

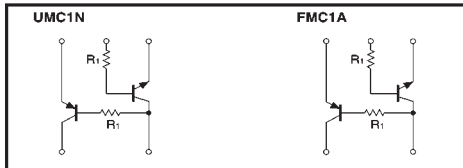
# Power management (dual digital transistors)

## UMC1N / FMC1A

●Features

1) Both the DTA143T chip and DTC143T chip in a UMT or SMT package.

●Circuit diagrams



●Absolute maximum ratings (Ta=25°C)

Parameter	Symbol	Limits	Unit
Collector-base voltage	V <sub>CB0</sub>	50	V
Collector-emitter voltage	V <sub>CE0</sub>	50	V
Emitter-base voltage	V <sub>EB0</sub>	5	V
Collector current	I <sub>c</sub>	100	mA
Collector power dissipation	UMC1N	150 (TOTAL)	mW
	FMC1A	300 (TOTAL)	
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. PNP type negative symbols have been omitted.

●Package, marking, and packaging specifications

Part No.	UMC1N	FMC1A
Package	UMT5	SMT5
Marking	C1	C1
Code	TR	T148
Basic ordering unit (pieces)	3000	3000

●Electrical characteristics (Ta=25°C)

Parameter	Symbol	Min.	Typ.	Max.	Unit	Conditions
Collector-base breakdown voltage	BV <sub>CB0</sub>	50	—	—	V	I <sub>c</sub> =50/-50 μA
Collector-emitter breakdown voltage	BV <sub>CE0</sub>	50	—	—	V	I <sub>c</sub> =1/-1mA
Emitter-base breakdown voltage	BV <sub>EB0</sub>	5	—	—	V	I <sub>e</sub> =50/-50 μA
Collector cutoff current	I <sub>CB0</sub>	—	—	0.5	μA	V <sub>CB</sub> =50/-50V
Emitter cutoff current	I <sub>EB0</sub>	—	—	0.5	μA	V <sub>EB</sub> =4/-4V
Collector-emitter saturation voltage	V <sub>CE(sat)</sub>	—	—	0.3	V	I <sub>c</sub> =5/-5mA, I <sub>e</sub> =0.25/-0.25mA
DC current transfer ratio	h <sub>FE</sub>	100	250	600	—	V <sub>CE</sub> =5/-5V, I <sub>c</sub> =1/-1mA
Transition frequency	f <sub>T</sub>	—	250	—	MHz	V <sub>CE</sub> =10V, F <sub>E</sub> =-5mA, f=100MHz *
Input resistance	R <sub>i</sub>	3.29	4.7	6.11	kΩ	—

\* Transition frequency of the device. PNP type negative symbols have been omitted.

(94S-815-AC143T)

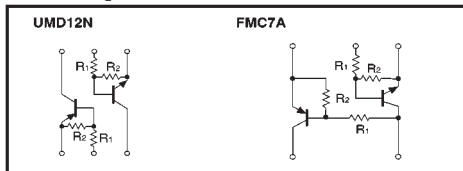
# Power management (dual digital transistors)

## UMD12N / FMC7A

●Features

1) Both the DTA144E and DTC144E in a UMT or SMT package.

●Circuit diagrams



●Absolute maximum ratings (Ta=25°C)

Parameter	Symbol	Limits	Unit
Supply voltage	V <sub>CC</sub>	50	V
Input voltage	V <sub>IN</sub>	40	V
		-10	
Output current	I <sub>c</sub>	100	mA
		30	
Power dissipation	UMD12N	150 (TOTAL)	mW
	FMC7A	300 (TOTAL)	
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. PNP type negative symbols have been omitted.

●Package, marking, and packaging specifications

Part No.	UMD12N	FMC7A
Package	UMT6	SMT5
Marking	D12	C7
Code	TR	T148
Basic ordering unit (pieces)	3000	3000

●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> =5/-5V, I <sub>c</sub> =100/-100 μA
	V <sub>I (on)</sub>	3	—	—	V	V <sub>O</sub> =0.3/-0.3V, I <sub>c</sub> =2/-2mA
Output voltage	V <sub>O (on)</sub>	—	—	0.3	V	I <sub>c</sub> =10/-10mA, I <sub>i</sub> =0.5/-0.5mA
Input current	I <sub>i</sub>	—	—	0.18	mA	V <sub>i</sub> =5/-5V
Output current	I <sub>O (off)</sub>	—	—	0.5	μA	V <sub>CC</sub> =50/-50V, V <sub>i</sub> =0V
DC current gain	G <sub>i</sub>	68	—	—	—	I <sub>c</sub> =5/-5mA, V <sub>O</sub> =5/-5V
Transition frequency	f <sub>T</sub>	—	250	—	MHz	V <sub>CE</sub> =10/-10V, I <sub>e</sub> =-5/5mA, f=100MHz *
Input resistance	R <sub>i</sub>	32.9	47	61.1	kΩ	—
Resistance ratio	R <sub>2</sub> /R <sub>1</sub>	0.8	1	1.2	—	—

\* Transition frequency of the device. PNP type negative symbols have been omitted.

(96-475-AC144E)