

General purpose (dual digital transistors)

EMH9 / UMH9N / IMH9A

●Features

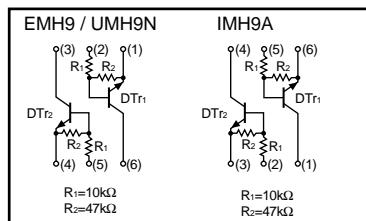
- 1) Two DTC114Ys chips in a EMT or UMT or SMT package.
- 2) Mounting possible with EMT3 or UMT3 or SMT3 automatic mounting machines.
- 3) Transistor elements are independent, eliminating interference.
- 4) Mounting cost and area can be cut in half.

●Structure

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

The following characteristics apply to both DT_{r1} and DT_{r2}.

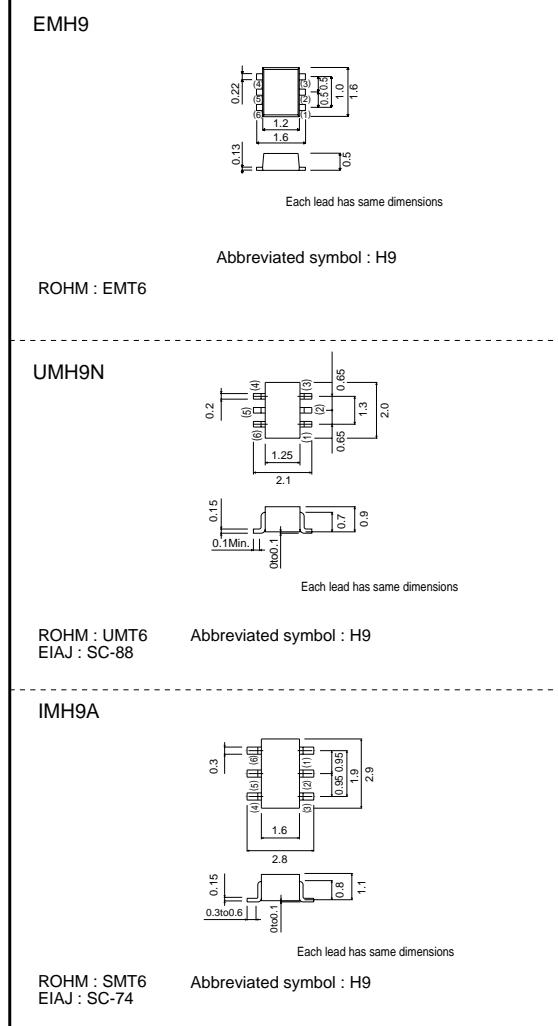
●Equivalent circuit



●Packaging specifications

Type	Packaging	Taping		
	Code	T2R	TN	T110
		8000	3000	3000
EMH9		○	-	-
UMH9N		-	○	-
IMH9A		-	-	○

●External dimensions (Units : mm)



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Transistors

● Absolute maximum ratings ($T_a = 25^\circ\text{C}$)

Parameter	Symbol	Limits	Unit
Supply voltage	V_{cc}	50	V
Input voltage	V_{in}	40	V
		-6	
Output current	I_o	70	mA
	I_c (Max.)	100	
Power dissipation	P_d	150 (TOTAL)	mW *1
		300 (TOTAL)	
Junction temperature	T_j	150	$^\circ\text{C}$
Storage temperature	T_{stg}	-55~+150	$^\circ\text{C}$

*1 120mW per element must not be exceeded.

*2 200mW per element must not be exceeded.

● Electrical characteristics ($T_a = 25^\circ\text{C}$)

Parameter	Symbol	Min.	Typ.	Max.	Unit	Conditions
Input voltage	$V_{i(\text{off})}$	—	—	0.3	V	$V_{cc}=5\text{V}$, $I_o=100\mu\text{A}$
	$V_{i(\text{on})}$	1.4	—	—		$V_o=0.3\text{V}$, $I_o=1\text{mA}$
Output voltage	$V_{o(\text{on})}$	—	0.1	0.3	V	$I_o/I_i=5\text{mA}/0.25\text{mA}$
Input current	I_i	—	—	0.88	mA	$V_i=5\text{V}$
Output current	$I_{o(\text{off})}$	—	—	0.5	μA	$V_{cc}=50\text{V}$, $V_i=0\text{V}$
DC current gain	G_i	68	—	—	—	$V_o=5\text{V}$, $I_o=5\text{mA}$
Transition frequency	f_T	—	250	—	MHz	$V_{ce}=10\text{mA}$, $I_e=-5\text{mA}$, $f=100\text{MHz}$ *
Input resistance	R_i	7	10	13	k Ω	—
Resistance ratio	R_2/R_1	3.7	4.7	5.7	—	—

* Transition frequency of the device

● Electrical characteristic curves

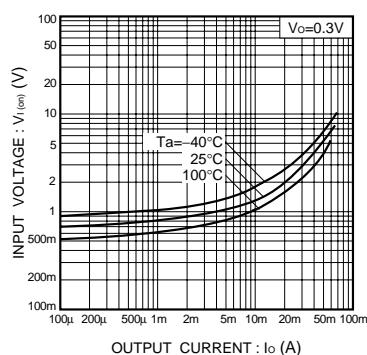


Fig.1 Input voltage vs. output current
(ON characteristics)

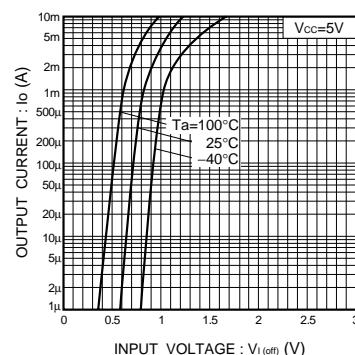


Fig.2 Output current vs. input voltage
(OFF characteristics)

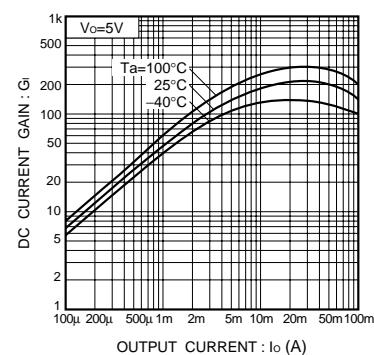


Fig.3 DC current gain vs. output current

Transistors

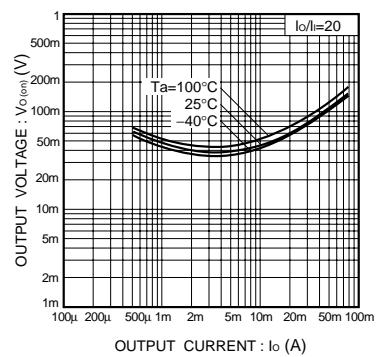


Fig.4 Output voltage vs. output current