Power management (dual digital transistors)

EMC4 / UMC4N / FMC4A

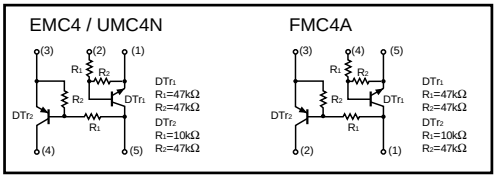
●Features

1) Both the DTA114Y chip and DTC114E chip 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
NPN / PNP silicon transistor (Built-in resistor type.)

●Equivalent circuit

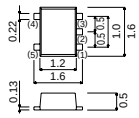


●Packaging specifications

Type	Package	Taping		
	Code	T2R	TR	T148
	Basic ordering unit (pieces)	8000	3000	3000
EMC4		○	—	—
UMC4N		—	○	—
FMC4A		—	—	○

●External dimensions (Units : mm)

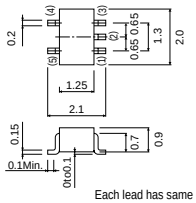
EMC4



Each lead has same dimensions

ROHM : EMT5
Abbreviated symbol : C4

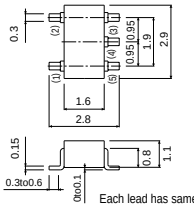
UMC4N



Each lead has same dimensions

ROHM : UMT5
EIAJ : SC-88A
Abbreviated symbol : C4

FMC4A



Each lead has same dimensions

ROHM : SMT5
EIAJ : SC-74A

Abbreviated symbol : C4

● **Absolute maximum ratings** (Ta = 25°C)

Parameter		Symbol	Limits		Unit	
			DTr_1	DTr_2		
Supply voltage		V_{CC}	50	–50	V	
Input voltage		V_{IN}	40	–40	V	
			–10	6		
Output current		I_O	30	–100	mA	
		$I_{C\ (Max.)}$	100	–100		
Power dissipation	EMC4, UMC4N	Pd	150 (TOTAL)		mW	∗1
	FM4A		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)

DTr_1

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=0.3V, 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	µA	V_{CC}=50V, V_I=0V
DC current gain	G_I	68	–	–	–	V_O=5V, I_O=5mA
Transition frequency	f_T	–	250	–	MHz	V_{CE}=10mA, I_E=–5mA, f=100MHz ∗
Input resistance	R_1	32.9	47	61.1	kΩ	–
Resistance ratio	R_2/R_1	0.8	1	1.2	–	–

∗ Transition frequency of the device

DTr_2

Parameter	Symbol	Min.	Typ.	Max.	Unit	Conditions
Input voltage	$V_{I\ (off)}$	–	–	–0.3	V	V_{CC}=–5V, I_O=–100µA
	$V_{I\ (on)}$	–1.4	–	–		V_O=–0.3V, I_O=–1mA
Output voltage	$V_{O\ (on)}$	–	–0.1	–0.3	V	I_O=–5mA, I_I=–0.25mA
Input current	I_I	–	–	–0.88	mA	V_I=–5V
Output current	$I_{O\ (off)}$	–	–	–0.5	µA	V_{CC}=–50V, V_I=0V
DC current gain	G_I	68	–	–	–	V_O=–5V, I_O=–5mA
Transition frequency	f_T	–	250	–	MHz	V_{CE}=10mA, I_E=–5mA, f=100MHz ∗
Input resistance	R_1	7	10	13	kΩ	–
Resistance ratio	R_2/R_1	3.7	4.7	5.7	–	–

∗ Transition frequency of the device

●Electrical characteristic curves

DTr1 (NPN)

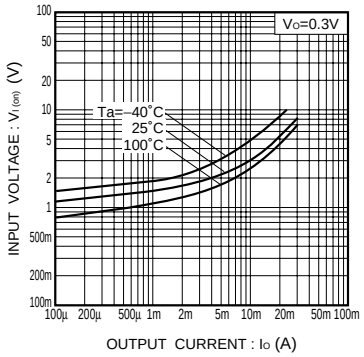


Fig.1 Input voltage vs. output current (ON characteristics)

