

能源管理 (双数字晶体管)

UMC4N / FMC4A

Features

- 1) DTA114Y芯片和
DTC144E芯片在UMT或SMT中
包。
- 2) 适用于功率开关电路。
- 3) 可以削减安装成本和面积
一半。

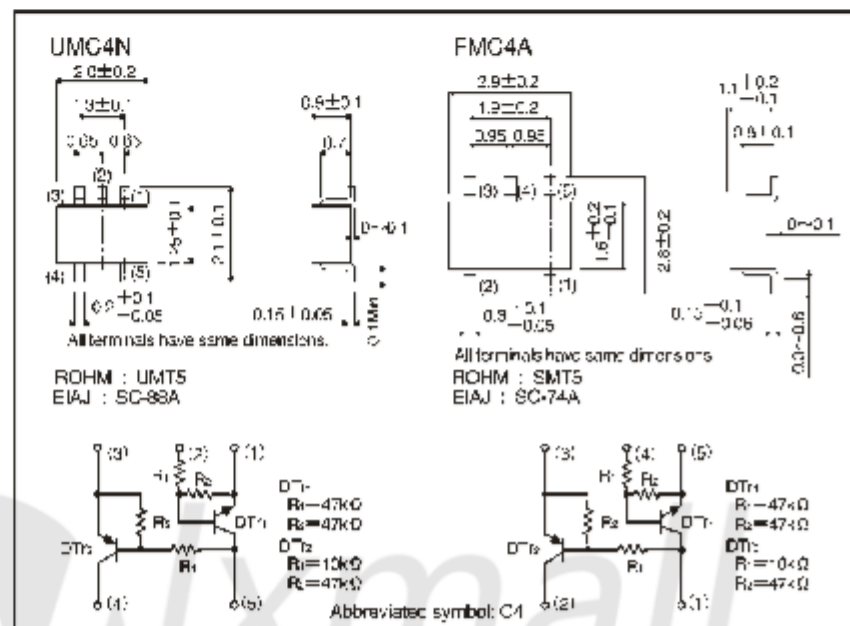
Structure

外延平面型

NPN / PNP硅晶体管

(内置电阻器类型)

F外部尺寸 (单位: mm)



FAbsolute最大额定值 ($T_a = 25^\circ\text{C}$)

Parameter	Symbol	Limits		Unit
		DT11 (NPN)	DT12 (PNP)	
Supply voltage	Vcc	50	−50	V
Input voltage	VIN	40	−40	V
		−10	6	
Output current	Io	30	−100	mA
	I _{OUTER}	100	−100	
Power dissipation	UMC4N	150(TOTAL)		mW
	FMC4A	300(TOTAL)		
Junction temperature	Tj	150		℃
Storage temperature	Tstg	−55~+150		℃

*1 120mW per element must not be exceeded.

*2 200mW per element must not be exceeded.

电特性, DTr 1 (Ta = 25°C)

Parameter	Symbol	Min.	Typ.	Max.	Unit	Conditions
Input voltage	$V_{i(off)}$	—	—	0.5	V	$V_{cc}=5V, I_o=100\mu A$
	$V_{i(on)}$	3	—	—	V	$V_o=0.3V, I_o=2mA$
Output voltage	$V_{o(on)}$	—	0.1	0.3	V	$I_o/I_i=10mA/0.5mA$
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	—	250	—	MHz	$V_{CL}=10mA, I_E=-5mA, f=100MHz^*$
Input resistance	R_i	32.9	47	61.1	k Ω	—
Resistance ratio	R_z/R_1	0.8	1	1.2	—	—

* Transition frequency of the device

电特性, DTr 2 (Ta = 25°C)

Parameter	Symbol	Min.	Typ.	Max.	Unit	Conditions
Input voltage	$V_{i(off)}$	—	—	-0.3	V	$V_{cc}=-5V, I_o=-100\mu A$
	$V_{i(on)}$	-1.4	—	—	V	$V_o=-0.3V, I_o=-1mA$
Output voltage	$V_{o(on)}$	—	-0.1	-0.3	V	$I_o/I_i=-5mA/-0.25mA$
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	$V_{os}=10mA, I_E=-5mA, f=100MHz^*$
Input resistance	R_i	7	10	13	k Ω	—
Resistance ratio	R_z/R_1	3.7	4.7	5.7	—	—

* Transition frequency of the device

FPackaging规范

Part No.	Packaging type	Taping	
	Code	TR	T148
	Basic ordering unit (pieces)	3000	3000
UMC4N		○	—
FMC4A		—	○

电气特性曲线

F DTr1

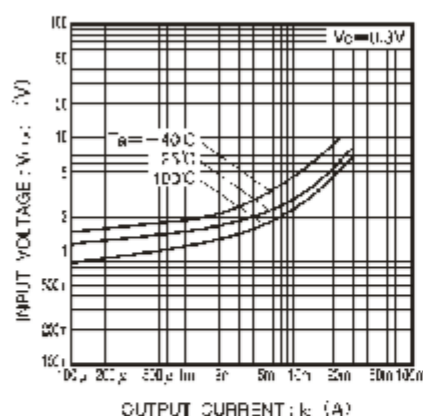


Fig.1 Input voltage vs. output current (ON characteristics)

