

Transistors

General purpose (dual digital transistors)

EMB9 / UMB9N / IMB9A

●Features

- 1) Two DTA144Ys 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.

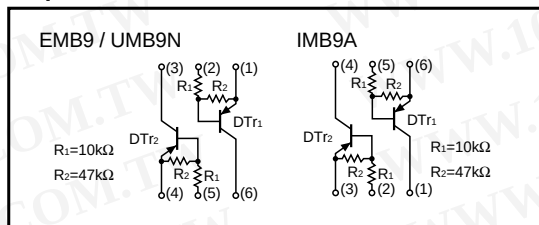
●Structure

Epitaxial planar type

PNP silicon transistor (Built-in resistor type)

The following characteristics apply to both DTr1 and DTr2.

●Equivalent circuit



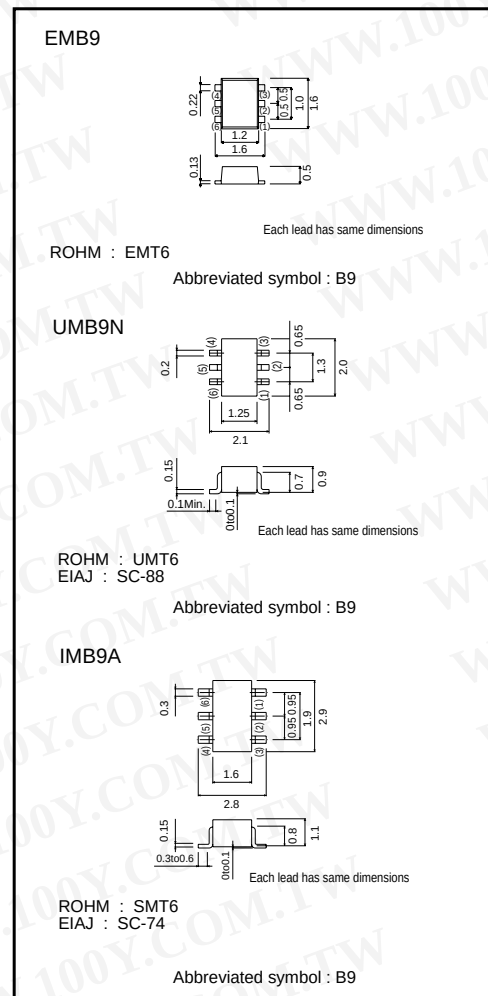
●Absolute maximum ratings (Ta = 25°C)

Parameter		Symbol	Limits	Unit
Supply voltage		V_{CC}	-50	V
Input voltage		V_{IN}	-40 6	V
Output current		I_O I_C (Max.)	-70 -100	mA
Power dissipation	EMB9, UMB9N	P_d	150 (TOTAL)	mW ^{*1} mW ^{*2}
	IMB9A		300 (TOTAL)	
Junction temperature		T_j	150	°C
Storage temperature		T_{stg}	-55 to +150	°C

*1 120mW per element must not be exceeded.

*2 200mW per element must not be exceeded.

●External dimensions (Unit : mm)



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●Electrical characteristics (Ta = 25°C)

Parameter	Symbol	Min.	Typ.	Max.	Unit	Conditions
Input voltage	$V_{I(off)}$	—	—	-0.3	V	$V_{CC} = -5V, I_o = -100\mu A$
	$V_{I(on)}$	-1.4	—	—		$V_o = -0.3V, I_o = -1mA$
Output voltage	$V_{O(on)}$	—	-0.1	-0.3	V	$I_o/I_i = -5mA/-0.25mA$
Input current	I_i	—	—	-0.88	mA	$V_i = -5V$
Output current	$I_o(off)$	—	—	-0.5	μA	$V_{CC} = -50V, V_i = 0V$
DC current gain	G_i	68	—	—	—	$V_o = -5V, I_o = -5mA$
Transition frequency	f_r	—	250	—	MHz	$V_{CE} = -10mA, I_E = 5mA, f = 100MHz$ *
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

●Packaging specifications

Type	Package	Taping		
	Code	T2R	TN	T148
	Basic ordering unit (pieces)	8000	3000	3000
EMB9	○	—	—	—
UMB9N	—	○	—	—
IMB9A	—	—	—	○

●Electrical characteristic curves

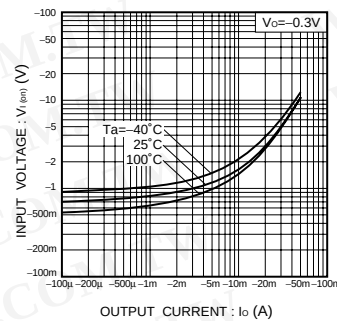


Fig.1 Input voltage vs. output current (ON characteristics)

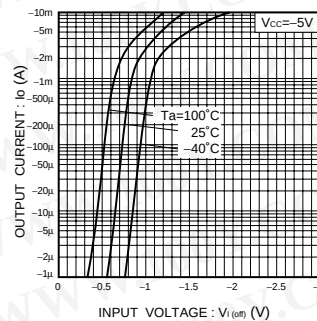


Fig.2 Output current vs. input voltage (OFF characteristics)

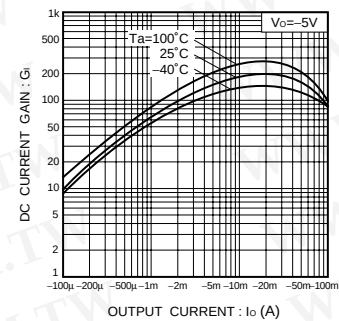


Fig.3 DC current gain vs. output current

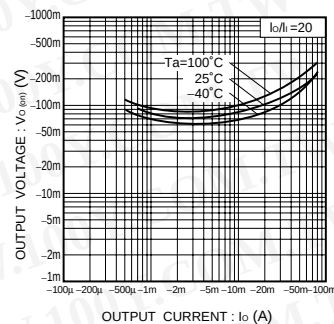


Fig.4 Output voltage vs. output current