# General purpose transistor (isolated dual transistors)

# IMX9

#### Features

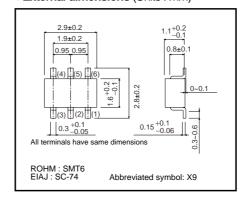
- 1) Two 2SD2114K chips in a SMT package.
- 2) Mounting possible with SMT3 automatic mounting machine.
- 3) Transistor elements are independent, eliminating interference.
- 4) Mounting cost and area can be cut in half.

#### Structure

Epitaxial planar type NPN silicon transistor

The following characteristics apply to both Tr<sub>1</sub> and Tr<sub>2</sub>.

# ●External dimensions (Units : mm)

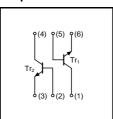


### ● Absolute maximum ratings (Ta = 25°C)

Parameter	Symbol	Limits	Unit	
Collector-base voltage	Vсво	25	V	
Collector-emitter voltage	V <sub>CEO</sub>	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	<b>−55~+150</b>	°C	

<sup>\* 200</sup>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 <sub>EB</sub> =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 <sub>B</sub> =1mA, V <sub>i</sub> =100mVrms, f=1kHz

## Packaging specifications

	Packaging type	Taping
	Code	T110
Part No.	Basic ordering unit (pieces)	3000
IMX9		0

#### • Electrical characteristic curves

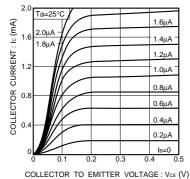
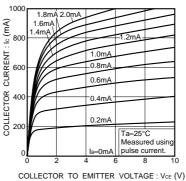


Fig.1 Grounded emitter output characteristics(I)



COLLECTOR TO EMITTER VOLTAGE : VCE (

Fig.2 Grounded emitter output characteristics (II)

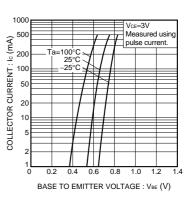


Fig.3 Grounded emitter propagation characteristics

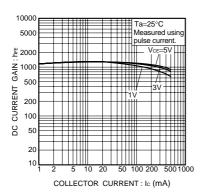


Fig.4 DC current gain vs. collector current (I)

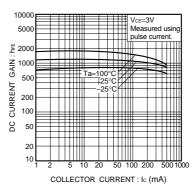


Fig.5 DC current gain vs. collector current (II)

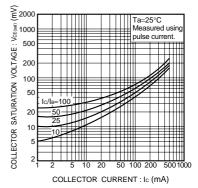


Fig.6 Collector-emitter saturation voltage vs. collector current (I)

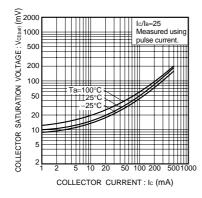


Fig.7 Collector-emitter saturation voltage vs. collector current (II)

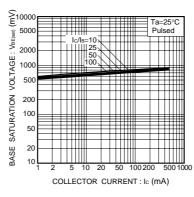


Fig.8 Base-emitter saturation voltage vs. collector current (I)

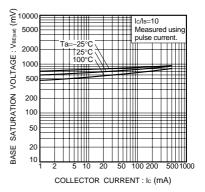


Fig.9 Base-emitter saturation voltage vs. collector current (II)

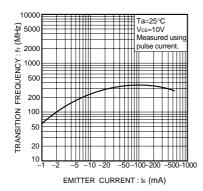


Fig.10 Gain bandwidth product vs. emitter current

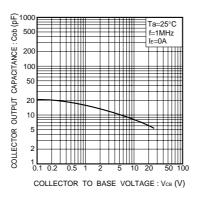


Fig.11 Collector output capacitance vs. collector-base voltage

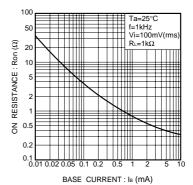
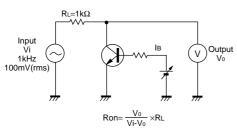


Fig.12 Output-on resistance vs. base current

#### Ron measurement circuit



#### **Notes**

- No technical content pages of this document may be reproduced in any form or transmitted by any
  means without prior permission of ROHM CO.,LTD.
- The contents described herein are subject to change without notice. The specifications for the
  product described in this document are for reference only. Upon actual use, therefore, please request
  that specifications to be separately delivered.
- Application circuit diagrams and circuit constants contained herein are shown as examples of standard
  use and operation. Please pay careful attention to the peripheral conditions when designing circuits
  and deciding upon circuit constants in the set.
- Any data, including, but not limited to application circuit diagrams information, described herein are intended only as illustrations of such devices and not as the specifications for such devices. ROHM CO.,LTD. disclaims any warranty that any use of such devices shall be free from infringement of any third party's intellectual property rights or other proprietary rights, and further, assumes no liability of whatsoever nature in the event of any such infringement, or arising from or connected with or related to the use of such devices.
- Upon the sale of any such devices, other than for buyer's right to use such devices itself, resell or
  otherwise dispose of the same, no express or implied right or license to practice or commercially
  exploit any intellectual property rights or other proprietary rights owned or controlled by
- ROHM CO., LTD. is granted to any such buyer.
- Products listed in this document use silicon as a basic material.
   Products listed in this document are no antiradiation design.

The products listed in this document are designed to be used with ordinary electronic equipment or devices (such as audio visual equipment, office-automation equipment, communications devices, electrical appliances and electronic toys).

Should you intend to use these products with equipment or devices which require an extremely high level of reliability and the malfunction of with would directly endanger human life (such as medical instruments, transportation equipment, aerospace machinery, nuclear-reactor controllers, fuel controllers and other safety devices), please be sure to consult with our sales representative in advance.

About Export Control Order in Japan

Products described herein are the objects of controlled goods in Annex 1 (Item 16) of Export Trade Control Order in Japan.

In case of export from Japan, please confirm if it applies to "objective" criteria or an "informed" (by MITI clause) on the basis of "catch all controls for Non-Proliferation of Weapons of Mass Destruction.