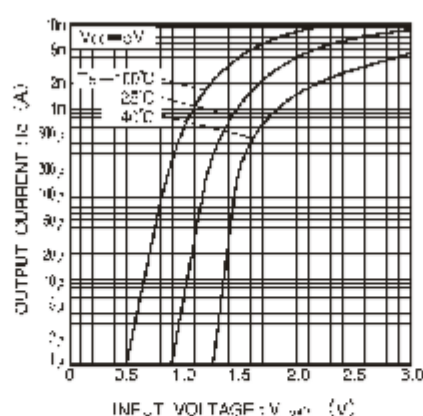


Fig.2 Output current vs. input voltage (OFF characteristics)

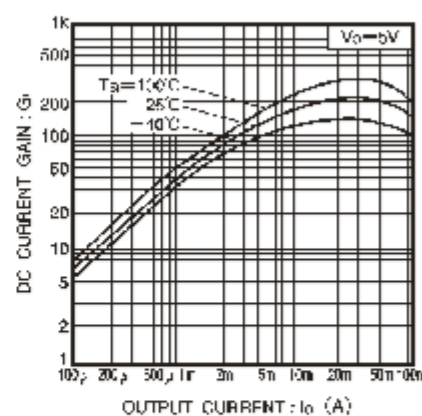


Fig.3 DC current gain vs. output current

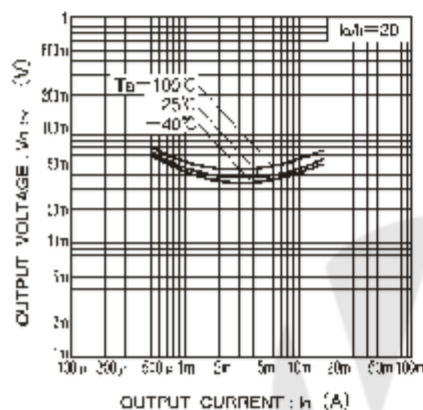


Fig.4 Output voltage vs. output current

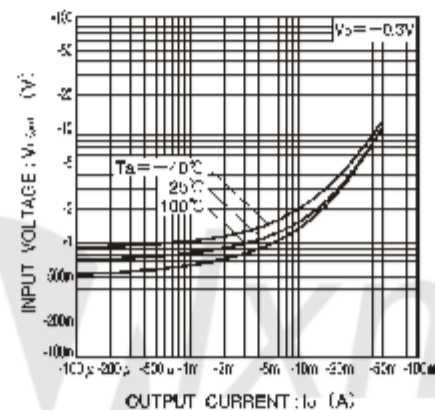


Fig.5 Input voltage vs. output current (ON characteristics)

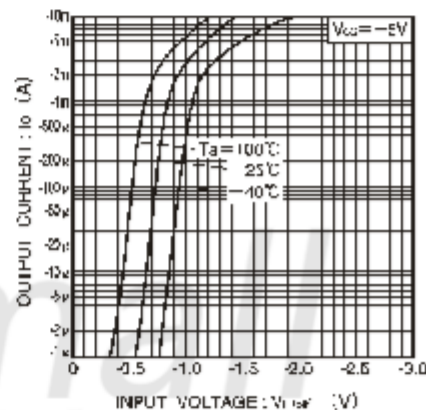


Fig.6 Output current vs. input voltage (OFF characteristics)

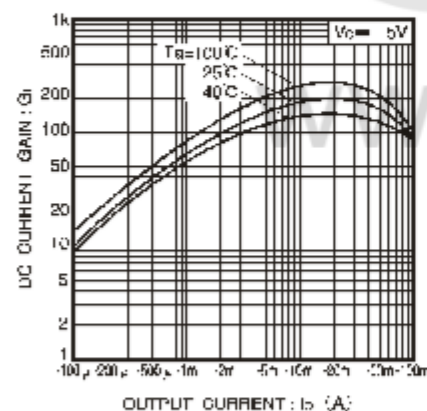


Fig.7 DC current gain vs. output current

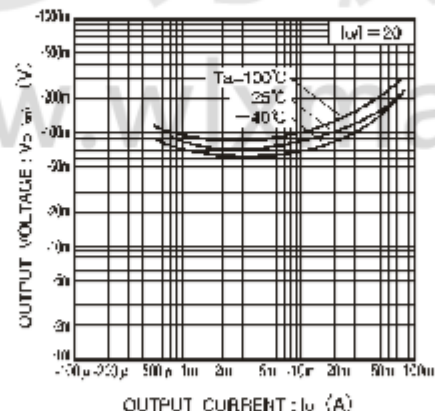


Fig.8 Output voltage vs. output current