

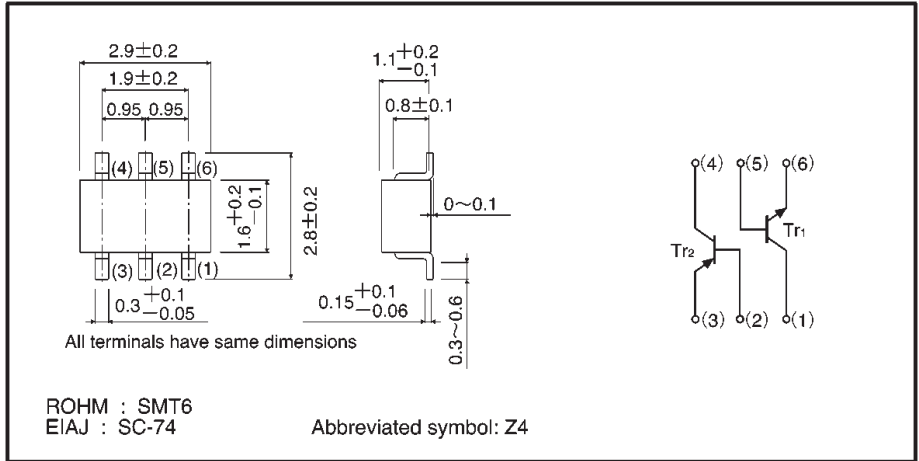
# General purpose transistor (dual transistors)

## IMZ4

●Features

- 1) Includes a 2SA1036K and a 2SC411K transistor in a SMT package.
- 2) Mounting possible with SMT3 automatic mounting machine.
- 3) Transistor elements are independent, eliminating interference.
- 4) High collector current.  
I<sub>c</sub> = 500mA
- 5) Mounting cost and area can be cut in half.

●External dimensions (Units: mm)



●Structure

Epitaxial planar type  
NPN/PNP silicon transistor

●Absolute maximum ratings (T<sub>a</sub> = 25°C)

Parameter	Symbol	Limits		Unit
		Tr <sub>1</sub> (NPN)	Tr <sub>2</sub> (PNP)	
Collector-base voltage	V <sub>CB0</sub>	40	-40	V
Collector-emitter voltage	V <sub>CEO</sub>	32	-32	V
Emitter-base voltage	V <sub>EB0</sub>	5	-5	V
Collector current	I <sub>c</sub>	500	-500	mA
Collector power dissipation	P <sub>d</sub>	300 (TOTAL)		mW *
Junction temperature	T <sub>j</sub>	150		°C
Storage temperature	T <sub>stg</sub>	-55~+150		°C

\* 200mW per element must not be exceeded.

## ●Electrical characteristics (Ta = 25°C)

Tr<sub>1</sub> (NPN)

Parameter	Symbol	Min.	Typ.	Max.	Unit	Conditions
Collector-base breakdown voltage	BV <sub>CBO</sub>	40	—	—	V	I <sub>C</sub> =100 μA
Collector-emitter breakdown voltage	BV <sub>CEO</sub>	32	—	—	V	I <sub>C</sub> =1mA
Emitter-base breakdown voltage	BV <sub>EBO</sub>	5	—	—	V	I <sub>E</sub> =100 μA
Collector cutoff current	I <sub>CBO</sub>	—	—	0.1	μA	V <sub>CB</sub> =20V
Emitter cutoff current	I <sub>EBO</sub>	—	—	0.1	μA	V <sub>EB</sub> =4V
Collector-emitter saturation voltage	V <sub>CE(sat)</sub>	—	—	0.6	V	I <sub>C</sub> /I <sub>B</sub> =500mA/50mA
DC current transfer ratio	h <sub>FE</sub>	120	—	560	—	V <sub>CE</sub> =3V, I <sub>C</sub> =100mA *
Transition frequency	f <sub>T</sub>	—	250	—	MHz	V <sub>CE</sub> =5V, I <sub>E</sub> =-20mA, f=100MHz
Output capacitance	C <sub>ob</sub>	—	6.5	—	pF	V <sub>CB</sub> =10V, I <sub>E</sub> =0A, f=1MHz

\* Measured using pulse current.

