General purpose transistor

QSZ2

A 2SB1695 and a 2SD2657 are housed independently in a TSMT5 package.

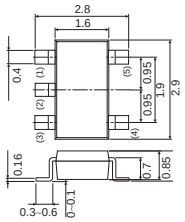
●Structure
Silicon epitaxial planar transistor

●Features
1) Low V_{CE}(sat)
2) Small package

●Applications
DC / DC converter
Motor driver

●Dimensions (Unit : mm)

QSZ2
SOT-25T



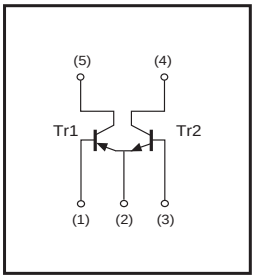
ROHM : TSMT5 Each lead has same dimensions

Abbreviated symbol : Z02

●Packaging specifications

Type	QSZ2
Package	TSMT5
Marking	Z02
Code	TR
Basic ordering unit(pieces)	3000

●Equivalent circuit



●Absolute maximum ratings (Ta=25°C)

Tr1

Parameter	Symbol	Limits	Unit
Collector-base voltage	V_{CBO}	–30	V
Collector-emitter voltage	V_{CEO}	–30	V
Emitter-base voltage	V_{EBO}	–6	V
Collector current	I_C	–1.5	A
	I_{CP}	–3	A ∗1
Collector power dissipation	P_C	500	mW/Total ∗2
		1.25	W/Total ∗3
		0.9	W/Element ∗3
Junction temperature	Tj	150	°C
Storage temperature	Tstg	–55 to +150	°C

∗1 Single pulse Pw=1ms.
∗2 Each terminal mounted on a recommended land.
∗3 Mounted on a 25mm× 25mm× t0.8mm ceramic substrate.

Tr2

Parameter	Symbol	Limits	Unit
Collector-base voltage	V_{CBO}	30	V
Collector-emitter voltage	V_{CEO}	30	V
Emitter-base voltage	V_{EBO}	6	V
Collector current	I_C	1.5	A
	I_{CP}	3	A ∗1
Power dissipation	P_C	500	mW/Total ∗2
		1.25	W/Total ∗3
		0.9	W/Element ∗3
Junction temperature	Tj	150	°C
Range of storage temperature	Tstg	–55 to +150	°C

∗1 Single pulse Pw=1ms.
∗2 Each terminal mounted on a recommended land.
∗3 Mounted on a 25mm× 25mm× t0.8mm ceramic substrate.

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

Tr1

Parameter	Symbol	Min.	Typ.	Max.	Unit	Conditions
Collector-base breakdown voltage	BV_{CBO}	–30	–	–	V	I_C=–10μA
Collector-emitter breakdown viltage	BV_{CEO}	–30	–	–	V	I_C=–1mA
Emitter-base breakdown voltage	BV_{EBO}	–6	–	–	V	I_E=–10μA
Collector cutoff current	I_{CBO}	–	–	–100	nA	V_{CB}=–30V
Emitter cutoff current	I_{EBO}	–	–	–100	nA	V_{EB}=–6V
Collerctor-emitter saturation voltage	$V_{CE(sat)}$	–	–200	–370	mV	I_C=–1mA, I_B=–50mA
DC current transfer ratio	h_{FE}	270	–	680	–	V_{CE}=–2V, I_C=–100mA*
Transition frequency	f_T	–	280	–	MHz	V_{CE}=–2V, I_E=100mA, f=100MHz*
Output capacitance	Cob	–	13	–	pF	V_{CB}=–10V, I_E=0mA, f=1MHz

* Pulsed

Tr2

Parameter	Symbol	Min.	Typ.	Max.	Unit	Conditions
Collector-base breakdown voltage	BV_{CBO}	30	–	–	V	I_C=10μA
Collector-emitter breakdown voltage	BV_{CEO}	30	–	–	V	I_C=1mA
Emitter-base breakdown voltage	BV_{EBO}	6	–	–	V	I_E=10μA
Collector cutoff current	I_{CBO}	–	–	100	nA	V_{CB}=30V
Emitter cutoff current	I_{EBO}	–	–	100	nA	V_{EB}=6V
Collector-emitter saturation voltage	$V_{CE(sat)}$	–	140	350	mV	I_C=1A, I_B=50mA
DC current gain	h_{FE}	270	–	680	–	V_{CE}=2V, I_C=100mA*
Transition frequency	f_T	–	300	–	MHz	V_{CE}=2V, I_E=–100mA, f=100MHz*
Corrector output capacitance	Cob	–	11	–	pF	V_{CB}=10V, I_E=0A, f=1MHz

