

# General purpose (dual digital transistors)

## EMH10 / UMH10N

### ●Structure

Epitaxial planar type  
NPN silicon transistor  
(Built-in resistor type)

### ●Features

- 1) Two DTC123J chips in a EMT or UMT package.
- 2) Mounting possible with EMT3 or UMT3 automatic mounting machines.
- 3) Transistor elements are independent, eliminating interference.
- 4) Mounting cost and area can be cut in half.

### ●Packaging specifications

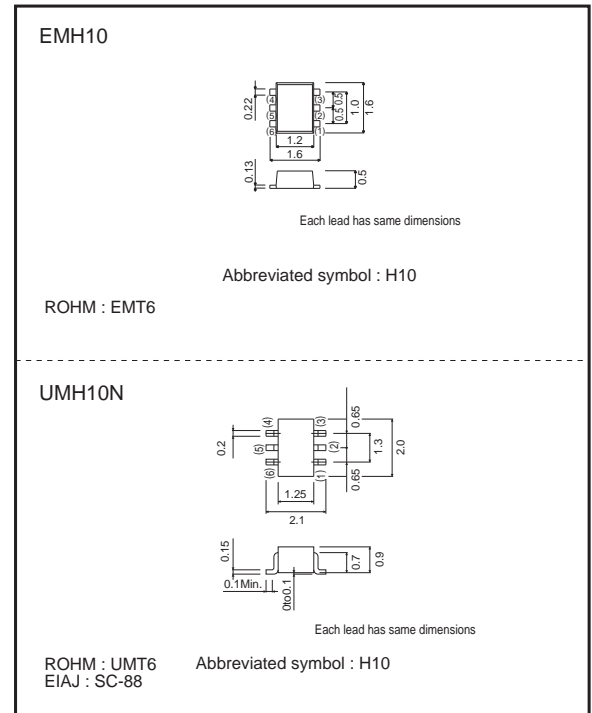
Type	Package	Taping	
	Code	T2R	TN
	Basic ordering unit (pieces)	8000	3000
EMH10		○	—
UMH10N		—	○

### ●Absolute maximum ratings (Ta=25°C)

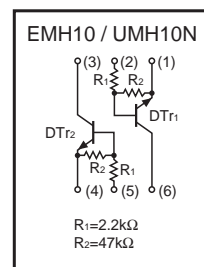
Parameter	Symbol	Limits	Unit
Supply voltage	V <sub>CC</sub>	50	V
Input voltage	V <sub>IN</sub>	12	V
		-5	
Output current	I <sub>O</sub>	100	mA
	I <sub>c</sub> (Max.)	100	mA
Power dissipation	EMH10,UMH10N Pd	150 (TOTAL)	mW *
Junction temperature	T <sub>J</sub>	150	°C
Storage temperature	T <sub>stg</sub>	-55~+150	°C

\* 120mW per element must not be exceeded.

### ●Dimensions (Unit : mm)



### ●Equivalent circuit



### ●Electrical characteristics (Ta=25°C)

Parameter	Symbol	Min.	Typ.	Max.	Unit	Conditions
Input voltage	V <sub>I(off)</sub>	—	—	0.5	V	V <sub>CC</sub> =5V, I <sub>O</sub> =100μA
	V <sub>I(on)</sub>	1.1	—	—		V <sub>O</sub> =0.3V, I <sub>O</sub> =5mA
Output voltage	V <sub>O(on)</sub>	—	0.1	0.3	V	I <sub>O</sub> /I <sub>I</sub> =5mA/0.25mA
Input current	I <sub>I</sub>	—	—	3.6	mA	V <sub>I</sub> =5V
Output current	I <sub>O(off)</sub>	—	—	0.5	μA	V <sub>CC</sub> =50V, V <sub>I</sub> =0V
DC current gain	G <sub>I</sub>	80	—	—	—	V <sub>O</sub> =5V, I <sub>O</sub> =10mA
Transition frequency	f <sub>T</sub>	—	250	—	MHz	V <sub>CE</sub> =10V, I <sub>E</sub> =-5mA, f=100MHz *
Input resistance	R <sub>I</sub>	1.54	2.2	2.86	kΩ	—
Resistance ratio	R <sub>2</sub> /R <sub>1</sub>	17	21	26	—	—

\* Transition frequency of the device

●Electrical characteristic curves

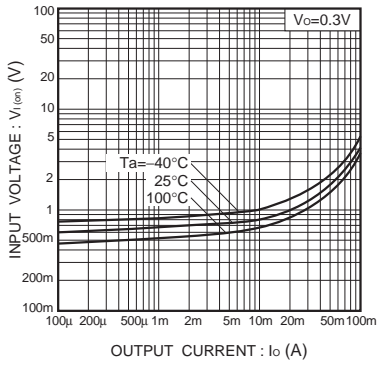


Fig.1 Input voltage vs. output current (ON characteristics)

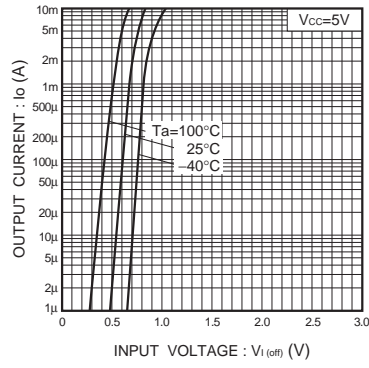


Fig.2 Output current vs. input voltage (OFF characteristics)

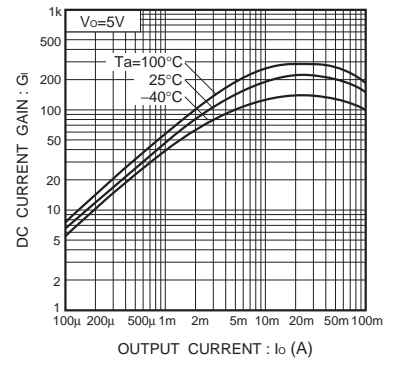


Fig.3 DC current gain vs. output current

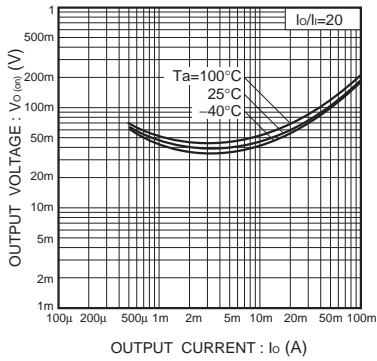


Fig.4 Output voltage vs. output current

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