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General purpose transistor (isolated dual transistors)

IMX9

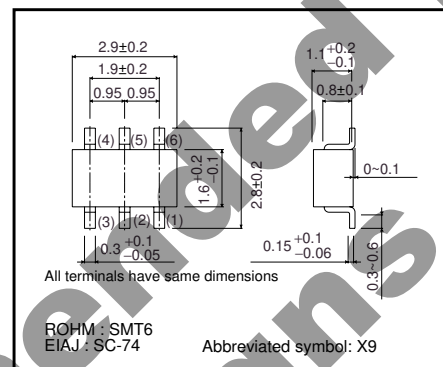
●Features

- 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.

●Structure

Epitaxial planar type
NPN silicon transistor

●External dimensions (Units : mm)



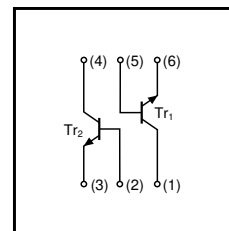
The following characteristics apply to both Tr₁ and Tr₂.

●Absolute maximum ratings (Ta = 25°C)

Parameter	Symbol	Limits	Unit
Collector-base voltage	V _{CB0}	25	V
Collector-emitter voltage	V _{CEO}	20	V
Emitter-base voltage	V _{EB0}	12	V
Collector current	I _c	500	mA
Power dissipation	P _d	300(TOTAL)	mW *
Junction temperature	T _j	150	°C
Storage temperature	T _{stg}	-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 _{CB0}	25	-	-	V	I _c =10μA
Collector-emitter breakdown voltage	BV _{CEO}	20	-	-	V	I _c =1mA
Emitter-base breakdown voltage	BV _{EB0}	12	-	-	V	I _E =10μA
Collector cutoff current	I _{CB0}	-	-	0.5	μA	V _{CB} =20V
Emitter cutoff current	I _{EB0}	-	-	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	C _{ob}	-	8	-	pF	V _{CB} =10V, I _E =0A, f=1MHz
Output On-resistance	R _{on}	-	0.8	-	Ω	I _b =1mA, V _i =100mVrms, f=1kHz

Transistors

●Packaging specifications

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

●Electrical characteristic curves

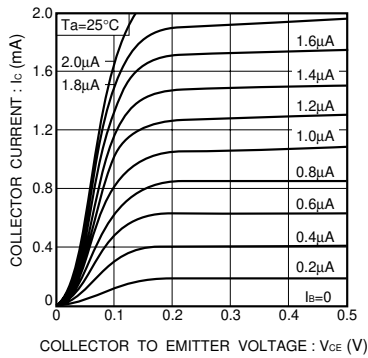


Fig.1 Grounded emitter output characteristics(I)

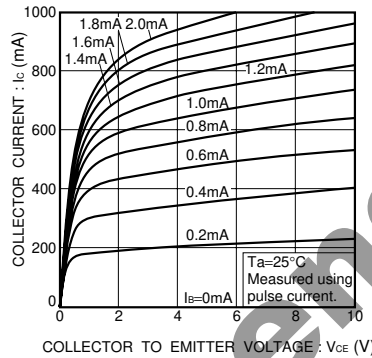


Fig.2 Grounded emitter output characteristics (II)

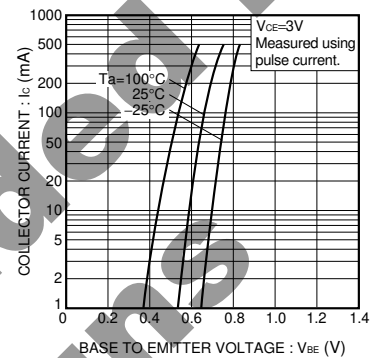


Fig.3 Grounded emitter propagation characteristics

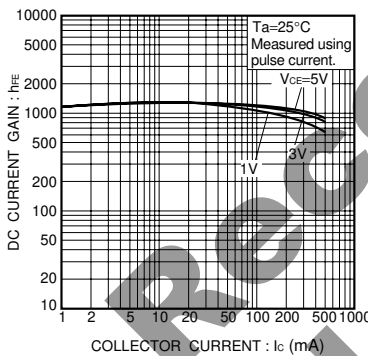


Fig.4 DC current gain vs. collector current (I)

