				H13
Supply voltage	V_{CC}	V		50
Input voltage	V_{IN}	V		-5 to +30
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_a=25°C Unless otherwise specified)

Item	Symbol	Unit	Conditions	Min	Typ	Max
Input voltage	V _{I(off)}	V	V _{CC} =5V, I _c =100uA	0.5		
	V _{I(on)}	V	V _O =0.3V, I _c =5mA			1.3
Output voltage	V _{O(on)}	V	I _O / I _i =5mA/0.25 mA			0.3
Input current	I _i	mA	V _i =5V			1.8
Output current	I _{O(off)}	uA	V _{CC} =50V, V _i =0			0.5
DC current gain	G _i		V _O =5V, I _O =10mA	80		
Input resistance	R ₁	kΩ		3.29	4.7	6.11
Resistance ratio	R ₂ /R ₁			8	10	12
Transition frequency	f _T	MHz	V _{CE} =10V, I _E =5mA, f=100MHz		250	

■ Thermal Characteristics

Parameter	Symbol	Unit	Value
Thermal resistance, junction-to-ambient	R _{θJ-A} ⁽¹⁾	°C/W	833
Thermal resistance, junction-to-case	R _{θJ-C} ⁽¹⁾	°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: DC Current Gain Characteristics

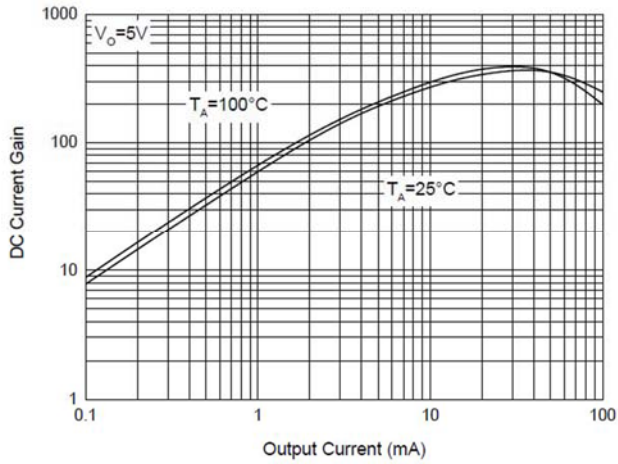


Fig 2: Input Voltage (On) Characteristics

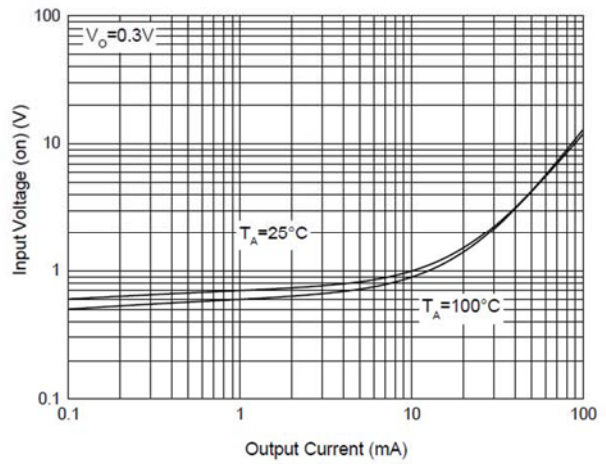


Fig 3: Input Voltage (Off) Characteristics

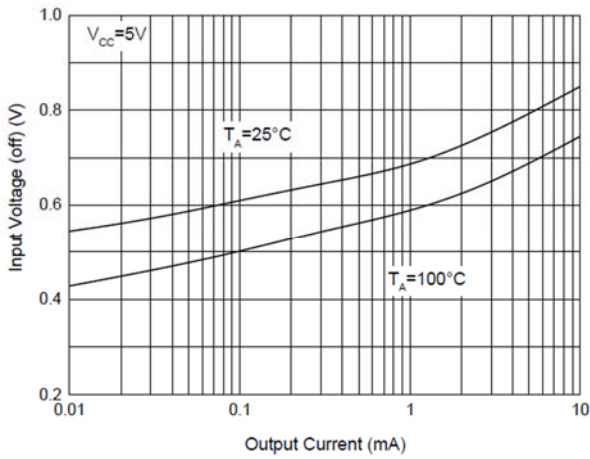


Fig 4: Output Voltage Characteristi

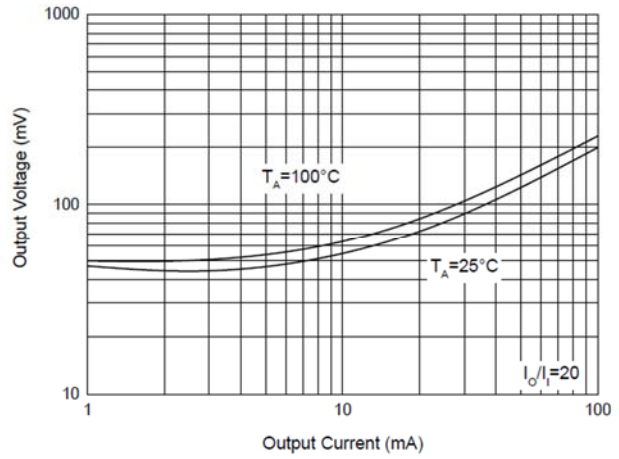
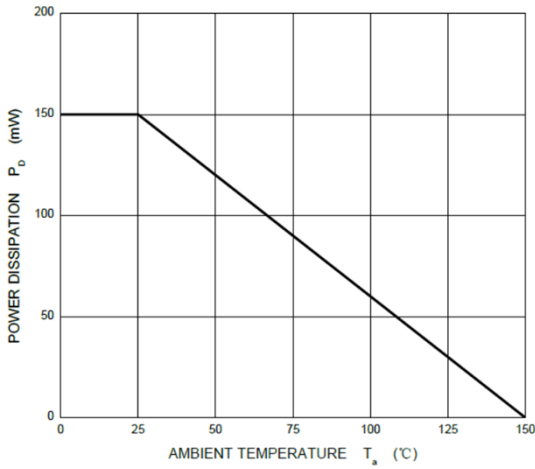


Fig 5: P_D-T_a Curve





EMH13

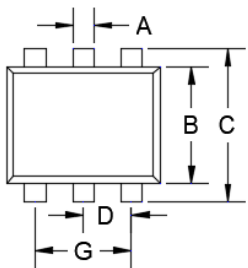
RoHS
COMPLIANT

Ordering Information

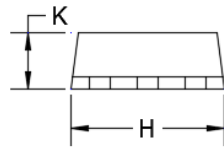
Preferred P/N	Packing code	Unit weight(g)	Minimum package(pcs)	Inner box quantity(pcs)	Outer carton quantity(pcs)	Delivery mode
EMH13	F2	Approximate 0.0035	3000	30000	120000	7" reel

Outline Dimensions

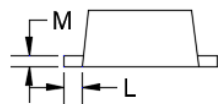
SOT-563



TOP VIEW



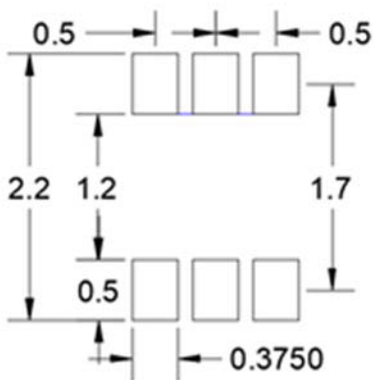
SIDE VIEW



SIDE VIEW

DIM	DIMENSIONS			
	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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