* Pulsed

●Electrical characteristic curves

Tr1

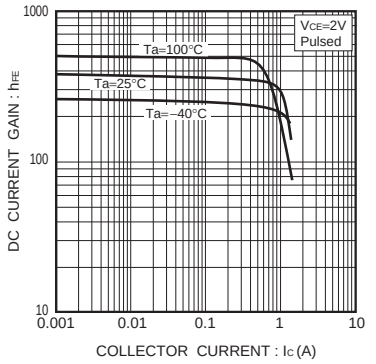


Fig.1 DC current gain vs. collector current

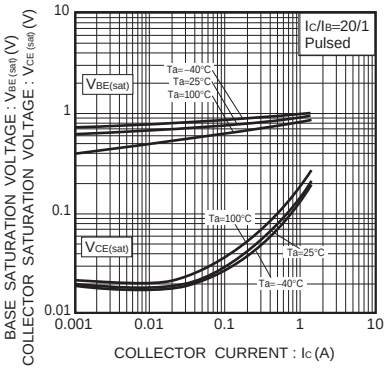


Fig.2 Collector-emitter saturation voltage base-emitter saturation voltage vs. collector current

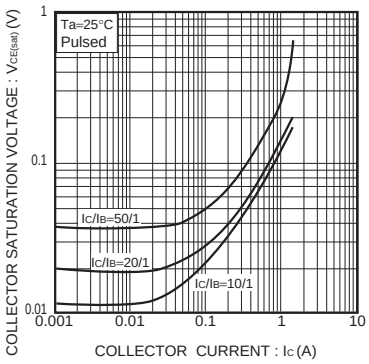


Fig.3 Collector-emitter saturation voltage vs. collector current

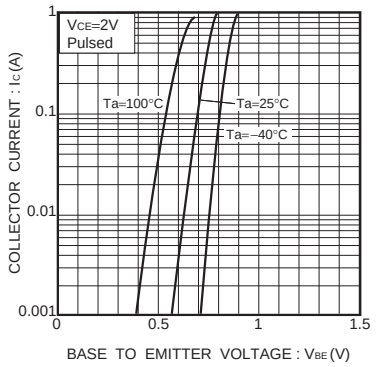


Fig.4 Grounded emitter propagation characteristics

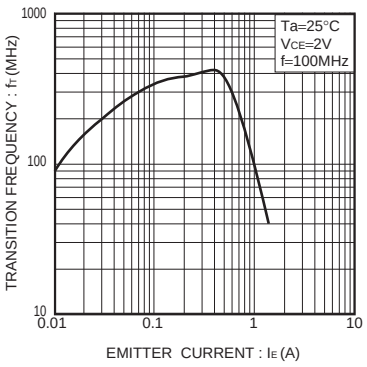


Fig.5 Gain bandwidth product vs. emitter current

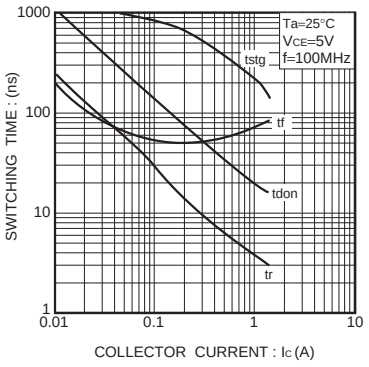


Fig.6 Switching time

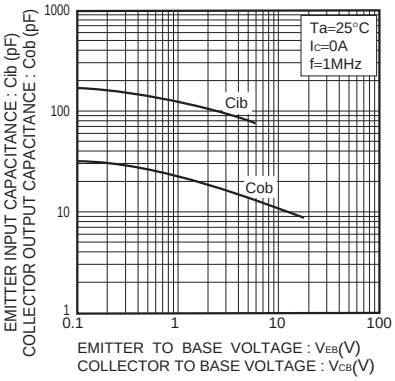


Fig.7 Collector output capacitance vs. collector-base voltage Emitter input capacitance vs. emitter-base voltage

Tr2

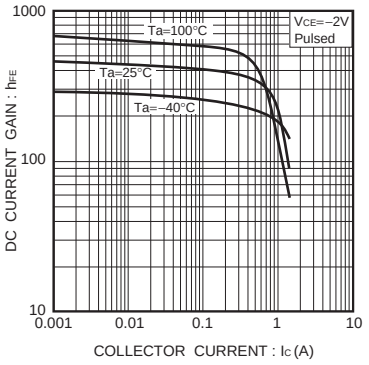


Fig.8 DC current gain vs. collector current

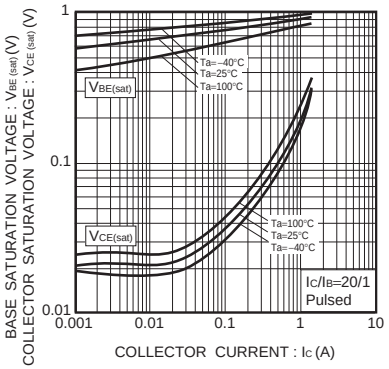


Fig.9 Collector-emitter saturation voltage base-emitter saturation voltage vs. collector current

