Power management (dual digital transistors)

EMC2 / UMC2N / FMC2A

●Features

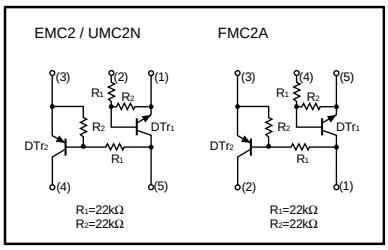
1) Includes a DTA124E and DTC124E transistor in a EMT or UMT or SMT package.
2) Ideal for power switch circuits.
3) Mounting cost and area can be cut in half.

●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

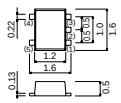


●Packaging specifications

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

●External dimensions (Units : mm)

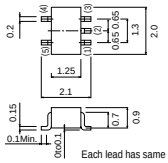
EMC2



ROHM : EMT5

Abbreviated symbol: C2

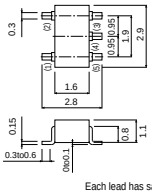
UMC2N



ROHM : UMT5
EIAJ : SC-88A

Abbreviated symbol: C2

FMC2A



ROHM : SMT5
EIAJ : SC-74A

Abbreviated symbol: C2

●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)	mW ∗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

DTr1

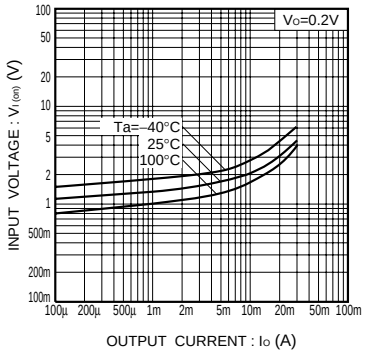


Fig.1 Input voltage vs. output current (ON characteristics)

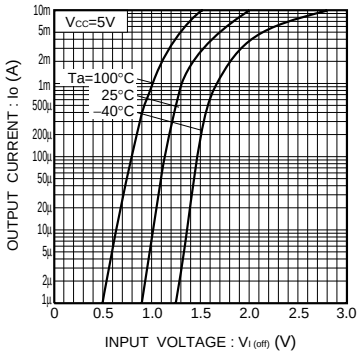


Fig.2 Output current vs. input voltage (OFF characteristics)

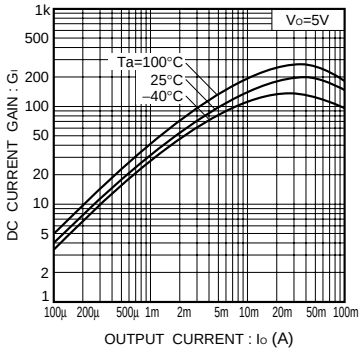


Fig.3 DC current gain vs. output current

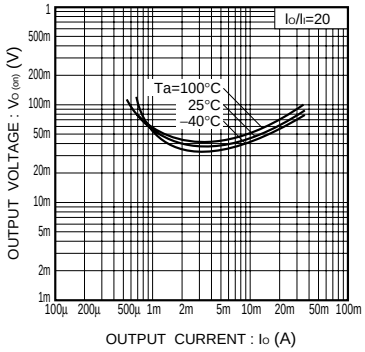


Fig.4 Output voltage vs. output current

DTr2

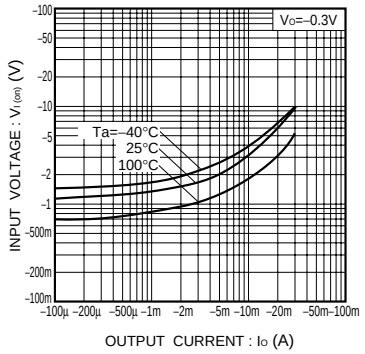


Fig.5 Input voltage vs. output current (ON characteristics)

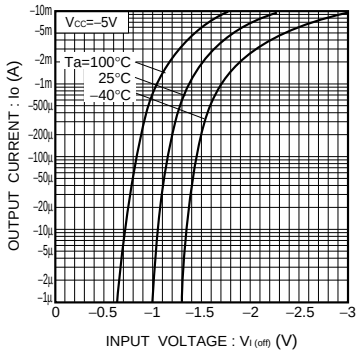


Fig.6 Output current vs. input voltage (OFF characteristics)

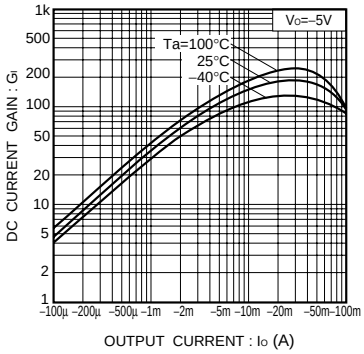


Fig.7 DC current gain vs. output current

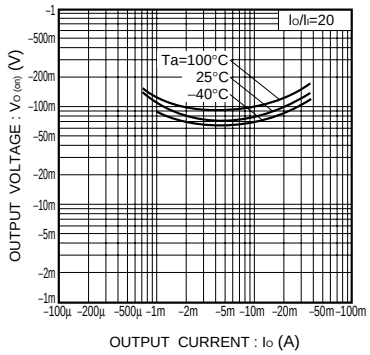


Fig.8 Output voltage vs. output current