

Transistors

# Emitter common (dual digital transistors)

## EMG2 / UMG2N / FMG2A

●Features

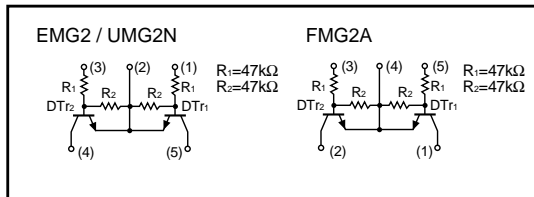
- 1) Two DTC144E chips in a EMT or UMT or SMT package.
- 2) Mounting cost and area can be cut in half.

●Structure

Dual NPN digital transistor  
(each with a single built in resistors)

The following characteristics apply to both the DT<sub>r1</sub> and DT<sub>r2</sub>.

●Equivalent circuit

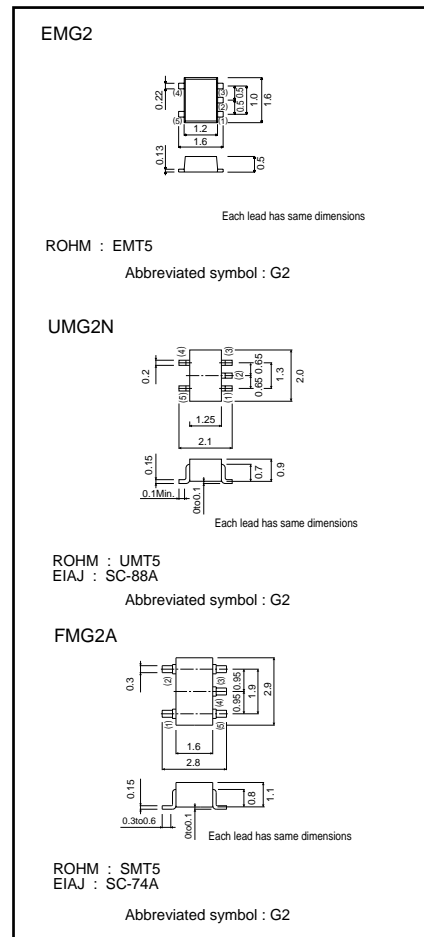


●Absolute maximum ratings (Ta = 25°C)

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	EMG2, UMG2N	P <sub>d</sub> 150 (TOTAL)	mW *1
	FMG2A	P <sub>d</sub> 300 (TOTAL)	mW *2
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.

●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	$I_o=10mA, I_i=0.5mA$
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	$f_r$	-	250	-	MHz	$V_{CE}=10V, I_e=-5mA, f=100MHz$ *
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

Type	Package	Taping		
	Code	T2R	TR	T148
	Basic ordering unit (pieces)	8000	3000	3000
EMG2	○	—	—	—
UMG2N	—	○	—	—
FMG2A	—	—	—	○

●Electrical characteristic curves

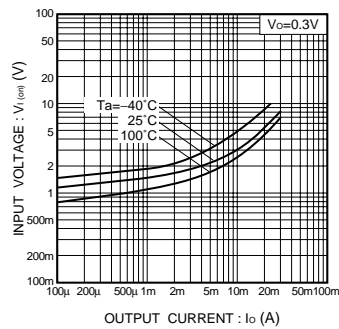


Fig.1 Input voltage vs. output current (on-characteristics)

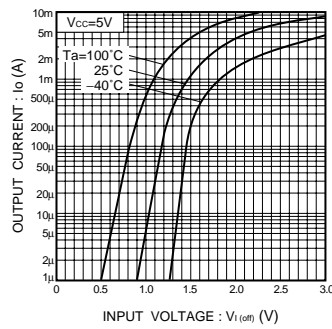


Fig.2 Output current vs. input voltage (off-characteristics)

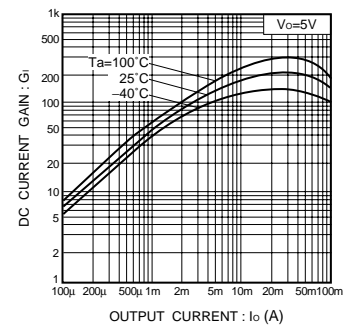


Fig.3 DC current gain vs. output current

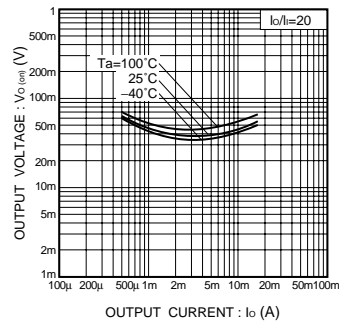


Fig.4 Output voltage vs. output current

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