

General purpose (dual digital transistors)

EMB2 / UMB2N / IMB2A

●Features

- 1) Two DTA144E chips in a EMT or UMT or SMT package.
- 2) Same size as EMT3 or UMT3 or SMT3 package, so same mounting machine can be used for both.
- 3) Transistor elements are independent, eliminating interference.

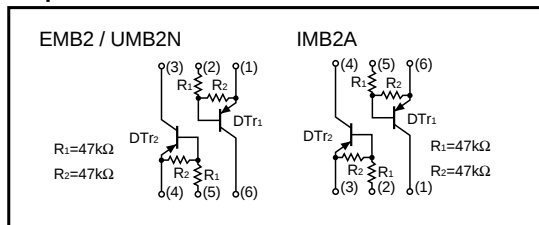
●Structure

Epitaxial planar type

PNP silicon transistor (Built-in resistor type)

The following characteristics apply to both DTr1 and DTr2.

●Equivalent circuit



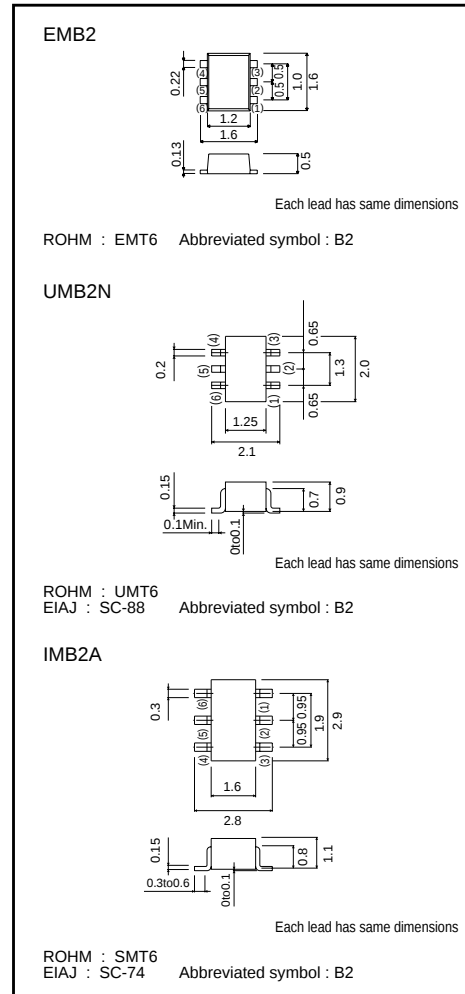
●Absolute maximum ratings (Ta = 25°C)

Parameter	Symbol	Limits	Unit
Supply voltage	V_{CC}	-50	V
Input voltage	V_{IN}	-40 10	V
Output current	I_O $I_C (Max.)$	-30 -100	mA
Power dissipation	EMB2, UMB2N IMB2A	P_d 150 (TOTAL) 300 (TOTAL)	mW ^{*1} mW ^{*2}
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)



Transistors

●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	μA	$V_{CC} = -50V, V_i = 0V$
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 Ω	—
Resistance ratio	R_2 / R_1	0.8	1	1.2	—	—

* Transition frequency of the device

●Packaging specifications

Type	Package	Taping		
	Code	T2R	TN	T110
	Basic ordering unit (pieces)	8000	3000	3000
EMB2		○	—	—
UMB2N		—	○	—
IMB2A		—	—	○

●Electrical characteristic curves

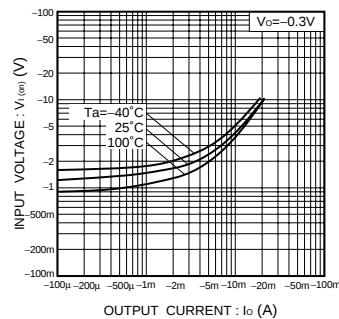


Fig.1 Input voltage vs. output current (ON characteristics)

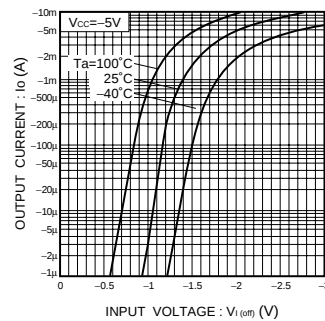


Fig.2 Output current vs. input voltage (OFF characteristics)

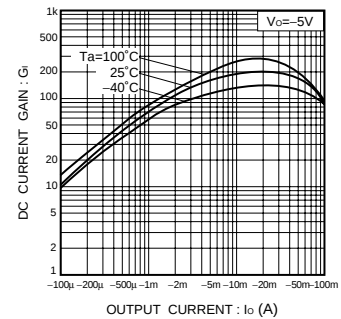


Fig.3 DC current gain vs. output current

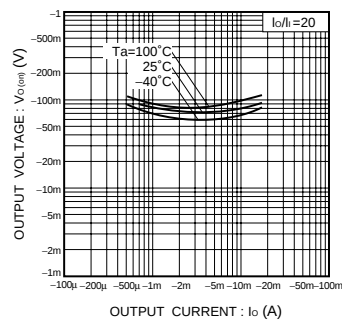


Fig.4 Output voltage vs. output current

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