# General purpose (dual digital transistors)

# EMD2 / UMD2N / IMD2A

#### Features

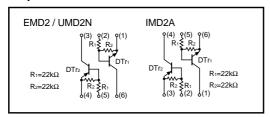
- 1) Both the DTA124E chip and DTC124E chip in a EMT or UMT or SMT package.
- 2) Mounting possible with EMT6 or UMT6 or SMT6 automatic mounting machines.
- 3) Transistor elements are independent, eliminating interference.
- 4) Mounting cost and area can be cut in half.

#### Structure

Epitaxial planar type NPN / PNP silicon transistor (Built-in resistor type)

The following characteristics apply to both the DTr1 and DTr2, however, the "-" sign on DTr2 values for the PNP type have been omitted.

## ●Equivalent circuit



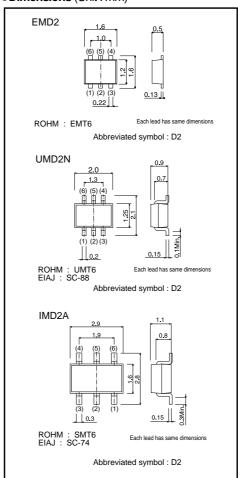
#### ● Absolute maximum ratings (Ta = 25°C)

Parameter		Symbol	Limits	Unit	
Supply voltage		Vcc	50	V	
Input voltage		Vin	40	V	
		VIN	-10		
Output current		lo	30	mA	
		Ic (Max.)	100		
Power dissipation	EMD2, UMD2N	Pd	150 (TOTAL)	*1 mW *2	
	IMD2A	Pa	300 (TOTAL)		
Junction temperature		Tj	150	°C	
Storage temperature		Tstg	-55 to +150	°C	

<sup>\*1 120</sup>mW per element must not be exceeded

#### \*2 200mW per element must not be exceeded.

#### ●Dimensions (Unit: mm)



ROHM

#### ●Electrical characteristics (Ta = 25°C)

Parameter	Symbol	Min.	Тур.	Max.	Unit	Conditions	
Input voltage	V <sub>I (off)</sub>	-	_	0.5	V	Vcc=5V, Io=100μA	
input voltage	VI (on)	3	_	_	]	Vo=0.2V, Io=5mA	
Output voltage	Vo (on)	_	0.1	0.3	V	Io=10mA, Iı=0.5mA	
Input current	lı	-	_	0.36	mA	V <sub>I</sub> =5V	
Output current	lo (off)	_	_	0.5	μΑ	Vcc=50V, Vı=0V	
DC current gain	Gı	56	-	_	_	Vo=5V, Io=5mA	
Transition frequency	f⊤	_	250	_	MHz	Vc=10V, I=-5mA, f=100MHz *	
Input resistance	R <sub>1</sub>	15.4	22	28.6	kΩ	_	
Resistance ratio	R <sub>2</sub> /R <sub>1</sub>	0.8	1	1.2	_	_	

<sup>\*</sup> Transition frequency of the device

Packaging specifications

Туре	Package	Taping				
	Code	T2R	TR	T108		
	Basic ordering unit (pieces)	8000	3000	3000		
EMD2		0	_	_		
UMD2N		_	0	_		
IMD2A		_	_	0		

## ●Electrical characteristic curves

DTr<sub>1</sub> (NPN)

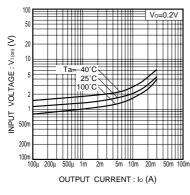


Fig.1 Input voltage vs. output current (ON characteristics)

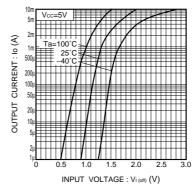


Fig.2 Output current vs. input voltage (OFF characteristics)

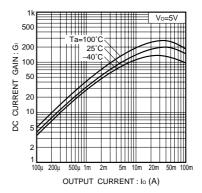


Fig.3 DC current gain vs. output current

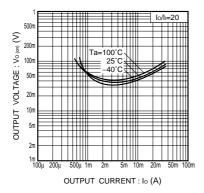


Fig.4 Output voltage vs. output current

# DTr<sub>2</sub> (PNP)

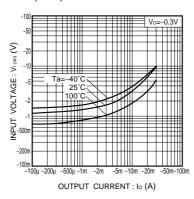


Fig.5 Input voltage vs. output current (ON characteristics)

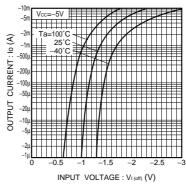


Fig.6 Output current vs. input voltage (OFF characteristics)

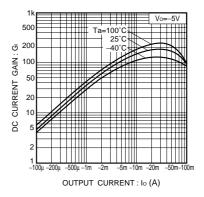


Fig.7 DC current gain vs. output current

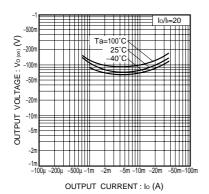


Fig.8 Output voltage vs. output current

#### 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 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 which 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.

It is our top priority to supply products with the utmost quality and reliability. However, there is always a chance of failure due to unexpected factors. Therefore, please take into account the derating characteristics and allow for sufficient safety features, such as extra margin, anti-flammability, and fail-safe measures when designing in order to prevent possible accidents that may result in bodily harm or fire caused by component failure. ROHM cannot be held responsible for any damages arising from the use of the products under conditions out of the range of the specifications or due to non-compliance with the NOTES specified in this catalog.

Thank you for your accessing to ROHM product informations.

More detail product informations and catalogs are available, please contact your nearest sales office.

**ROHM** Customer Support System

THE AMERICAS / EUROPE / ASIA / JAPAN

www.rohm.com

Contact us : webmaster@rohm.co.jp

Copyright © 2008 ROHM CO.,LTD.

ROHM CO., LTD. 21 Saiin Mizosaki-cho, Ukyo-ku, Kyoto 615-8585, Japan

an TEL:+81-75-311-2121 FAX:+81-75-315-0172

