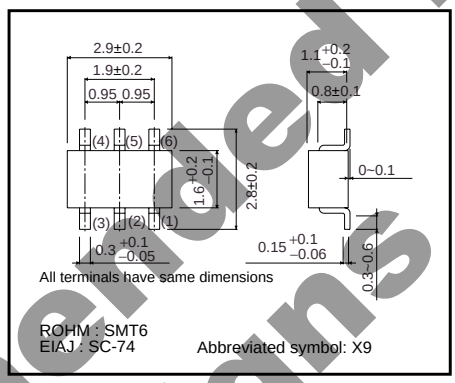
General purpose transistor (isolated dual transistors)

IMX9

●Features

1) Two 2SD2114K chips in a SMT package.
2) Mounting possible with SMT3 automatic mounting machine.
3) Transistor elements are independent, eliminating interference.
4) Mounting cost and area can be cut in half.

●External dimensions (Units : mm)



●Structure

Epitaxial planar type
NPN silicon transistor

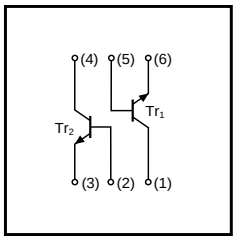
The following characteristics apply to both Tr_1 and Tr_2.

●Absolute maximum ratings (Ta = 25°C)

Parameter	Symbol	Limits	Unit
Collector-base voltage	V_{CBO}	25	V
Collector-emitter voltage	V_{CEO}	20	V
Emitter-base voltage	V_{EBO}	12	V
Collector current	I_C	500	mA
Power dissipation	Pd	300(TOTAL)	mW ＊
Junction temperature	Tj	150	°C
Storage temperature	Tstg	−55~+150	°C

＊ 200mW per element must not be exceeded.

●Equivalent circuit



●Electrical characteristics (Ta = 25°C)

Parameter	Symbol	Min.	Typ.	Max.	Unit	Conditions
Collector-base breakdown voltage	BV_{CBO}	25	–	–	V	I_C=10μA
Collector-emitter breakdown voltage	BV_{CEO}	20	–	–	V	I_C=1mA
Emitter-base breakdown voltage	BV_{EBO}	12	–	–	V	I_E=10μA
Collector cutoff current	I_{CBO}	–	–	0.5	μA	V_{CB}=20V
Emitter cutoff current	I_{EBO}	–	–	0.5	μA	V_{EB}=10V
Collector-emitter saturation voltage	$V_{CE(sat)}$	–	0.18	0.4	V	I_C/I_B=500mA/20mA
DC current transfer ratio	h_{FE}	560	–	2700	–	V_{CE}=3V, I_C=10mA
Transition frequency	f_T	–	350	–	MHz	V_{CE}=10V, I_E=−50mA, f=100MHz
Output capacitance	Cob	–	8	–	pF	V_{CB}=10V, I_E=0A, f=1MHz
Output On-resistance	Ron	–	0.8	–	Ω	I_B=1mA, V_i=100mVrms, f=1kHz

●Packaging specifications

	Packaging type	Taping
	Code	T110
Part No.	Basic ordering unit (pieces)	3000
IMX9		○

●Electrical characteristic curves

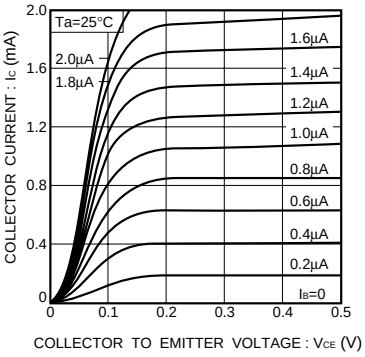


Fig.1 Grounded emitter output characteristics(I)

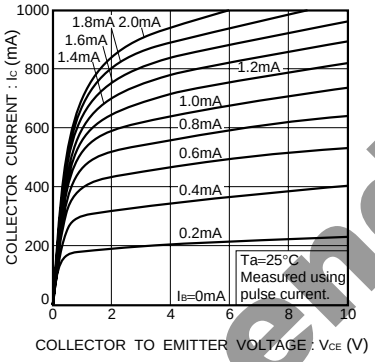


Fig.2 Grounded emitter output characteristics (II)

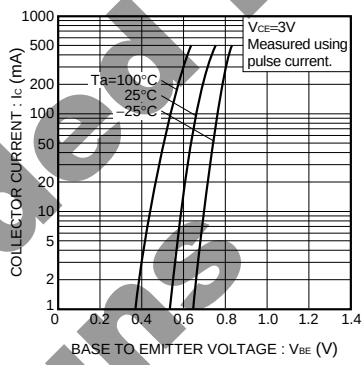


Fig.3 Grounded emitter propagation characteristics

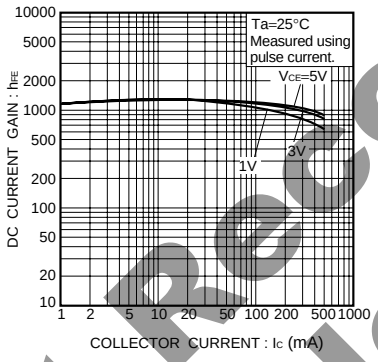


Fig.4 DC current gain vs. collector current (I)

