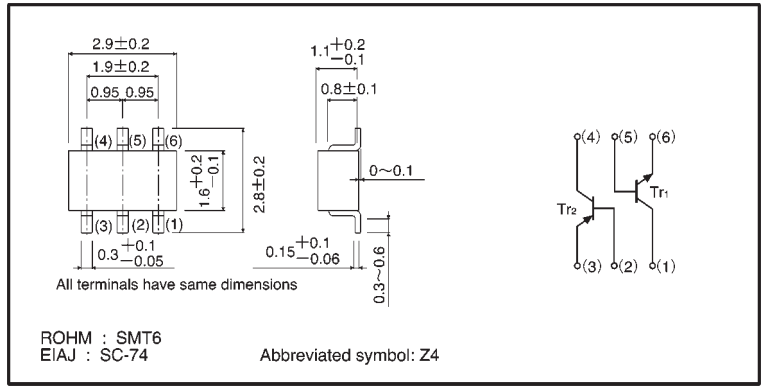
General purpose transistor (dual transistors)

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_C = 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 (Ta = 25°C)

Parameter	Symbol	Limits		Unit
		Tr_1 (NPN)	Tr_2 (PNP)	
Collector-base voltage	V_{CBO}	40	−40	V
Collector-emitter voltage	V_{CEO}	32	−32	V
Emitter-base voltage	V_{EBO}	5	−5	V
Collector current	I_C	500	−500	mA
Collector power dissipation	Pd	300 (TOTAL)		mW *
Junction temperature	Tj	150		℃
Storage temperature	Tstg	−55~+150		℃

* 200mW per element must not be exceeded.

(96-529-BD11)

●Electrical characteristics (Ta = 25°C)
Tr_1 (NPN)

Parameter	Symbol	Min.	Typ.	Max.	Unit	Conditions
Collector-base breakdown voltage	BV_{CBO}	40	—	—	V	I_C=100 μA
Collector-emitter breakdown voltage	BV_{CEO}	32	—	—	V	I_C=1mA
Emitter-base breakdown voltage	BV_{EBO}	5	—	—	V	I_E=100 μA
Collector cutoff current	I_{CBO}	—	—	0.1	μA	V_{CB}=20V
Emitter cutoff current	I_{EBO}	—	—	0.1	μA	V_{EB}=4V
Collector-emitter saturation voltage	$V_{CE(sat)}$	—	—	0.6	V	I_C/I_B=500mA/50mA
DC current transfer ratio	h_{FE}	120	—	560	—	V_{CE}=3V, I_C=100mA *
Transition frequency	f_T	—	250	—	MHz	V_{CE}=5V, I_E=−20mA, f=100MHz
Output capacitance	Cob	—	6.5	—	pF	V_{CB}=10V, I_E=0A, f=1MHz

* Measured using pulse current.

●Electrical characteristics (Ta = 25°C)
Tr_2 (PNP)

Parameter	Symbol	Min.	Typ.	Max.	Unit	Conditions
Collector-base breakdown voltage	BV_{CBO}	−40	—	—	V	I_C=−100 μA
Collector-emitter breakdown voltage	BV_{CEO}	−32	—	—	V	I_C=−1mA
Emitter-base breakdown voltage	BV_{EBO}	−5	—	—	V	I_E=−100 μA
Collector cutoff current	I_{CBO}	—	—	−0.1	μA	V_{CB}=−20V
Emitter cutoff current	I_{EBO}	—	—	−0.1	μA	V_{EB}=−4V
Collector-emitter saturation voltage	$V_{CE(sat)}$	—	—	−0.6	V	I_C/I_B=−300mA/−30mA
DC current transfer ratio	h_{FE}*	120	—	560	—	V_{CE}=−3V, I_C=−100mA
Transition frequency	f_T	—	200	—	MHz	V_{CE}=−5V, I_E=20mA, f=100MHz
Output capacitance	Cob	—	7	—	pF	V_{CB}=−10V, I_E=0A, f=1MHz

* Measured using pulse current.