## ●Electrical characteristics (Ta = 25°C)

Tr<sub>2</sub> (PNP)

Parameter	Symbol	Min.	Typ.	Max.	Unit	Conditions
Collector-base breakdown voltage	BV <sub>CBO</sub>	-40	—	—	V	I <sub>C</sub> =-100 μA
Collector-emitter breakdown voltage	BV <sub>CEO</sub>	-32	—	—	V	I <sub>C</sub> =-1mA
Emitter-base breakdown voltage	BV <sub>EBO</sub>	-5	—	—	V	I <sub>E</sub> =-100 μA
Collector cutoff current	I <sub>CBO</sub>	—	—	-0.1	μA	V <sub>CB</sub> =-20V
Emitter cutoff current	I <sub>EBO</sub>	—	—	-0.1	μA	V <sub>EB</sub> =-4V
Collector-emitter saturation voltage	V <sub>CE(sat)</sub>	—	—	-0.6	V	I <sub>C</sub> /I <sub>B</sub> =-300mA/-30mA
DC current transfer ratio	h <sub>FE</sub> *	120	—	560	—	V <sub>CE</sub> =-3V, I <sub>C</sub> =-100mA
Transition frequency	f <sub>T</sub>	—	200	—	MHz	V <sub>CE</sub> =-5V, I <sub>E</sub> =20mA, f=100MHz
Output capacitance	C <sub>ob</sub>	—	7	—	pF	V <sub>CB</sub> =-10V, I <sub>E</sub> =0A, f=1MHz

\* Measured using pulse current.

## ●Packaging specifications

Prat No.	Packaging type	Taping
	Code	T108
	Basic ordering unit (pieces)	3000
IMZ4		○

●Electrical characteristic curves

Tr<sub>1</sub> (NPN)

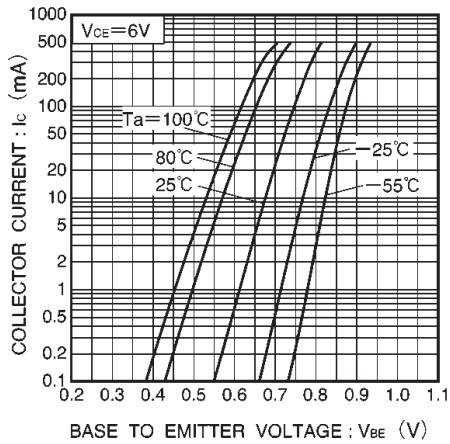


Fig.1 Grounded emitter propagation characteristics

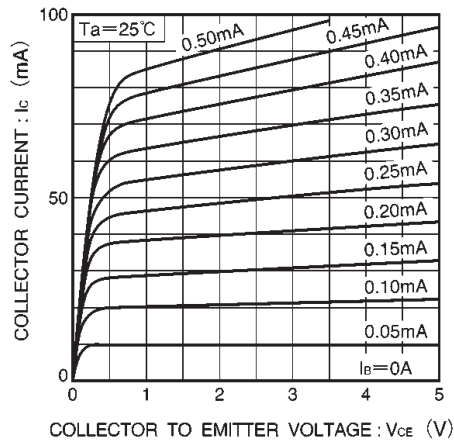


Fig.2 Grounded emitter output characteristics (I)

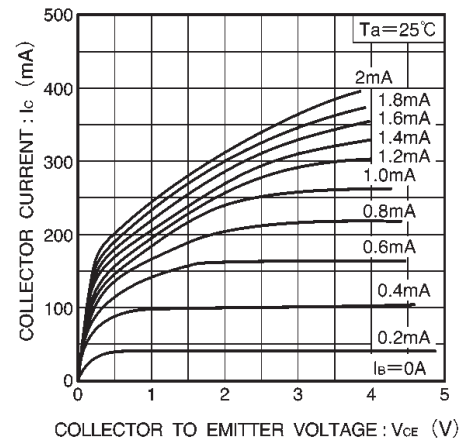


Fig.3 Grounded emitter output characteristics (II)

