

Power management (dual digital transistors)

EMC2 / UMC2N / FMC2A

●Features

- 1) Includes a DTA124E and DTC124E transistor in a EMT or UMT or SMT package.
- 2) Ideal for power switch circuits.
- 3) Mounting cost and area can be cut in half.

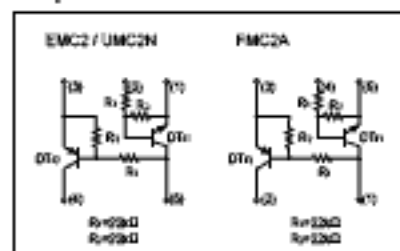
●Structure

Epitaxial planar type

A PNP and a NPN digital transistor
(each with two built in resistors)

The following characteristics apply to both DT_{n1} and DT_{n2}, however, the "-" sign on DT_{n2} values for the PNP type have been omitted.

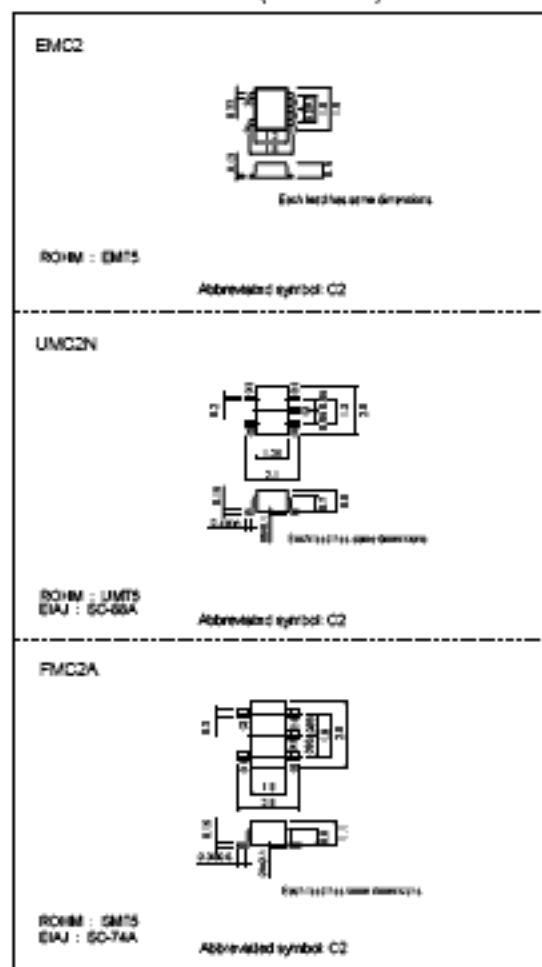
●Equivalent circuit



●Packaging specifications

Type	Packaging	Taping		
	Code	T2R	TR	T148
	Basic ordering unit (pieces)	8000	3000	3000
EMC2		○	-	-
UMC2N		-	○	-
FMC2A		-	-	○

●External dimensions (Units : mm)



Transistors

● Absolute maximum ratings (Ta = 25°C)

Parameter	Symbol	Limits	Unit		
Supply voltage	V _{CC}	50	V		
Input current	V _{IN}	40	V		
		-10			
Output current	I _O	30	mA		
	I _{O(max)}	100			
Power dissipation	EMC2,UMC2N	Pd	150 (TOTAL)	mW	*1
	FMC2A		300 (TOTAL)		
Junction temperature	T _J	150	°C		
Storage temperature	T _{stg}	-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(on)}	-	-	0.5	V	V _{CC} =5V, I _O =100μA
	V _{I(off)}	3	-	-		V _O =0.2V, I _O =5mA
Output voltage	V _{O(off)}	-	0.1	0.3	V	I _O /I _I =10mA/0.5mA
Input current	I _I	-	-	0.36	mA	V _I =5V
Output current	I _{O(off)}	-	-	0.5	μA	V _{CC} =50V, V _I =0V
DC current gain	G _I	56	-	-	-	V _O =5V, I _O =5mA
Transition frequency	f _T	-	250	-	MHz	V _{CC} =10mA, I _B =-5mA, f=100MHz *
Input resistance	R _I	15.4	22	26.6	kΩ	-
Resistance ratio	R ₂ /R ₁	0.8	1	1.2	-	-

