Dual digital transistors

QSH29

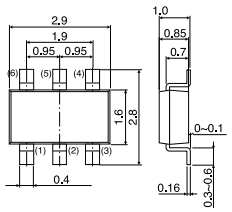
●Features

In addition to the standard features of digital transistor, this transisitor has:

1) Low collector saturation voltage, typically
   $V_{CE\,(sat)}$=100mV for I_C / I_B=100mA / 1mA(Typ.)
2) High current gain, minimum
   h_{FE}=500mA for V_{CE}=5V, I_C=200mA.
3) Built in Zener diode for protection against surges when connected to inductive load.

●Dimensions (Unit : mm)

TSMT6



Abbreviated symbol : H29

●Structure

NPN silicon epitaxial planar transistor

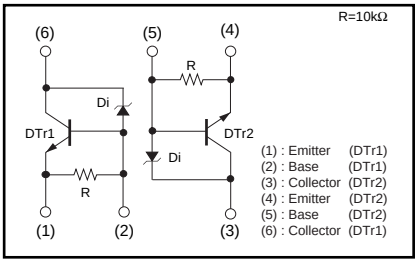
●Applications

Driver

●Packaging specifications and h_{FE}

Type	Package	TSMT6
	Packaging type	Taping
	Code	TR
	Basic ordering unit (pieces)	3000
QSH29		○

●Equivalent circuit



●Absolute maximum ratings (Ta=25°C)

≪DTr1≫ ≪DTr2≫

Parameter		Symbol	Limits	Unit
Collector-base voltage		V_{CBO}	60±10	V
Collector-emitter voltage		V_{CEO}	60±10	V
Emitter-base voltage		V_{EBO}	5	V
Collector current	Continuous	I_C	500	mA
	Pulsed	I_{CP}	1	A ∗1
Power dissipation		P_D	1.25	W/TOTAL ∗2
			0.9	W/1 ELEMENT ∗2
Junction temperature		Tj	150	°C
Range of storage temperature		Tstg	–55 to +150	°C

∗1 Pw=10ms 1 Pulse
∗2 Each terminal mounted on a ceramic board

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

≪DTr1≫ ≪DTr2≫

Parameter	Symbol	Min.	Typ.	Max.	Unit	Conditions
Collector-emitter breakdown voltage	BV_{CEO}	50	–	70	V	I_C=50μA
Collector-base breakdown voltage	BV_{CBO}	50	–	70	V	I_C=50μA
Emitter-base breakdown voltage	BV_{EBO}	5.0	–	–	V	I_E=720μA
Collector cut-off current	I_{CBO}	–	–	0.5	μA	V_{CB}=40V
Emitter cut-off current	I_{EBO}	300	–	580	μA	V_{EB}=4V
Collector-emitter saturation voltage	$V_{CE\ (sat)}$	–	100	300	mV	I_C=100mA, I_B=1mA
DC current gain	h_{FE}	500	–	–	–	V_{CE}=5V, I_C=200mA
Emitter-base resistance	R	7	10	13	kΩ	–

●**Electrical characterristic curves**

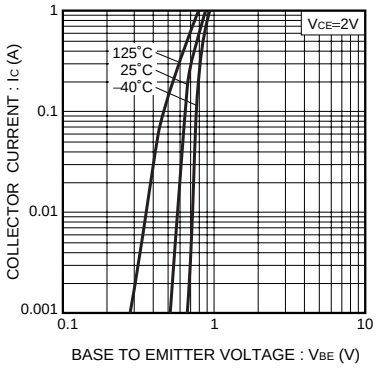


Fig.1 Grounded Emitter Propagation Characteristics

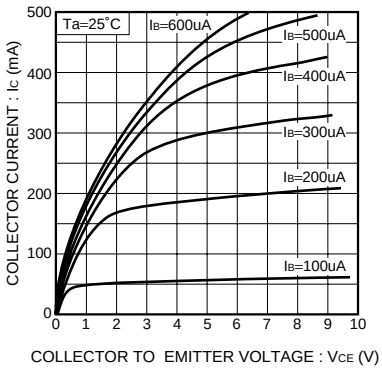


Fig.2 Typical Output Characteristics

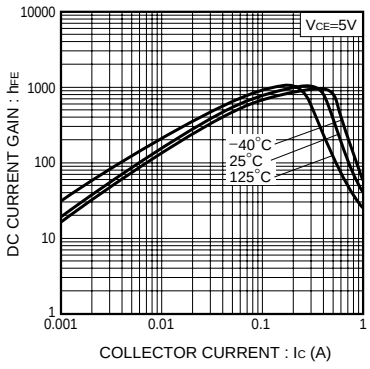


Fig.3 DC Current Gain vs. Collector Current

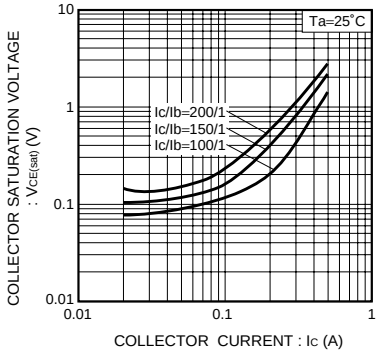


Fig.4 Collector-Emitter Saturation Voltage vs. Collector Current (Ⅰ)

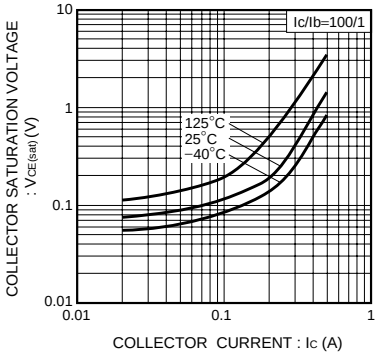


Fig.5 Collector-Emitter Saturation Voltage vs. Collector Current (Ⅱ)

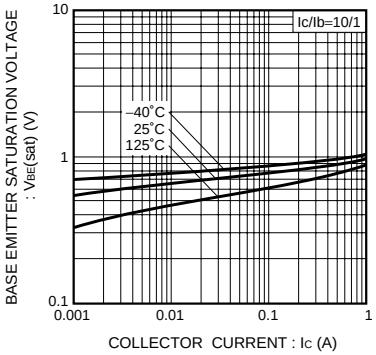


Fig.6 Base-emitter Saturation Voltage vs. Collector Current

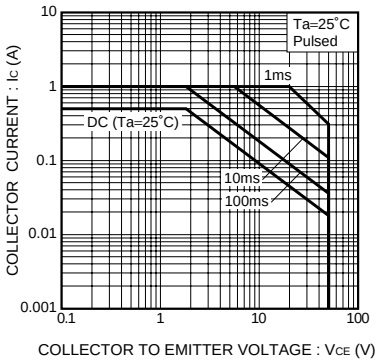


Fig.7 Safe Operating Area

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

www.s-manuals.com