

# General purpose (dual digital transistors)

EMH2 / UMH2N / IMH2A

## ●Features

Two DTC144Es chips in a EMT or UMT or SMT package.

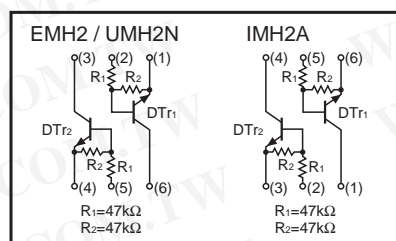
- 1) Mounting possible with EMT3 or UMT3 or SMT3 automatic mounting machines.
- 2) Transistor elements are independent, eliminating interference.
- 3) Mounting cost and area can be cut in half.

## ●Structure

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

The following characteristics apply to both DTr<sub>1</sub> and DTr<sub>2</sub>.

## ●Inner circuit



## ●Packaging specifications

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

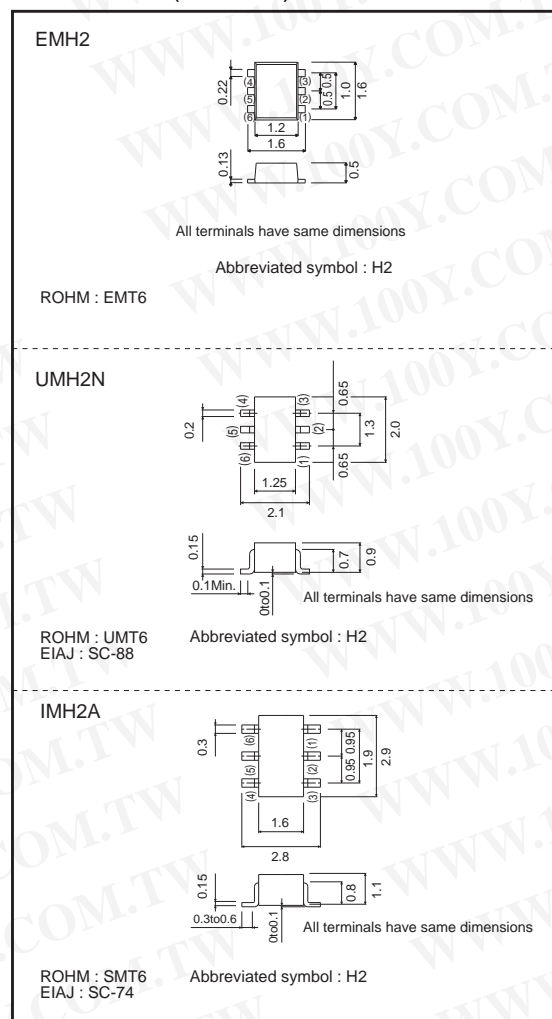
## ●Absolute maximum ratings (Ta = 25°C)

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	P <sub>d</sub>	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.

## ●Dimensions (Unit : mm)



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

Parameter	Symbol	Min.	Typ.	Max.	Unit	Conditions
Input voltage	$V_{I(off)}$	—	—	0.5	V	$V_{CC}=5V, I_o=100\mu A$
	$V_{I(on)}$	3	—	—		$V_o=0.3V, I_o=2mA$
Output voltage	$V_{O(on)}$	—	0.1	0.3	V	$I_o/I_i=10mA/0.5mA$
Input current	$I_i$	—	—	0.18	mA	$V_i=5V$
Output current	$I_{O(off)}$	—	—	0.5	$\mu A$	$V_{CC}=50V, V_i=0V$
DC current gain	$G_I$	68	—	—	—	$V_o=5V, I_o=5mA$
Transition frequency	$f_T$	—	250	—	MHz	$V_{CE}=10V, I_E=-5mA, f=100MHz$ *
Input resistance	$R_1$	32.9	47	61.1	$k\Omega$	—
Resistance ratio	$R_2/R_1$	0.8	1	1.2	—	—

\* Transition frequency of the device

## ●Electrical characteristic curves

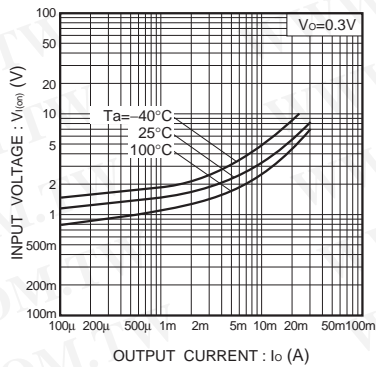


Fig.1 Input voltage vs. output current (ON characteristics)

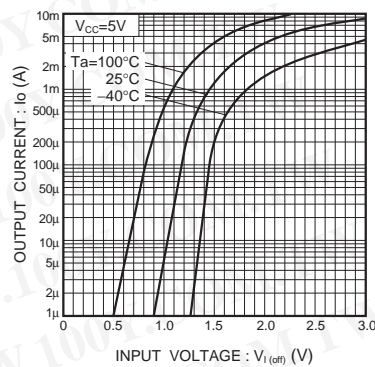


Fig.2 Output current vs. input voltage (OFF characteristics)

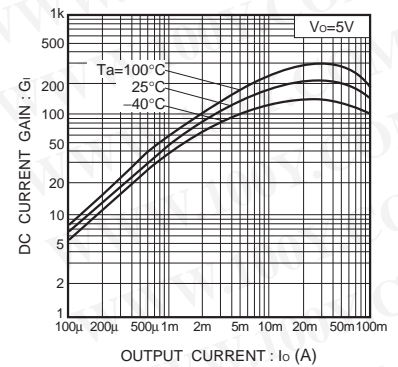


Fig.3 DC current gain vs. output current

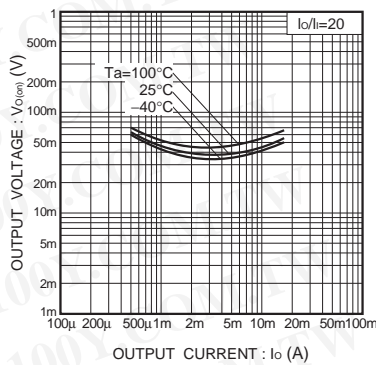


Fig.4 Output voltage vs. output current

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