

Emitter common (dual digital transistors)

EMS1 / UMS1N / FMS1A

●Features

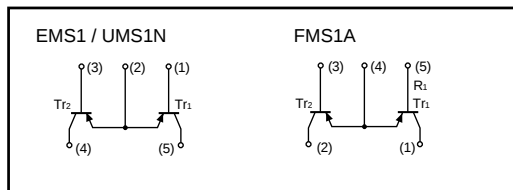
- 1) Two 2SA1037AK chips in a EMT or UMT or SMT package.
- 2) Mounting cost and area can be cut in half.

●Structure

Epitaxial planar type
PNP silicon transistor

The following characteristics apply to both Tr1 and Tr2.

●Equivalent circuit



●Absolute maximum ratings (Ta = 25°C)

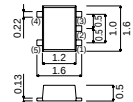
Parameter	Symbol	Limits	Unit
Collector-base voltage	V_{CBO}	-60	V
Collector-emitter voltage	V_{CEO}	-50	V
Emitter-base voltage	V_{EBO}	-6	V
Collector current	I_C	150	mA
Collector power dissipation	EMS1, UMS1N	P_C 150 (TOTAL)	mW *1
	FMS1A	300 (TOTAL)	mW *2
Junction temperature	T_j	150	°C
Storage temperature	T_{stg}	-55~+150	°C

*1 120mW per element must not be exceeded.

*2 200mW per element must not be exceeded.

●External dimensions (Units : mm)

EMS1

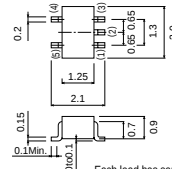


Each lead has same dimensions

ROHM : EMT5

Abbreviated symbol : S1

UMS1N



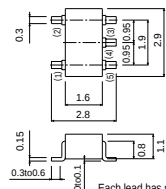
Each lead has same dimensions

ROHM : UMT5

EIAJ : SC-88A

Abbreviated symbol : S1

FMS1A



Each lead has same dimensions

ROHM : SMT5

EIAJ : SC-74A

Abbreviated symbol : S1

Transistors

●Electrical characteristics (Ta = 25°C)

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} =-5V
Collector-emitter saturation voltage	V _{CE(sat)}	—	—	-0.5	V	I _C /I _E =-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	C _{ob}	—	3	4.5	PF	V _{CB} =-12V, I _E =0A, f=1MHz

●Packaging specifications

Type	Package	Taping		
	Code	T2R	TR	T148
	Basic ordering unit (pieces)	8000	3000	3000
EMS1	○	—	—	—
UMS1N	—	○	—	—
FMS1A	—	—	—	○

●Electrical characteristic curves

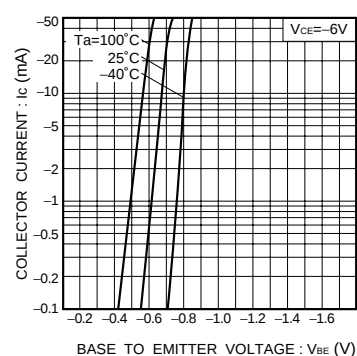


Fig.1 Grounded emitter propagation characteristics

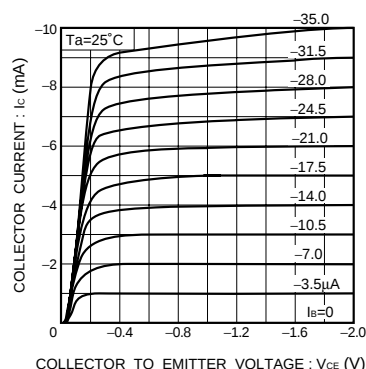


Fig.2 Grounded emitter output characteristics (I)

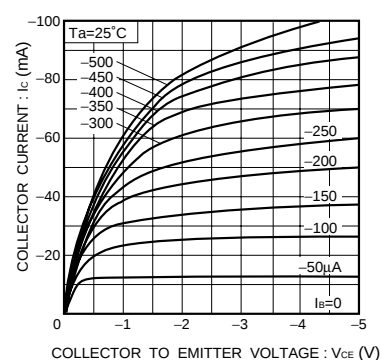


Fig.3 Grounded emitter output characteristics (II)

Transistors

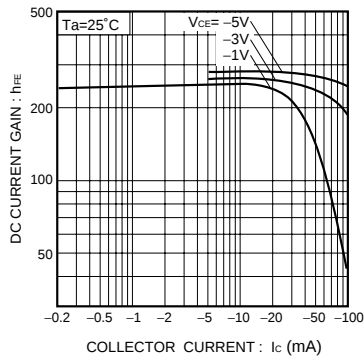


Fig.4 DC current gain vs. collector current (I)

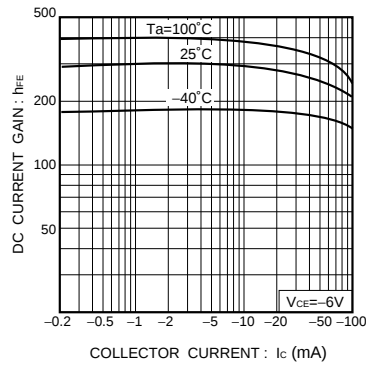


Fig.5 DC current gain vs. collector current (II)

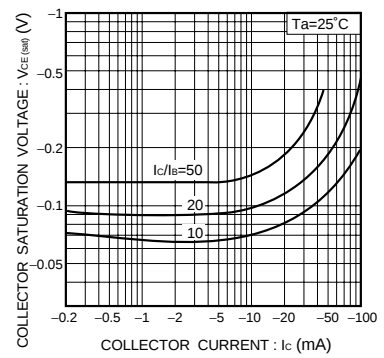


Fig.6 Collector-emitter saturation voltage vs. collector current (I)

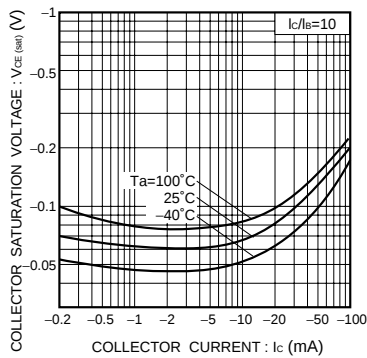


Fig.7 Collector-emitter saturation voltage vs. collector current (II)

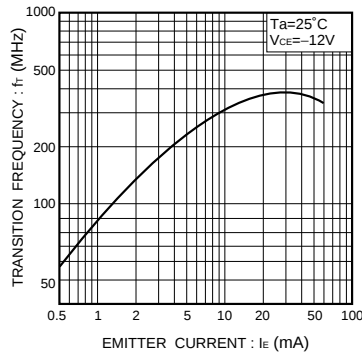


Fig.8 Gain bandwidth product vs. emitter current

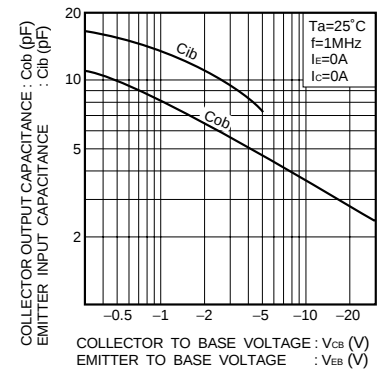


Fig.9 Collector output capacitance vs. collector-base voltage
Emitter input capacitance vs. emitter-base voltage

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