

# Emitter common (dual transistors)

## UMS1N / FMS1A

●Features

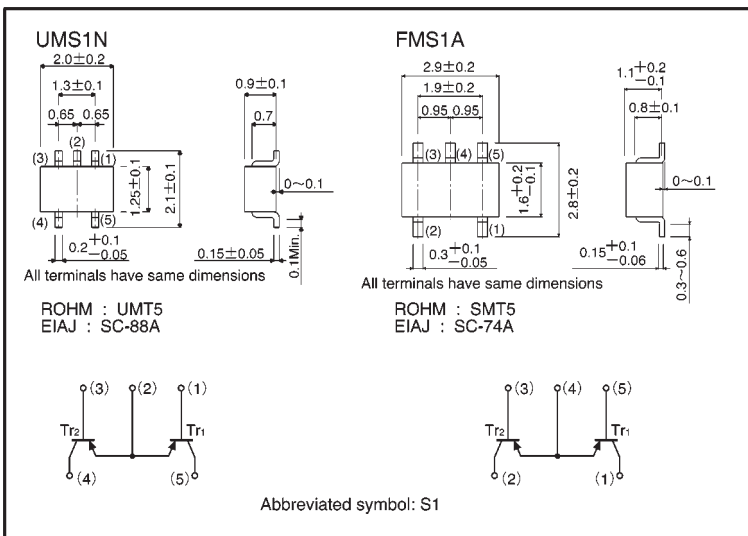
- 1) Two 2SA1037AK chips in a UMT or SMT package.
- 2) Mounting cost and area can be cut in half.

●Structure

Epitaxial planar type  
PNP silicon transistor

The following characteristics apply to both Tr<sub>1</sub> and Tr<sub>2</sub>.

●External dimensions (Units: mm)



●Absolute maximum ratings (Ta = 25°C)

Parameter	Symbol	Limits	Unit	
Collector-base voltage	V <sub>CB0</sub>	-60	V	
Collector-emitter voltage	V <sub>CE0</sub>	-50	V	
Emitter-base voltage	V <sub>EB0</sub>	-6	V	
Collector current	I <sub>c</sub>	-150	mA	
Collector power dissipation	UMS1N	150 (TOTAL)	mW	*1
	FMS1A			
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.

●Electrical characteristics (Ta = 25°C)

Parameter	Symbol	Min.	Typ.	Max.	Unit	Conditions
Collector-base breakdown voltage	BV <sub>CBO</sub>	-60	—	—	V	I <sub>c</sub> = -50 μA
Collector-emitter breakdown voltage	BV <sub>CEO</sub>	-50	—	—	V	I <sub>c</sub> = -1mA
Emitter-base breakdown voltage	BV <sub>EBO</sub>	-6	—	—	V	I <sub>E</sub> = -50 μA
Collector cutoff current	I <sub>cBO</sub>	—	—	-0.1	μA	V <sub>CB</sub> = -60V
Emitter cutoff current	I <sub>EBO</sub>	—	—	-0.1	μA	V <sub>EB</sub> = -5V
Collector-emitter saturation voltage	V <sub>CE(sat)</sub>	—	—	-0.5	V	I <sub>c</sub> /I <sub>b</sub> = -50mA/-5mA
DC current transfer ratio	h <sub>FE</sub>	120	—	560	—	V <sub>CE</sub> = -6V, I <sub>c</sub> = -1mA
Transition frequency	f <sub>T</sub>	—	140	—	MHz	V <sub>CE</sub> = -12V, I <sub>E</sub> = 2mA, f = 100MHz
Output capacitance	C <sub>ob</sub>	—	3	4.5	PF	V <sub>CB</sub> = -12V, I <sub>E</sub> = 0A, f = 1MHz

●Packaging specifications

Part No.	Packaging type	Taping	
	Code	TR	T148
	Basic ordering unit (pieces)	3000	3000
UMS1N		○	—
FMS1A		—	○

●Electrical characteristic curves

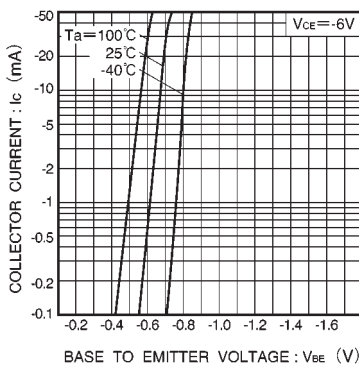


Fig.1 Grounded emitter propagation characteristics

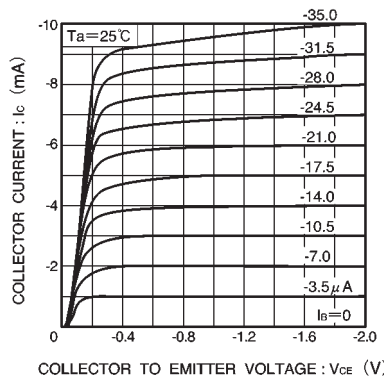


Fig.2 Grounded emitter output characteristics ( I )

