General purpose transistor (isolated dual transistors)

IMX9

Features

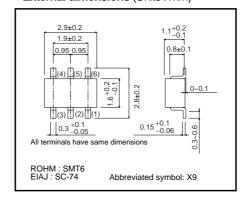
- 1) Two 2SD2114K chips in a SMT package.
- 2) Mounting possible with SMT3 automatic mounting machine.
- 3) Transistor elements are independent, eliminating interference.
- 4) Mounting cost and area can be cut in half.

Structure

Epitaxial planar type NPN silicon transistor

The following characteristics apply to both Tr₁ and Tr₂.

●External dimensions (Units : mm)

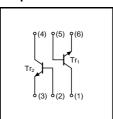


● Absolute maximum ratings (Ta = 25°C)

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

^{* 200}mW per element must not be exceeded.

Equivalent circuit



● Electrical characteristics (Ta = 25°C)

Parameter	Symbol	Min.	Тур.	Max.	Unit	Conditions
Collector-base breakdown voltage	ВУсво	25	-	-	V	Ic=10μA
Collector-emitter breakdown voltage	BVceo	20	-	-	V	Ic=1mA
Emitter-base breakdown voltage	ВУЕВО	12	-	-	V	Iε=10μA
Collector cutoff current	Ісво	-	-	0.5	μΑ	Vcb=20V
Emitter cutoff current	ІЕВО	-	-	0.5	μΑ	V _{EB} =10V
Collector-emitter saturation voltage	VCE(sat)	-	0.18	0.4	V	Ic/Iв=500mA/20mA
DC current transfer ratio	hfe	560	-	2700	-	VcE=3V, Ic=10mA
Transition frequency	f⊤	-	350	_	MHz	Vc=10V, I=-50mA, f=100MHz
Output capacitance	Cob	-	8	-	pF	Vcb=10V, Ie=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		0

• Electrical characteristic curves

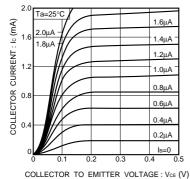
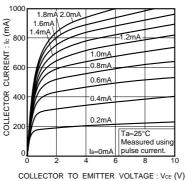


Fig.1 Grounded emitter output characteristics(I)



COLLECTOR TO EMITTER VOLTAGE : VCE (

Fig.2 Grounded emitter output characteristics (II)

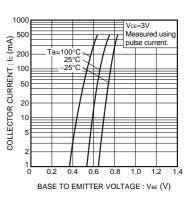


Fig.3 Grounded emitter propagation characteristics

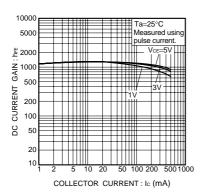


Fig.4 DC current gain vs. collector current (I)

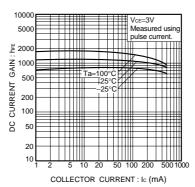


Fig.5 DC current gain vs. collector current (II)

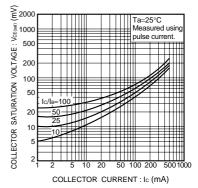


Fig.6 Collector-emitter saturation voltage vs. collector current (I)

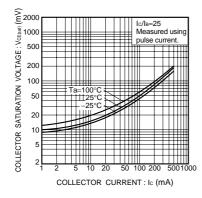


Fig.7 Collector-emitter saturation voltage vs. collector current (II)

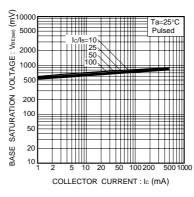


Fig.8 Base-emitter saturation voltage vs. collector current (I)

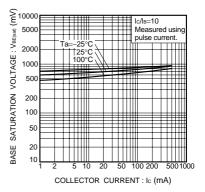


Fig.9 Base-emitter saturation voltage vs. collector current (II)

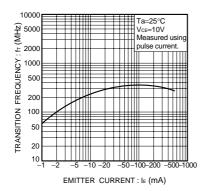


Fig.10 Gain bandwidth product vs. emitter current

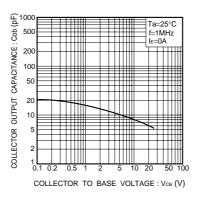


Fig.11 Collector output capacitance vs. collector-base voltage

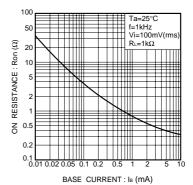
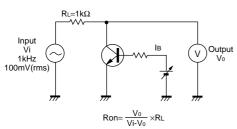


Fig.12 Output-on resistance vs. base current

Ron measurement circuit



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