

# Power management (dual digital transistors)

## EMC2 / UMC2N / FMC2A

**●Features**

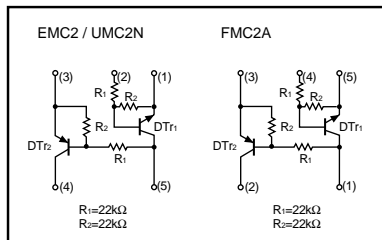
- 1) Includes a DTA124E and DTC124E transistor in a EMT or UMT or SMT package.
- 2) Ideal for power switch circuits.
- 3) Mounting cost and area can be cut in half.

**●Structure**

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

The following characteristics apply to both DTr<sub>1</sub> and DTr<sub>2</sub>, however, the “-” sign on DTr<sub>2</sub> 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)**

**EMC2**

ROHM : EMT5  
Abbreviated symbol: C2

---

**UMC2N**

ROHM : UMT5  
EIAJ : SC-88A  
Abbreviated symbol: C2

---

**FMC2A**

ROHM : SMT5  
EIAJ : SC-74A  
Abbreviated symbol: C2

Transistors

● Absolute maximum ratings (Ta = 25°C)

Parameter	Symbol	Limits	Unit	
Supply voltage	V <sub>CC</sub>	50	V	
Input current	V <sub>IN</sub>	40	V	
		-10		
Output current	I <sub>O</sub>	30	mA	
	I <sub>C (Max.)</sub>	100		
Power dissipation	EMC2,UMC2N	Pd	150 (TOTAL)	*1
	FMC2A		300 (TOTAL)	*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 <sub>I (off)</sub>	-	-	0.5	V	V <sub>CC</sub> =5V, I <sub>O</sub> =100μA
	V <sub>I (on)</sub>	3	-	-		V <sub>O</sub> =0.2V, I <sub>O</sub> =5mA
Output voltage	V <sub>O (on)</sub>	-	0.1	0.3	V	I <sub>O</sub> /I <sub>I</sub> =10mA/0.5mA
Input current	I <sub>I</sub>	-	-	0.36	mA	V <sub>I</sub> =5V
Output current	I <sub>O (off)</sub>	-	-	0.5	μA	V <sub>CC</sub> =50V, V <sub>I</sub> =0V
DC current gain	G <sub>I</sub>	56	-	-	-	V <sub>O</sub> =5V, I <sub>O</sub> =5mA
Transition frequency	f <sub>T</sub>	-	250	-	MHz	V <sub>CE</sub> =10mA, I <sub>E</sub> =-5mA, f=100MHz *
Input resistance	R <sub>I</sub>	15.4	22	28.6	kΩ	-
Resistance ratio	R <sub>2</sub> /R <sub>1</sub>	0.8	1	1.2	-	-

\* Transition frequency of the device

● Electrical characteristic curves

DT<sub>Tr1</sub>

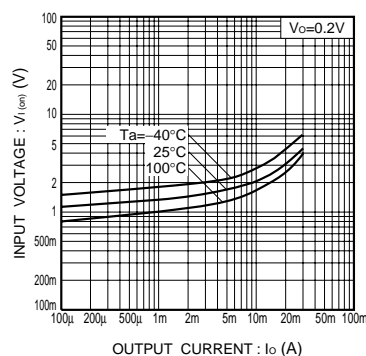


Fig.1 Input voltage vs. output current (ON characteristics)

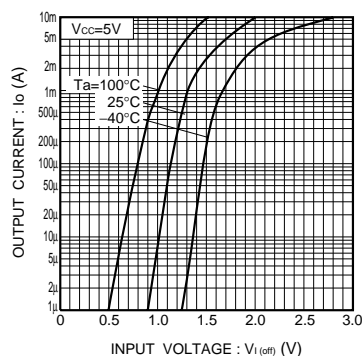


Fig.2 Output current vs. input voltage (OFF characteristics)

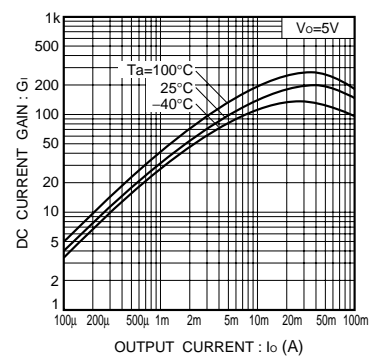


Fig.3 DC current gain vs. output current

Transistors

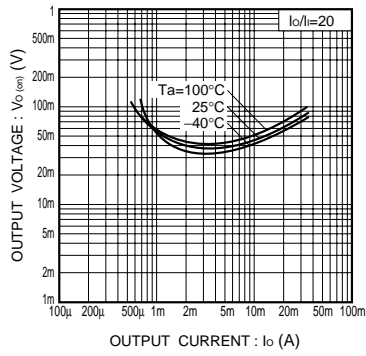


Fig.4 Output voltage vs. output current

DT<sub>r2</sub>

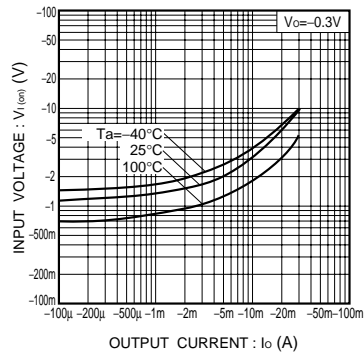


Fig.5 Input voltage vs. output current (ON characteristics)

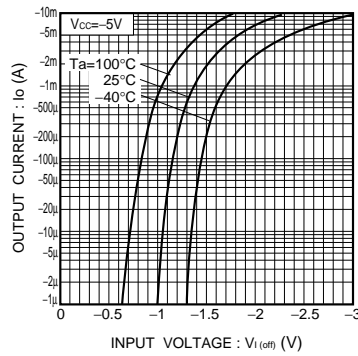


Fig.6 Output current vs. input voltage (OFF characteristics)

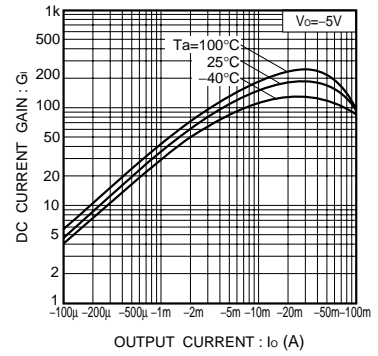


Fig.7 DC current gain vs. output current

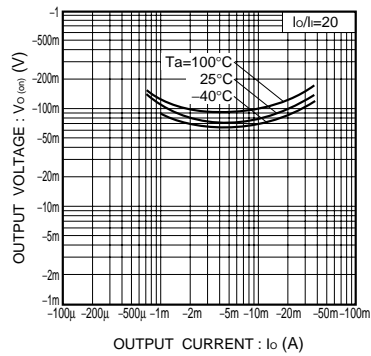


Fig.8 Output voltage vs. output current