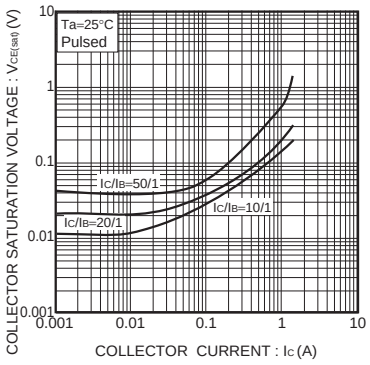


Fig.10 Collector-emitter saturation voltage vs. collector current

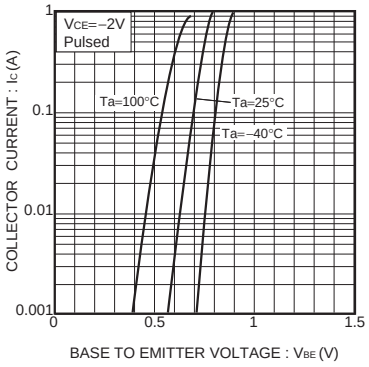


Fig.11 Grounded emitter propagation characteristics

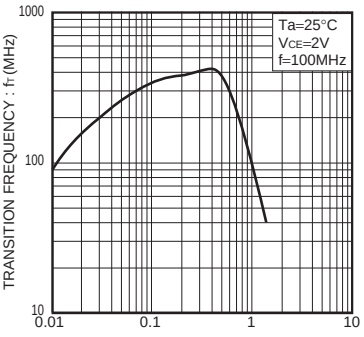


Fig.12 Gain bandwidth product vs. emitter current

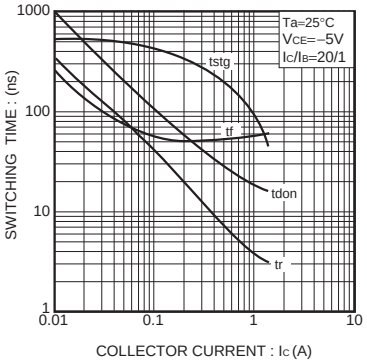


Fig.13 Switching time

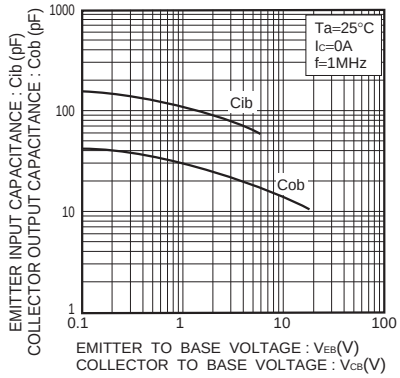


Fig.14 Collector output capacitance vs. collector-base voltage Emitter input capacitance vs. emitter-base voltage

Notes

No copying or reproduction of this document, in part or in whole, is permitted without the consent of ROHM Co.,Ltd.

The content specified herein is subject to change for improvement without notice.

The content specified herein is for the purpose of introducing ROHM's products (hereinafter "Products"). If you wish to use any such Product, please be sure to refer to the specifications, which can be obtained from ROHM upon request.

Examples of application circuits, circuit constants and any other information contained herein illustrate the standard usage and operations of the Products. The peripheral conditions must be taken into account when designing circuits for mass production.

Great care was taken in ensuring the accuracy of the information specified in this document. However, should you incur any damage arising from any inaccuracy or misprint of such information, ROHM shall bear no responsibility for such damage.

The technical information specified herein is intended only to show the typical functions of and examples of application circuits for the Products. ROHM does not grant you, explicitly or implicitly, any license to use or exercise intellectual property or other rights held by ROHM and other parties. ROHM shall bear no responsibility whatsoever for any dispute arising from the use of such technical information.

The Products specified in this document are intended to be used with general-use electronic equipment or devices (such as audio visual equipment, office-automation equipment, communication devices, electronic appliances and amusement devices).

The Products specified in this document are not designed to be radiation tolerant.

While ROHM always makes efforts to enhance the quality and reliability of its Products, a Product may fail or malfunction for a variety of reasons.

Please be sure to implement in your equipment using the Products safety measures to guard against the possibility of physical injury, fire or any other damage caused in the event of the failure of any Product, such as derating, redundancy, fire control and fail-safe designs. ROHM shall bear no responsibility whatsoever for your use of any Product outside of the prescribed scope or not in accordance with the instruction manual.

The Products are not designed or manufactured to be used with any equipment, device or system which requires an extremely high level of reliability the failure or malfunction of which may result in a direct threat to human life or create a risk of human injury (such as a medical instrument, transportation equipment, aerospace machinery, nuclear-reactor controller, fuel-controller or other safety device). ROHM shall bear no responsibility in any way for use of any of the Products for the above special purposes. If a Product is intended to be used for any such special purpose, please contact a ROHM sales representative before purchasing.

If you intend to export or ship overseas any Product or technology specified herein that may be controlled under the Foreign Exchange and the Foreign Trade Law, you will be required to obtain a license or permit under the Law.

ROHM SEMICONDUCTOR

Thank you for your accessing to ROHM product informations.
More detail product informations and catalogs are available, please contact us.

ROHM Customer Support System

http://www.rohm.com/contact/