

# General purpose (dual digital transistors)

## EMH9 / UMH9N / IMH9A

### ●Features

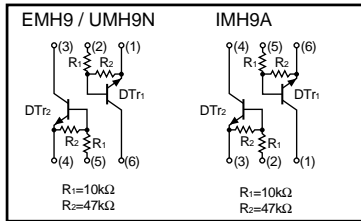
- 1) Two DTC114Ys chips in a EMT or UMT or SMT package.
- 2) Mounting possible with EMT3 or UMT3 or SMT3 automatic mounting machines.
- 3) Transistor elements are independent, eliminating interference.
- 4) Mounting cost and area can be cut in half.

### ●Structure

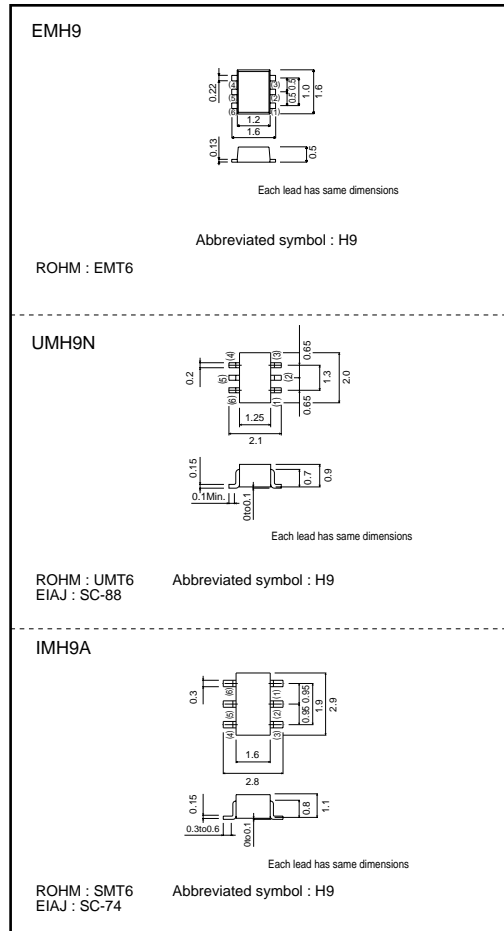
Epitaxial planar type  
NPN silicon transistor  
(Built-in resistor type)

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

### ●Equivalent circuit



### ●External dimensions (Unit : mm)



### ●Packaging specifications

Type	Package	Taping		
	Code	T2R	TN	T110
	Basic ordering unit (pieces)	8000	3000	3000
EMH9		○	—	—
UMH9N		—	○	—
IMH9A		—	—	○

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		
		-6			
Output current	I <sub>O</sub>	70	mA		
	I <sub>C (Max.)</sub>	100			
Power dissipation	EMH9, UMH9N	Pd	150 (TOTAL)	mW	*1
	IMH9A		300 (TOTAL)		
Junction temperature	T <sub>J</sub>	150	°C		
Storage temperature	T <sub>stg</sub>	-55 to +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>	-	-	0.3	V	V <sub>CC</sub> =5V, I <sub>O</sub> =100μA
	V <sub>I (on)</sub>	1.4	-	-		V <sub>O</sub> =0.3V, I <sub>O</sub> =1mA
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>	-	-	0.88	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>T</sub>	-	250	-	MHz	V <sub>CE</sub> =10V, I <sub>E</sub> =-5mA, f=100MHz *
Input resistance	R <sub>1</sub>	7	10	13	kΩ	-
Resistance ratio	R <sub>2</sub> /R <sub>1</sub>	3.7	4.7	5.7	-	-

\* Transition frequency of the device

●Electrical characteristic curves

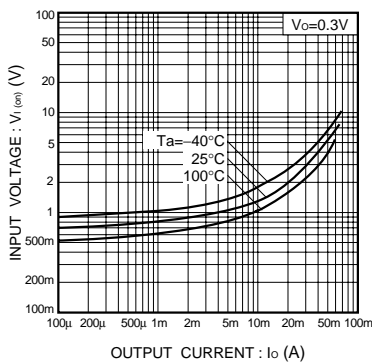


Fig.1 Input voltage vs. output current (ON characteristics)

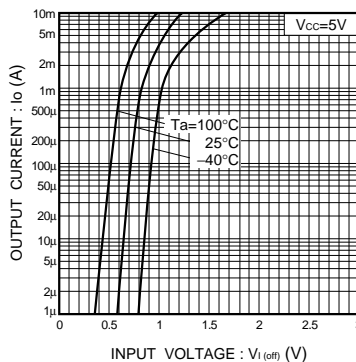


Fig.2 Output current vs. input voltage (OFF characteristics)

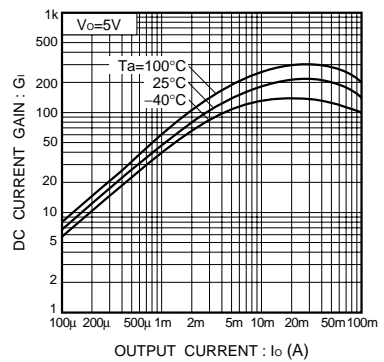


Fig.3 DC current gain vs. output current

Transistors

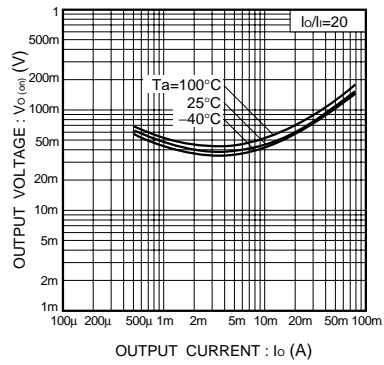


Fig.4 Output voltage vs. output current

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