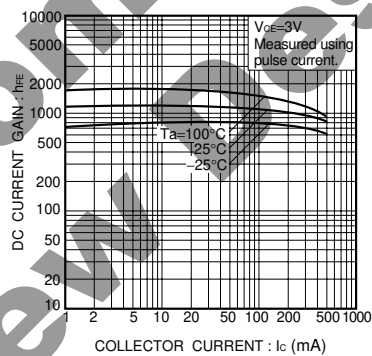


Fig.5 DC current gain vs. collector current (II)

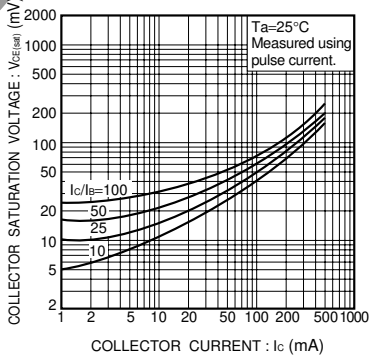


Fig.6 Collector-emitter saturation voltage vs. collector current (I)

Transistors

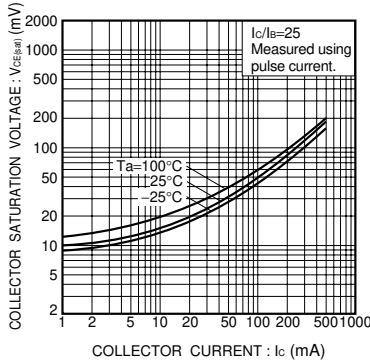


Fig.7 Collector-emitter saturation voltage vs. collector current (II)

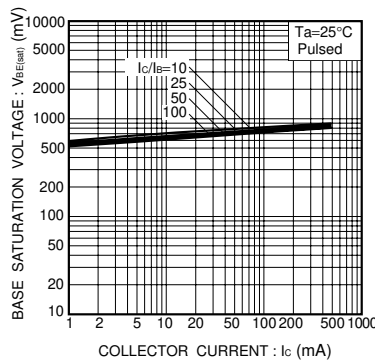


Fig.8 Base-emitter saturation voltage vs. collector current (I)

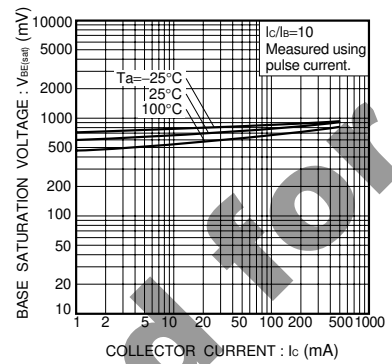


Fig.9 Base-emitter saturation voltage vs. collector current (II)

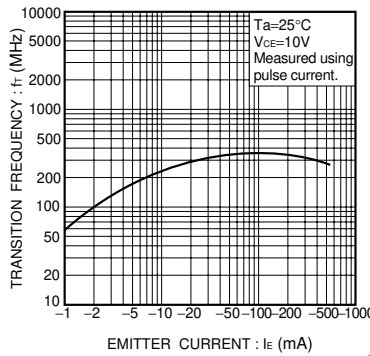


Fig.10 Gain bandwidth product vs. emitter current

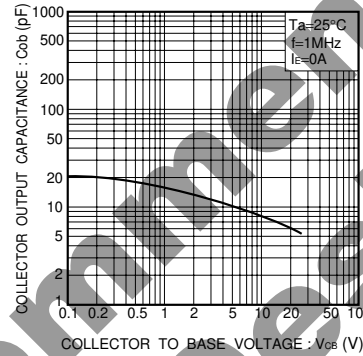


Fig.11 Collector output capacitance vs. collector-base voltage

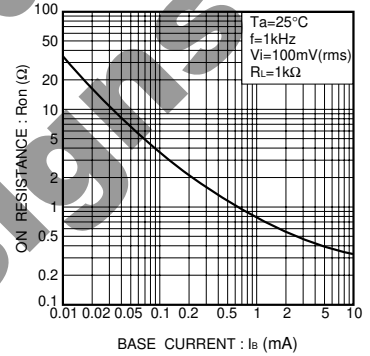
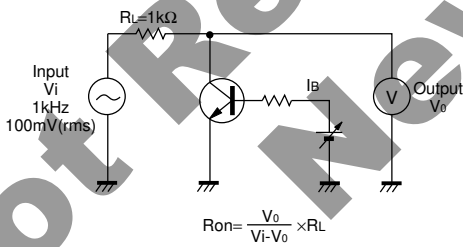


Fig.12 Output-on resistance vs. base current

●Ron measurement circuit



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