

# General purpose (dual digital transistors)

## EMH2 / UMH2N / IMH2A

### ●Features

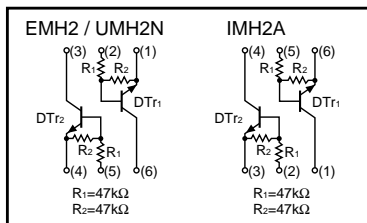
- 1) Two DTC144Es chips in a EMT or UMT or SMT package.
- 2) Mounting possible with EMT3 or UMT3 or SMT3 automatic mounting machines.
- 3) Transistor elements are independent, eliminating interference.
- 4) Mounting cost and area can be cut in half.

### ●Structure

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

The following characteristics apply to both DT<sub>r1</sub> and DT<sub>r2</sub>.

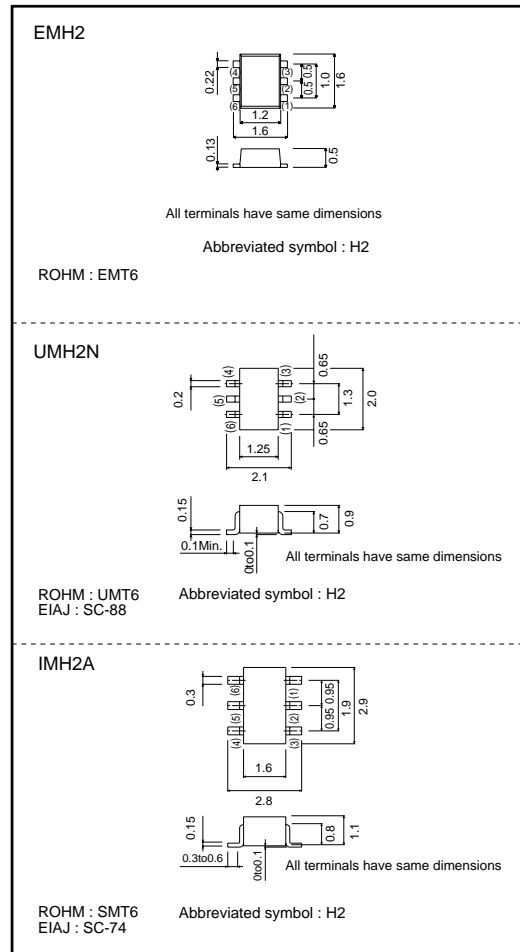
### ●Equivalent circuit



### ●Packaging specifications

Type	Package	Taping		
	Code	T2R	TN	T110
	Basic ordering unit (pieces)	8000	3000	3000
EMH2		○	-	-
UMH2N		-	○	-
IMH2A		-	-	○

### ●External dimensions (Unit : mm)



Transistors

●Absolute maximum ratings (Ta = 25°C)

Parameter	Symbol	Limits	Unit		
Supply voltage	V <sub>CC</sub>	50	V		
Input voltage	V <sub>IN</sub>	40	V		
		-10			
Output current	I <sub>o</sub>	30	mA		
	I <sub>c(Max.)</sub>	100			
Power dissipation	EMH2,UMH2N	Pd	150 (TOTAL)	mW	*1
	IMH2A		300 (TOTAL)		
Junction temperature	T <sub>j</sub>	150	°C		
Storage temperature	T <sub>stg</sub>	-55~+150	°C		

\*1 120mW per element must not be exceeded.  
 \*2 200mW per element must not be exceeded.

●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>	3	-	-		V <sub>O</sub> =0.3V, I <sub>o</sub> =2mA	
Output voltage	V <sub>O(on)</sub>	-	0.1	0.3	V	I <sub>o</sub> /I <sub>i</sub> =10mA/0.5mA	
Input current	I <sub>i</sub>	-	-	0.18	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>	68	-	-	-	V <sub>O</sub> =5V, I <sub>o</sub> =5mA	
Transition frequency	f <sub>r</sub>	-	250	-	MHz	V <sub>CE</sub> =10V, I <sub>E</sub> =-5mA, f=100MHz	*
Input resistance	R <sub>i</sub>	32.9	47	61.1	kΩ	-	
Resistance ratio	R <sub>2</sub> /R <sub>1</sub>	0.8	1	1.2	-	-	

\* Transition frequency of the device

●Electrical characteristic curves

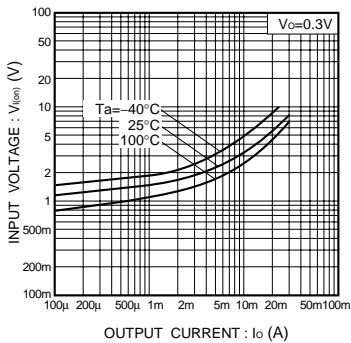


Fig.1 Input voltage vs. output current (ON characteristics)

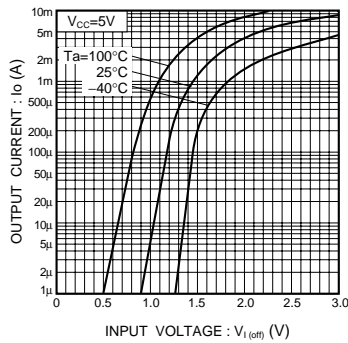


Fig.2 Output current vs. input voltage (OFF characteristics)

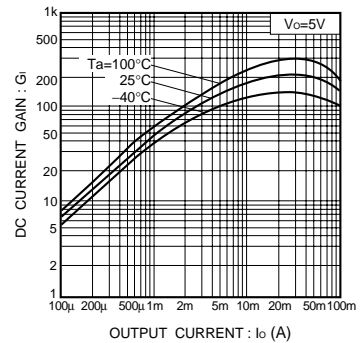


Fig.3 DC current gain vs. output current

## Transistors

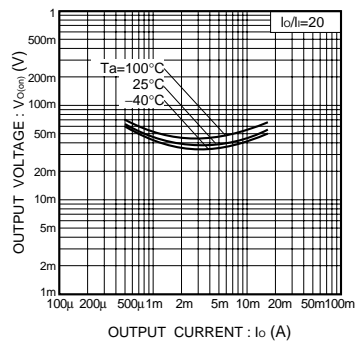


Fig.4 Output voltage vs. output current

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