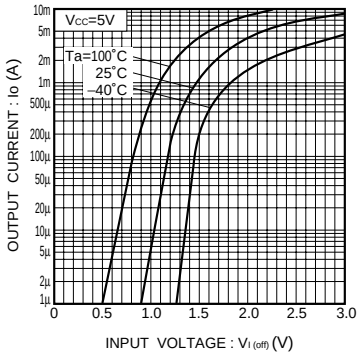


Fig.2 Output current vs. input voltage (OFF characteristics)

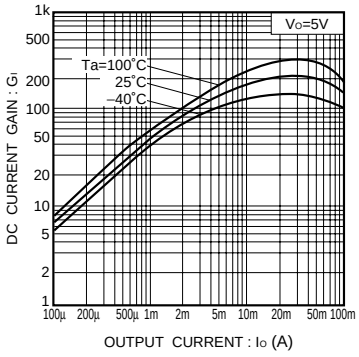


Fig.3 DC current gain vs. output current

DTr2 (PNP)

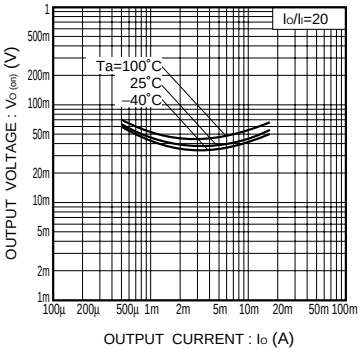


Fig.4 Output voltage vs. output current

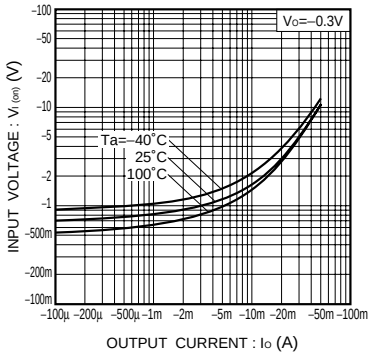


Fig.5 Input voltage vs. output current (ON characteristics)

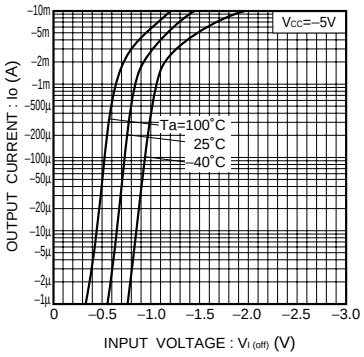


Fig.6 Output current vs. input voltage (OFF characteristics)

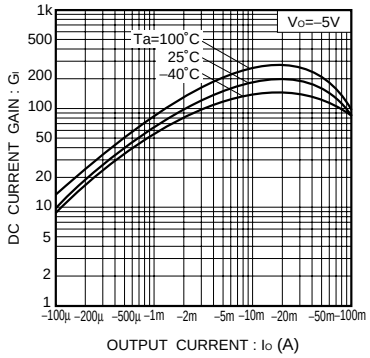


Fig.7 DC current gain vs. output current

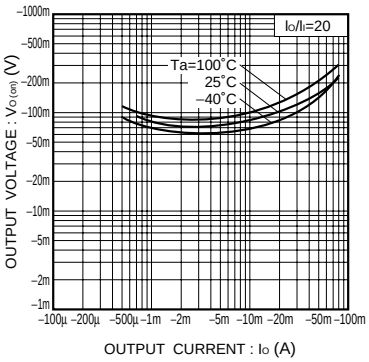


Fig.8 Output voltage vs. output current

Mouser Electronics

Authorized Distributor

Click to View Pricing, Inventory, Delivery & Lifecycle Information:

ROHM Semiconductor:

FMC4AT148 UMC4NTR