

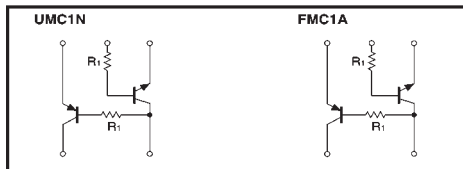
Power management (dual digital transistors)

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_{CBO}	50	V
Collector-emitter voltage	V_{CEO}	50	V
Emitter-base voltage	V_{EBO}	5	V
Collector current	I_C	100	mA
Collector power dissipation	UMC1N	150 (TOTAL)	mW
	FMC1A	300 (TOTAL)	
Junction temperature	T_J	150	°C
Storage temperature	T_{stg}	-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_{CBO}	50	—	—	V	$I_C=50/-50 \mu A$
Collector-emitter breakdown voltage	BV_{CEO}	50	—	—	V	$I_C=1/-1mA$
Emitter-base breakdown voltage	BV_{EBO}	5	—	—	V	$I_E=50/-50 \mu A$
Collector cutoff current	I_{CBO}	—	—	0.5	μA	$V_{CB}=50/-50V$
Emitter cutoff current	I_{EBO}	—	—	0.5	μA	$V_{EB}=4/-4V$
Collector-emitter saturation voltage	$V_{CE(sat)}$	—	—	0.3	V	$I_C=5/-5mA, I_E=0.25/-0.25mA$
DC current transfer ratio	h_{FE}	100	250	600	—	$V_{CE}=5/-5V, I_C=1/-1mA$
Transition frequency	f_T	—	250	—	MHz	$V_{CE}=10V, F_E=-5mA, f=100MHz$ *
Input resistance	R_1	3.29	4.7	6.11	k Ω	—

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

(94S-815-AC143T)

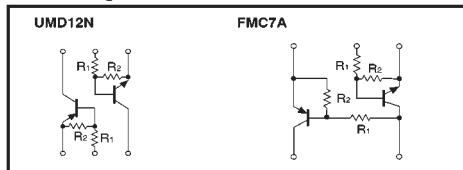
Power management (dual digital transistors)

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_{CC}	50	V
Input voltage	V_{IN}	40	V
		-10	
Output current	I_C	100	mA
		30	
Power dissipation	UMD12N	150 (TOTAL)	mW
	FMC7A	300 (TOTAL)	
Junction temperature	T_J	150	°C
Storage temperature	T_{stg}	-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	$V_I (off)$	—	—	0.5	V	$V_{CC}=5/-5V, I_C=100/-100 \mu A$
	$V_I (on)$	3	—	—	V	$V_O=0.3/-0.3V, I_C=2/-2mA$
Output voltage	$V_O (on)$	—	—	0.3	V	$I_C=10/-10mA, I_E=0.5/-0.5mA$
Input current	I_I	—	—	0.18	mA	$V_I=5/-5V$
Output current	$I_O (off)$	—	—	0.5	μA	$V_{CC}=50/-50V, V_I=0V$
DC current gain	G_I	68	—	—	—	$I_C=5/-5mA, V_O=5/-5V$
Transition frequency	f_T	—	250	—	MHz	$V_{CE}=10/-10V, I_E=-5/5mA, f=100MHz$ *
Input resistance	R_1	32.9	47	61.1	k Ω	—
Resistance ratio	R_2/R_1	0.8	1	1.2	—	—

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

(96-475-AC144E)