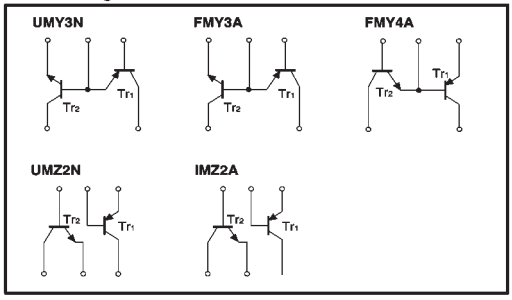
Power management (dual transistors)

UMY3N / UMZ2N / FMY3A / FMY4A / IMZ2A

●Features

1) Both a 2SA1037AK chip and 2SC1412K chip in a UMT or SMT package.

●Circuit diagrams



●Absolute maximum ratings (Ta=25℃)

Parameter		Symbol	Limits Tr1	Limits Tr2	Unit	
Collector-base voltage		V_{CBO}	−60	60	V	
Collector-emitter voltage		V_{CEO}	−50	50	V	
Emitter-base voltage		V_{EBO}	−6	7	V	
Collector current		I_C	−150	150	mA	
Collector power dissipation	UMY3N, UMZ2N	P_C	150 (TOTAL)		mW	∗1
	FMY3A, FMY4A, IMZ2A		300 (TOTAL)			∗2
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.

●Package, marking, and packaging specifications

Part No.	UMY3N	UMZ2N	FMY3A	FMY4A	IMZ2A
Package	UMT5	UMT6	SMT5	SMT5	SMT6
Marking	Y3	Z2	Y3	Y4	Z2
Code	TR	TR	T148	T148	T108
Basic ordering unit (pieces)	3000	3000	3000	3000	3000

●Electrical characteristics (Ta=25℃)

Tr1

Parameter	Symbol	Min.	Typ.	Max.	Unit	Conditions	
Collector-base breakdown voltage	BV_{CBO}	−60	—	—	V	I_C=−50 μA	
Collector-emitter breakdown voltage	BV_{CEO}	−50	—	—	V	I_C=−1mA	
Emitter-base breakdown voltage	BV_{EBO}	−6	—	—	V	I_E=−50 μA	
Collector cutoff current	I_{CBO}	—	—	−0.1	μA	V_{CB}=−60V	
Emitter cutoff current	I_{EBO}	—	—	−0.1	μA	V_{EB}=−6V	
Collector-emitter saturation voltage	$V_{CE(sat)}$	—	—	−0.5	V	I_C/I_B=−50mA/−5mA	
DC current transfer ratio	h_{FE}	120	—	560	—	V_{CE}=−6V , I_C=−1mA	
Transition frequency	f_T	—	140	—	MHz	V_{CE}=−12V , I_E=2mA , f=100MHz	∗
Output capacitance	Cob	—	4	5	pF	V_{CB}=−12V , I_E=0A , f=1MHz	

∗ Transition frequency of the device.

Tr2

Parameter	Symbol	Min.	Typ.	Max.	Unit	Conditions	
Collector-base breakdown voltage	BV_{CBO}	60	—	—	V	I_C=50 μA	
Collector-emitter breakdown voltage	BV_{CEO}	50	—	—	V	I_C=1mA	
Emitter-base breakdown voltage	BV_{EBO}	6	—	—	V	I_E=50 μA	
Collector cutoff current	I_{CBO}	—	—	0.1	μA	V_{CB}=60V	
Emitter cutoff current	I_{EBO}	—	—	0.1	μA	V_{EB}=7V	
Collector-emitter saturation voltage	$V_{CE(sat)}$	—	—	0.4	V	I_C/I_B=50mA/5mA	
DC current transfer ratio	h_{FE}	120	—	560	—	V_{CE}=6V , I_C=1mA	
Transition frequency	f_T	—	180	—	MHz	V_{CE}=12V , I_E=−2mA , f=100MHz	∗
Output capacitance	Cob	—	2	3.5	pF	V_{CB}=12V , I_E=0A , f=1MHz	

∗ Transition frequency of the device.

(96-434-AC22)