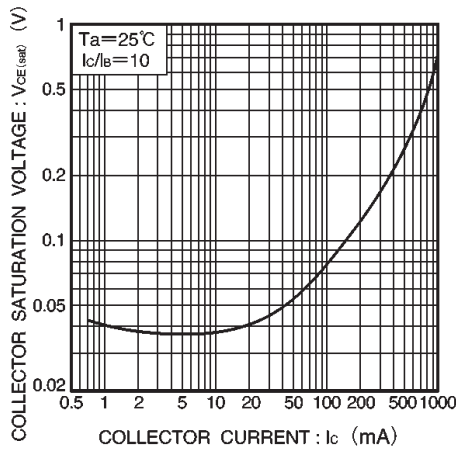


Fig.4 Collector-emitter saturation voltage vs. collector current

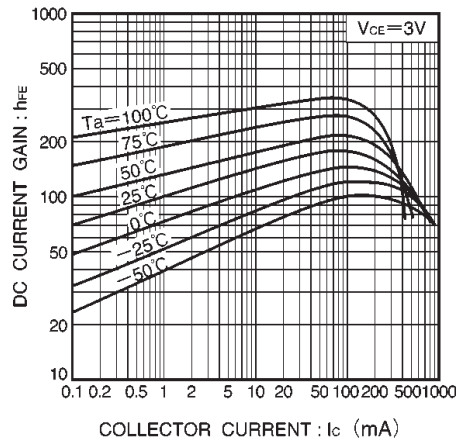


Fig.5 DC current gain vs. collector current

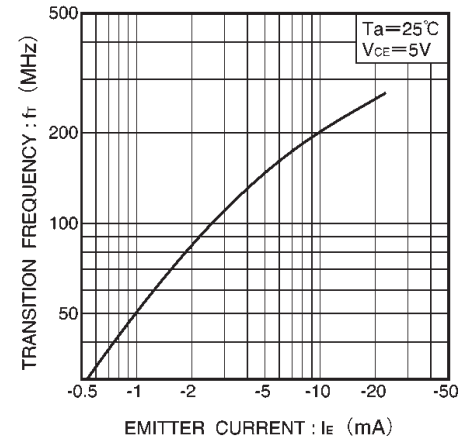


Fig.6 Gain bandwidth product vs. emitter current

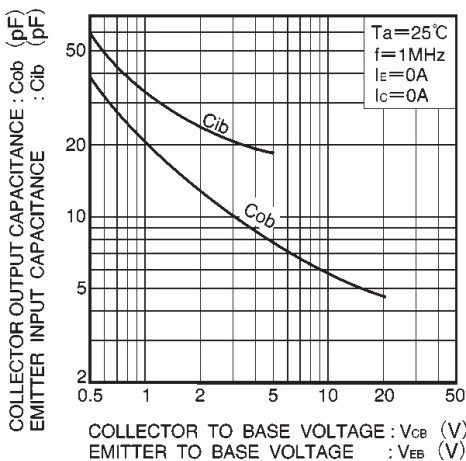


Fig.7 Collector output capacitance vs. collector-base voltage  
Emitter input capacitance vs. emitter-base voltage

●Electrical characteristic curves

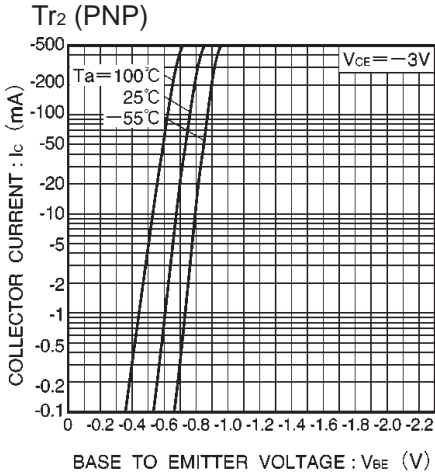


Fig.8 Grounded emitter propagation characteristics

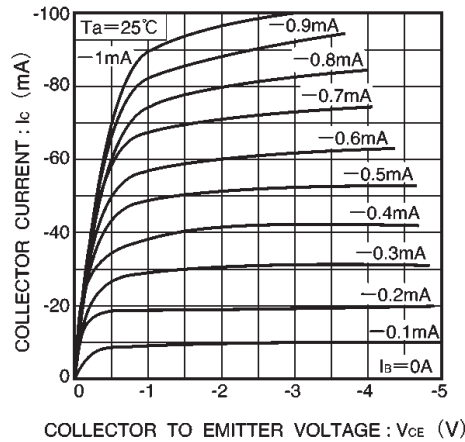


Fig.9 Grounded emitter output characteristics ( I )

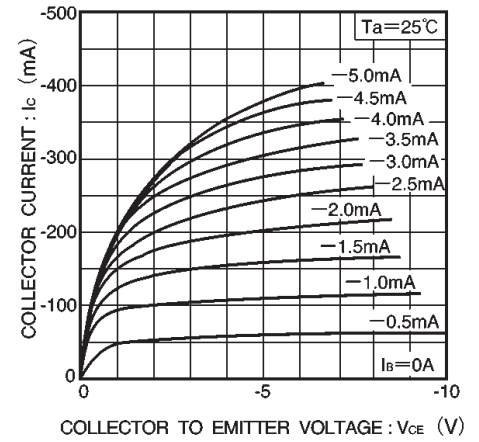


Fig.10 Grounded emitter output characteristics ( II )

