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$_1$ and DTr$_2$, however, the "-" sign on DTr$_2$, values for the PNP type have been omitted.

●**Equivalent circuit**

EMC2 / UMC2N   FMC2A

R$_1$=22kΩ
R$_2$=22kΩ

●**Packaging specifications**

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

●**External dimensions** (Units : mm)

EMC2

Each lead has same dimensions

ROHM : EMT5

Abbreviated symbol: C2

UMC2N

Each lead has same dimensions

ROHM : UMT5
EIAJ : SC-88A

Abbreviated symbol: C2

FMC2A

Each lead has same dimensions

ROHM : SMT5
EIAJ : SC-74A

Abbreviated symbol: C2

ROHM

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	
		$I_{C\ (Max.)}$	100		
Power dissipation	EMC2,UMC2N	Pd	150 (TOTAL)	mW	✻1
	FMC2A		300 (TOTAL)		✻2
Junction temperature		Tj	150	°C	
Storage temperature		Tstg	−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=100μA	
	$V_{I\ (on)}$	3	–	–		V_O=0.2V, I_O=5mA	
Output voltage	$V_{O\ (on)}$	–	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_{CE}=10mA, I_E=−5mA, f=100MHz	✻
Input resistance	R_1	15.4	22	28.6	kΩ	–	
Resistance ratio	R_2/R_1	0.8	1	1.2	–	–	

✻ Transition frequency of the device

● **Electrical characteristic curves**

DT$_{r1}$

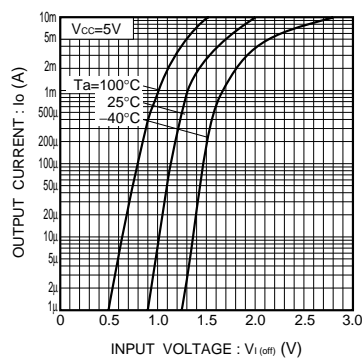Fig.1 Input voltage vs. output current (ON characteristics)

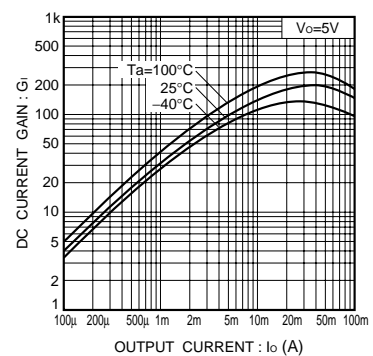Fig.2 Output current vs. input voltage (OFF characteristics)

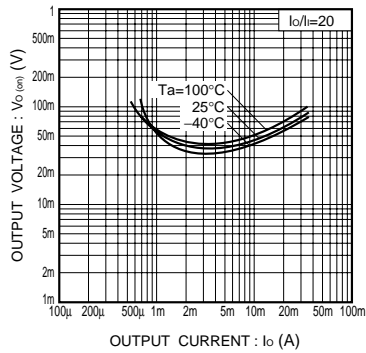Fig.3 DC current gain vs. output current

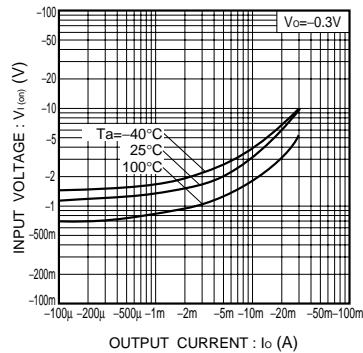Transistors

Fig.4 Output voltage vs. output
current

DTr2

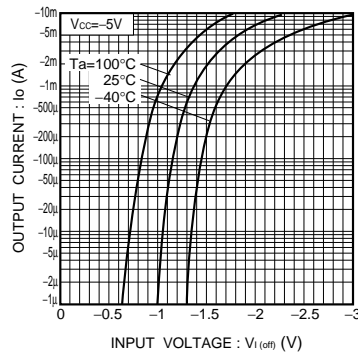Fig.5 Input voltage vs. output current
(ON characteristics)

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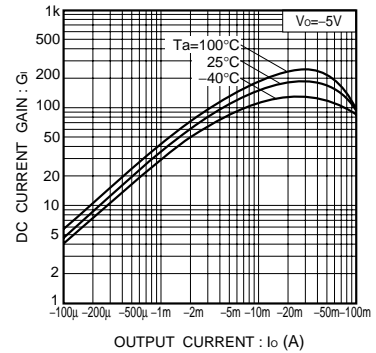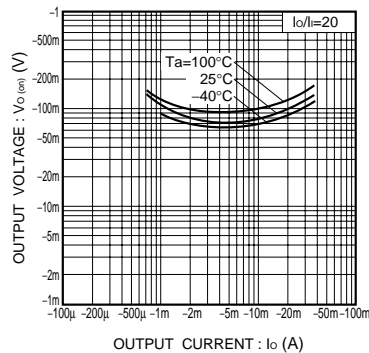

Fig.7 DC current gain vs. output
current

Fig.8 Output voltage vs. output
current

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