

# Emitter common (dual digital transistors)

## UMG2N / FMG2A

●Features

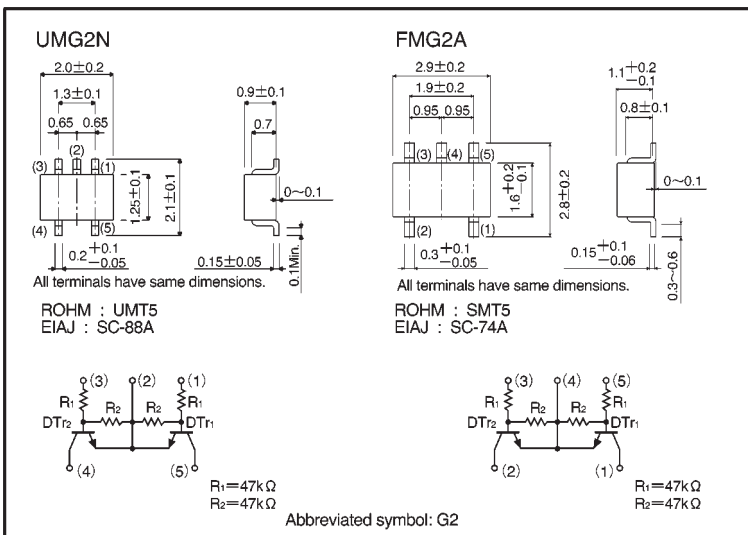
- 1) Two DTC144E chips in a UMT or SMT package.
- 2) Mounting cost and area can be cut in half.

●Structure

Dual NPN digital transistor  
(each with two built in resistors)

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

●External dimensions (Units: mm)



●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	UMG2N	150 (TOTAL)	mW *1
	FMG2A	300 (TOTAL)	mW *2
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.

●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	$V_{CE}=10mA, I_E=-5mA, f=100MHz$ *
Input resistance	$R_i$	32.9	47	61.1	k $\Omega$	—
Resistance ratio	$R_2/R_1$	0.8	1	1.2	—	—

\* Transition frequency of the device

●Packaging specifications

Part No.	Packaging type	Taping	
	Code	TR	T148
	Basic ordering unit (pieces)	3000	3000
UMG2N		○	—
FMG2A		—	○

●Electrical characteristic curves

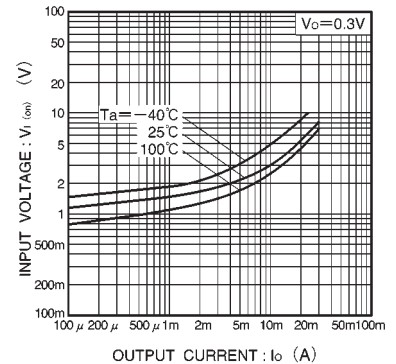


Fig.1 Input voltage vs. output current (on-characteristics)

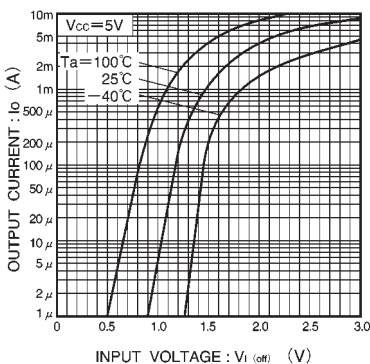


Fig.2 Output current vs. input voltage (off-characteristics)

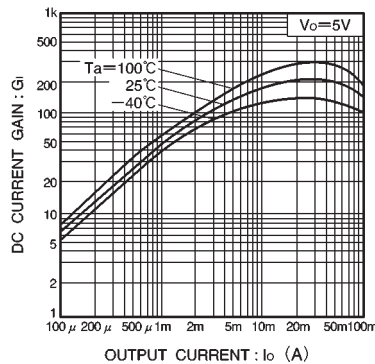


Fig.3 DC current gain vs. output current

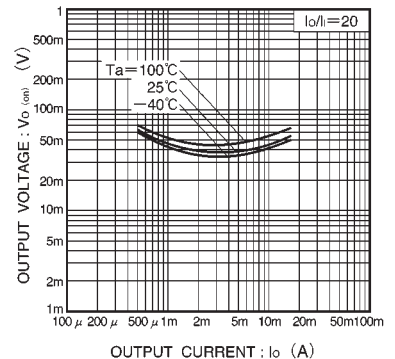


Fig.4 Output voltage vs. output current