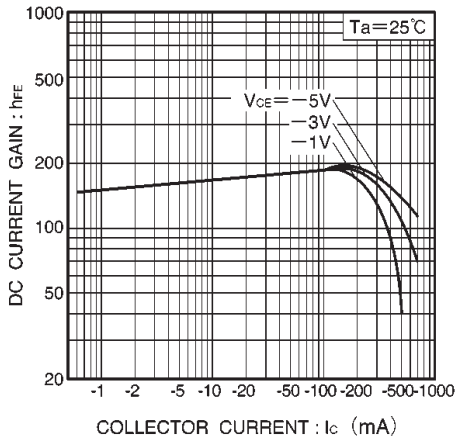


Fig.11 DC current gain vs. collector current ( I )

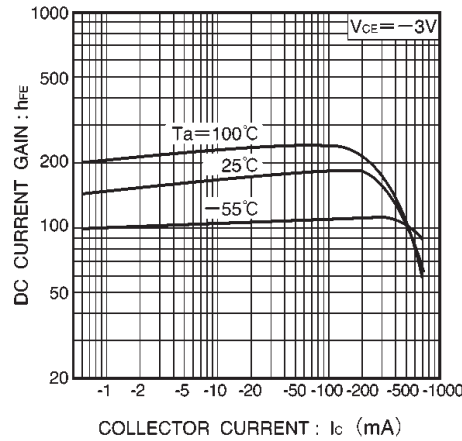


Fig.12 DC current gain vs. collector current ( II )

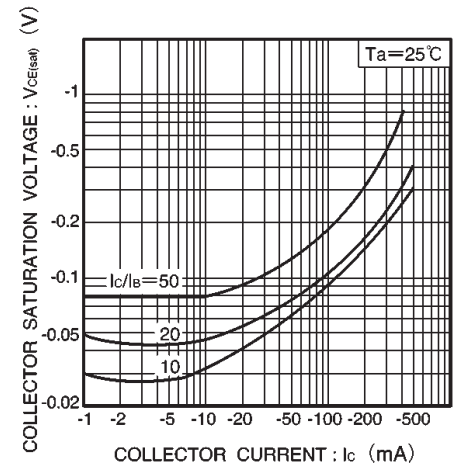


Fig.13 Collector-emitter saturation voltage vs. collector current ( I )

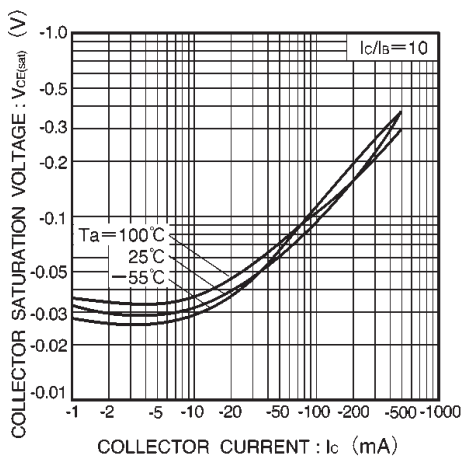


Fig.14 Collector-emitter saturation voltage vs. collector current ( II )

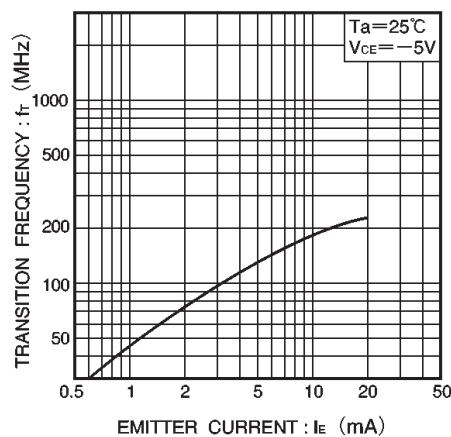


Fig.15 Gain bandwidth product vs. emitter current

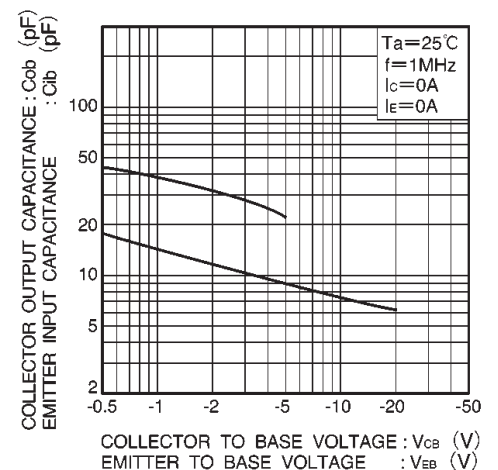


Fig.16 Collector output capacitance vs. collector-base voltage  
Emitter input capacitance vs. emitter-base voltage