●Packaging specifications

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

●Electrical characteristic curves

Tr_1 (NPN)

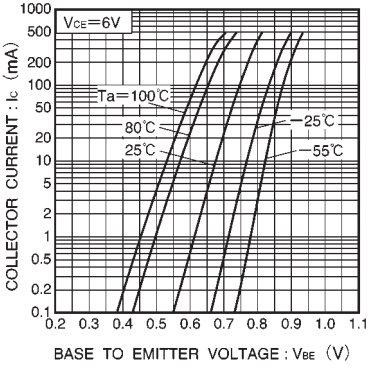


Fig.1 Grounded emitter propagation characteristics

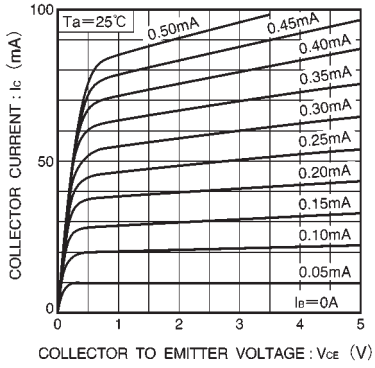


Fig.2 Grounded emitter output characteristics (Ⅰ)

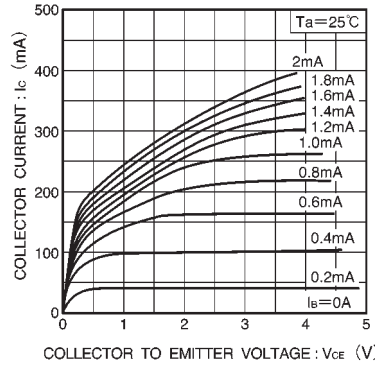


Fig.3 Grounded emitter output characteristics (Ⅱ)

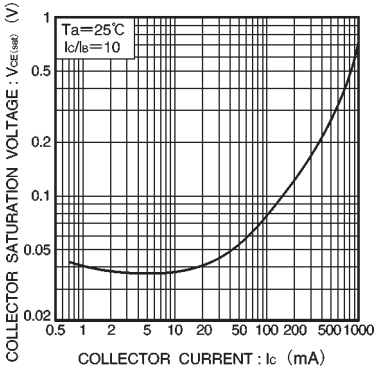


Fig.4 Collector-emitter saturation voltage vs. collector current

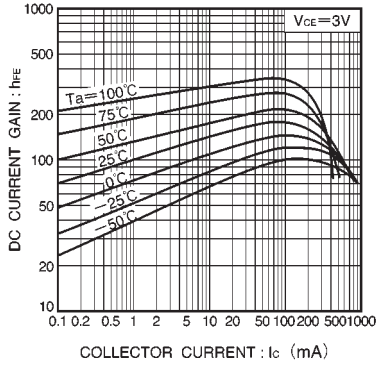


Fig.5 DC current gain vs. collector current

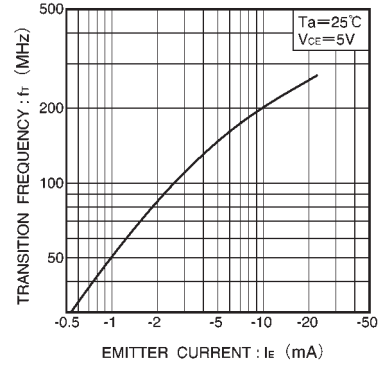


Fig.6 Gain bandwidth product vs. emitter current

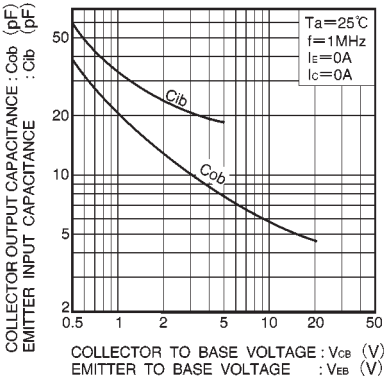


Fig.7 Collector output capacitance vs. collector-base voltage
Emitter input capacitance vs. emitter-base voltage

●Electrical characteristic curves

Tr_2 (PNP)

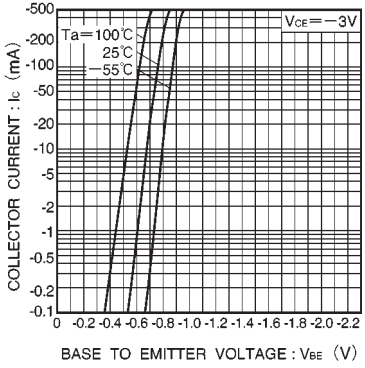


Fig.8 Grounded emitter propagation characteristics

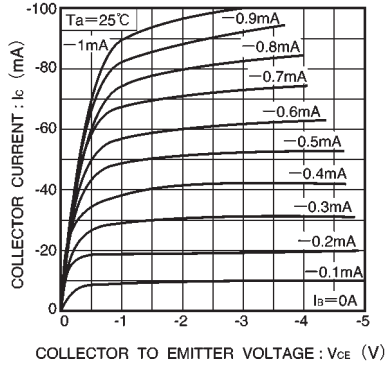


Fig.9 Grounded emitter output characteristics (Ⅰ)