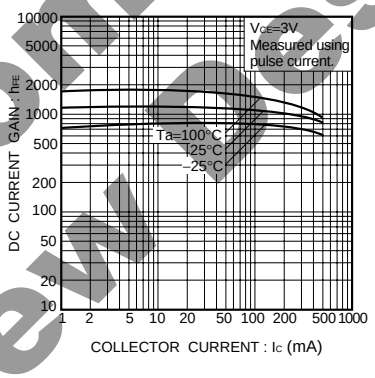


Fig.5 DC current gain vs. collector current (II)

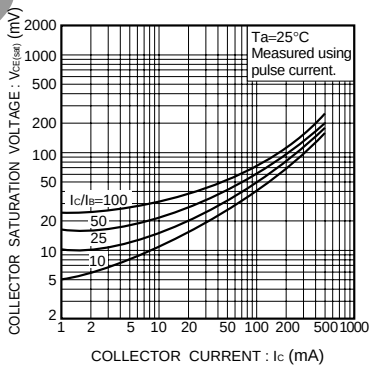


Fig.6 Collector-emitter saturation voltage vs. collector current (I)

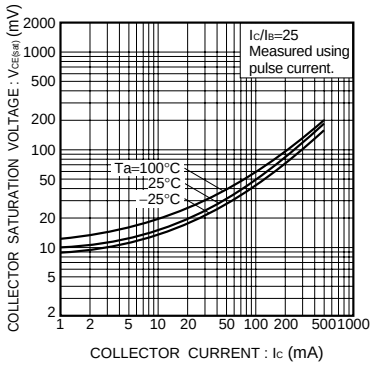


Fig.7 Collector-emitter saturation voltage vs. collector current (II)

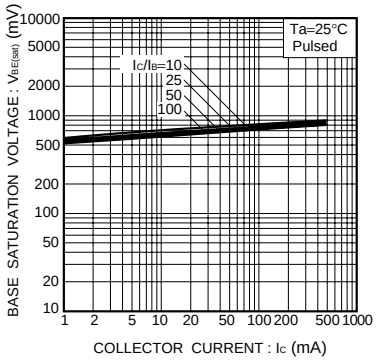


Fig.8 Base-emitter saturation voltage vs. collector current (I)

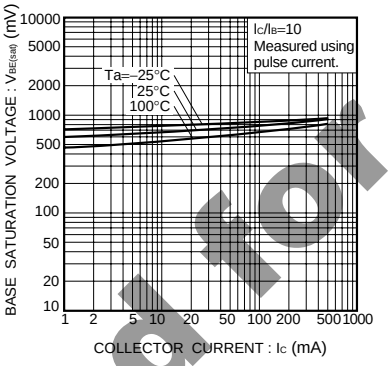


Fig.9 Base-emitter saturation voltage vs. collector current (II)

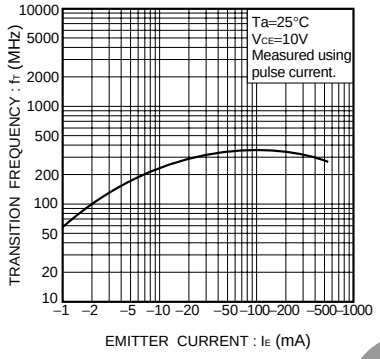


Fig.10 Gain bandwidth product vs. emitter current

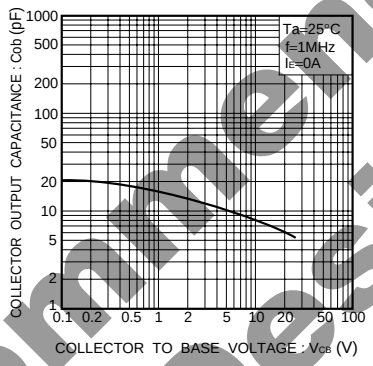


Fig.11 Collector output capacitance vs. collector-base voltage

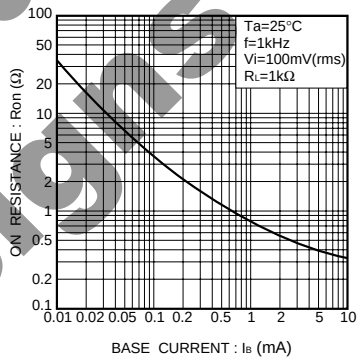
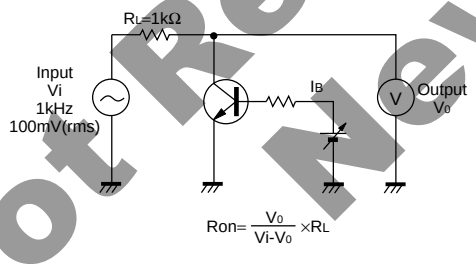


Fig.12 Output-on resistance vs. base current

●Ron measurement circuit



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