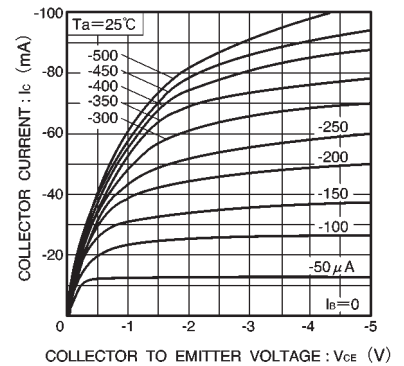


Fig.3 Grounded emitter output characteristics(II)

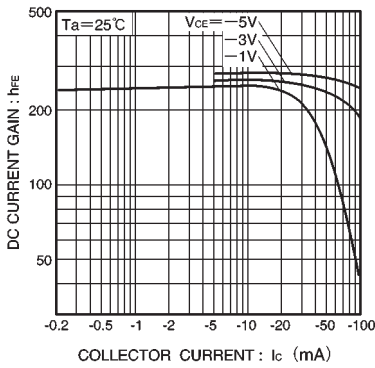


Fig.4 DC current gain vs. collector current ( I )

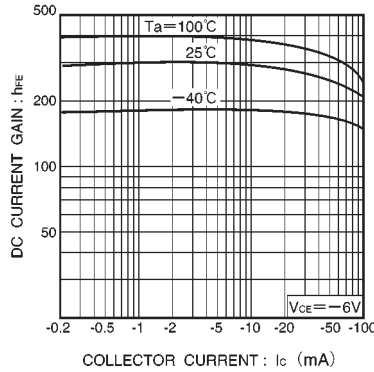


Fig.5 DC current gain vs. collector current ( II )

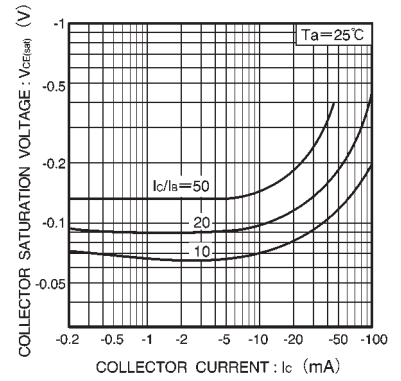


Fig.6 Collector-emitter saturation voltage vs. collector current ( I )

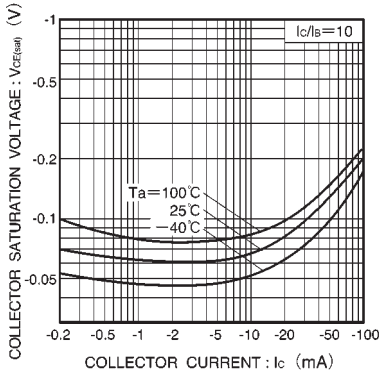


Fig.7 Collector-emitter saturation voltage vs. collector current ( II )

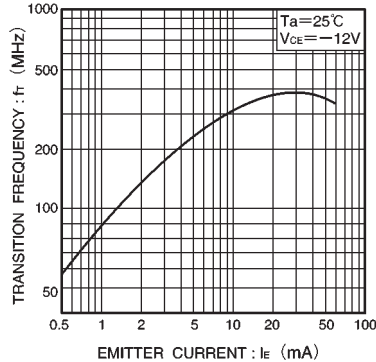


Fig.8 Gain bandwidth product vs. emitter current

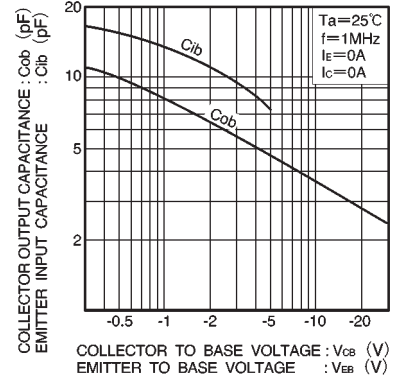


Fig.9 Collector output capacitance vs. collector-base voltage  
Emitter input capacitance vs. emitter-base voltage