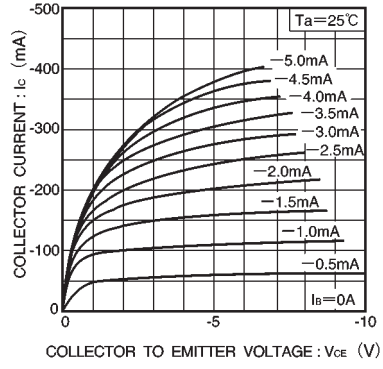


Fig.10 Grounded emitter output characteristics (Ⅱ)

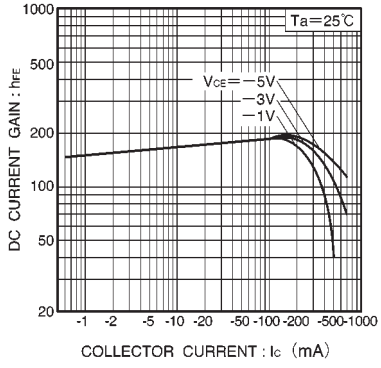


Fig.11 DC current gain vs. collector current (Ⅰ)

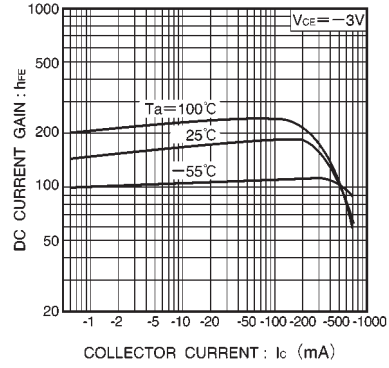


Fig.12 DC current gain vs. collector current (Ⅱ)

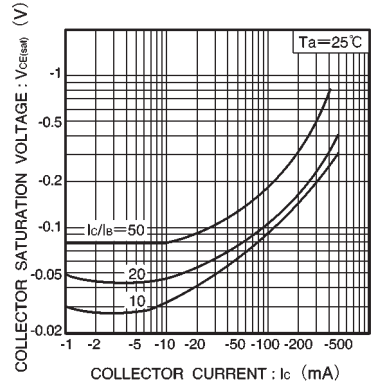


Fig.13 Collector-emitter saturation voltage vs. collector current (Ⅰ)

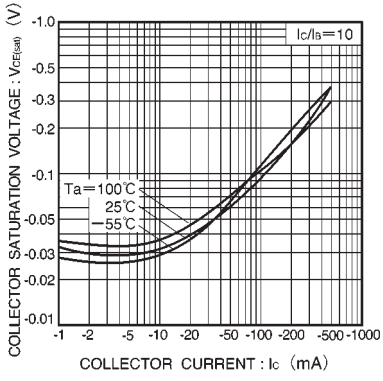


Fig.14 Collector-emitter saturation voltage vs. collector current (Ⅱ)

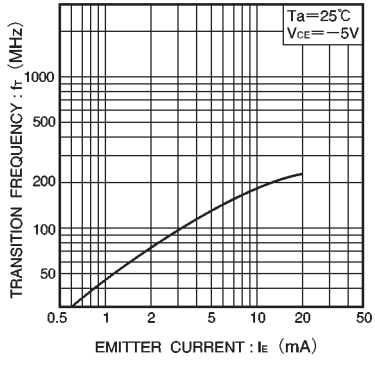


Fig.15 Gain bandwidth product vs. emitter current

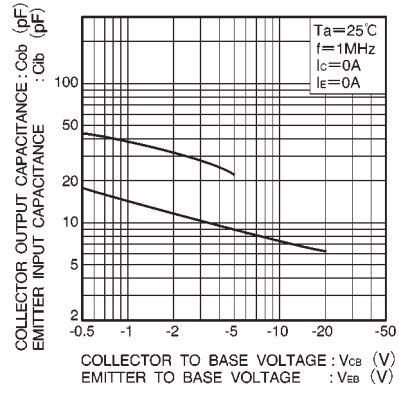


Fig.16 Collector output capacitance vs. collector-base voltage
Emitter input capacitance vs. emitter-base voltage