* Transition frequency of the device

● Electrical characteristic curves

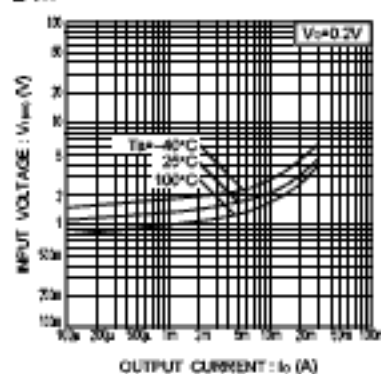
DT₁₁

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

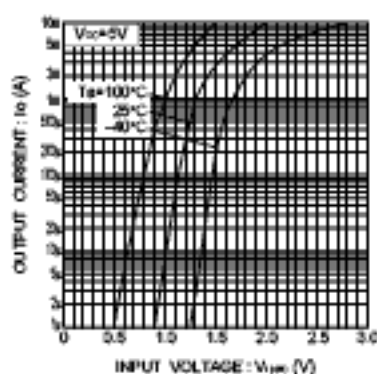


Fig.2 Output current vs. input voltage (OFF characteristics)

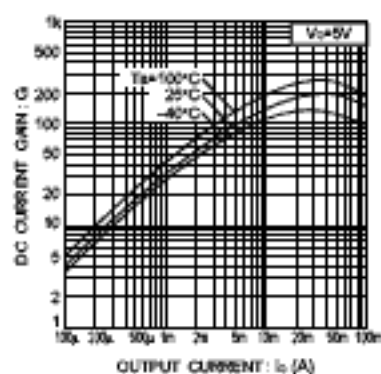


Fig.3 DC current gain vs. output current

Transistors

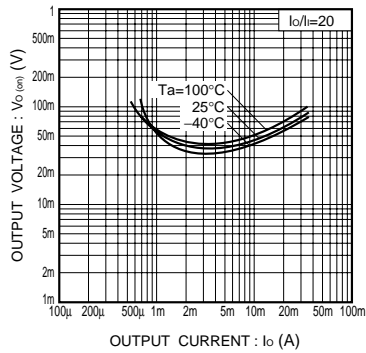


Fig.4 Output voltage vs. output current

DT_{r2}

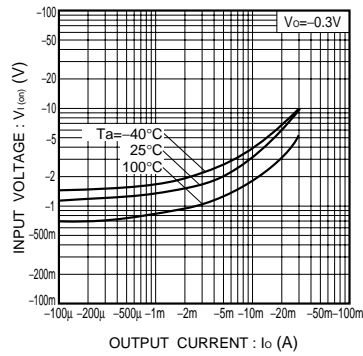


Fig.5 Input voltage vs. output current (ON characteristics)

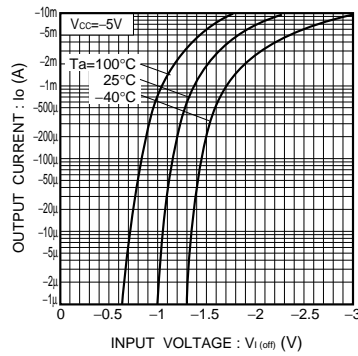


Fig.6 Output current vs. input voltage (OFF characteristics)

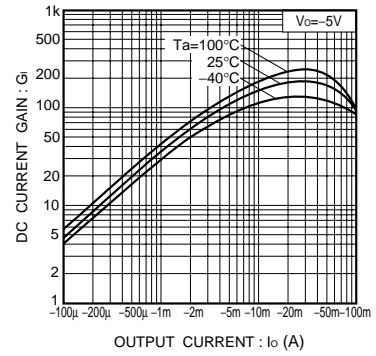


Fig.7 DC current gain vs. output current

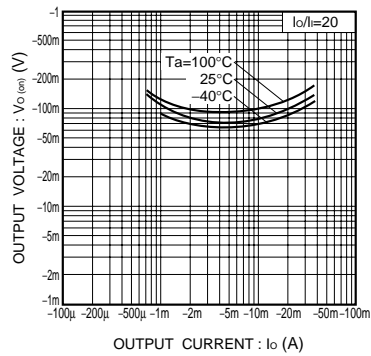


Fig.8 Output voltage vs. output current