Power management (dual transistors)

UMY4N / UMZ2N / FMY4A / IMZ2A

●Features

1) Both a 2SA1037AK chip and 2SC2412K chip in a UMT or SMT package.

●Absolute maximum ratings (Ta = 25°C)

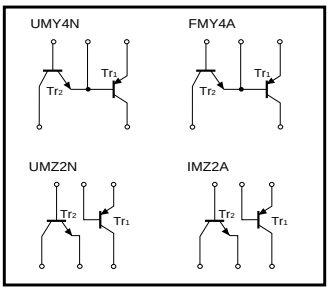
Parameter		Symbol	Limits		Unit	
			Tr_1	Tr_2		
Collector-base voltage		V_{CBO}	−60	60	V	
Collector-emitter voltage		V_{CEO}	−50	50	V	
Emitter-base voltage		V_{EBO}	−6	7	V	
Collector current		I_C	−150	150	mA	
Collector power dissipation	UMY4N, UMZ2N	P_C	150 (TOTAL)		mW	∗1
	FMY4A, IMZ2A		300 (TOTAL)			∗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.

●Package, marking, and packaging specifications

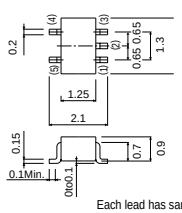
Part No.	UMY4N	UMZ2N	FMY4A	IMZ2A
Package	UMT5	UMT6	SMT5	SMT6
Marking	Y4	Z2	Y4	Z2
Code	TR	TR	T148	T108
Basic ordering unit (pieces)	3000	3000	3000	3000

●Circuit diagrams



●External dimensions (Units : mm)

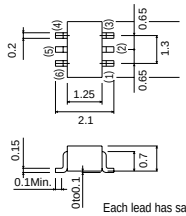
UMY4N



Each lead has same dimensions

ROHM : UMT5
EIAJ : SC-88A

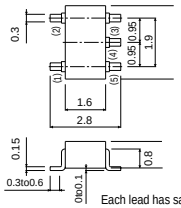
UMZ2N



Each lead has same dimensions

ROHM : UMT6
EIAJ : SC-88

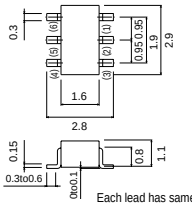
FMY4A



Each lead has same dimensions

ROHM : SMT5
EIAJ : SC-74A

IMZ2A



Each lead has same dimensions

ROHM : SMT6
EIAJ : SC-74

●Electrical characteristics (Ta=25°C)

Tr_1

Parameter	Symbol	Min.	Typ.	Max.	Unit	Conditions
Collector-base breakdown voltage	BV_{CBO}	–60	–	–	V	I_C = –50μA
Collector-emitter breakdown voltage	BV_{CEO}	–50	–	–	V	I_C = –1mA
Emitter-base breakdown voltage	BV_{EBO}	–6	–	–	V	I_E = –50μA
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.

Tr_2

Parameter	Symbol	Min.	Typ.	Max.	Unit	Conditions
Collector-base breakdown voltage	BV_{CBO}	60	–	–	V	I_C = 50μA
Collector-emitter breakdown voltage	BV_{CEO}	50	–	–	V	I_C = 1mA
Emitter-base breakdown voltage	BV_{EBO}	7	–	–	V	I_E = 50μA
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.