

General purpose transistor

QSZ2

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

Silicon epitaxial planar transistor

Features

- 1) Low VcE(sat)
- 2) Small package

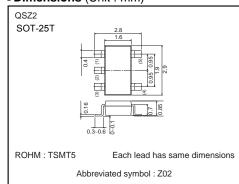
Applications

DC / DC converter Motor driver

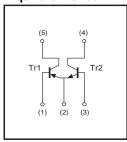
Packaging specifications

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

●Dimensions (Unit : mm)



●Equivalent circuit



●Absolute maximum ratings (Ta=25°C)

Parameter	Symbol	Limits	Unit
Collector-base voltage	Vсво	-30	V
Collector-emitter voltage	VCEO	-30	V
Emitter-base voltage	Vево	-6	V
Collector current	Ic	-1.5	A
	ICP	-3	A *1
Collector power dissipation		500	mW/Total *2
	Pc	1.25	W/Total *3
		0.9	W/Element *3
Junction temperature	Tj	150	°C
Storage temperature	Tstg	-55 to +150	°C

Tr2

Parameter	Symbol	Limits	Unit
Collector-base voltage	Vсво	30	V
Collector-emitter voltage	Vceo	30	V
Emitter-base voltage	Vево	6	V
Collector current	Ic	1.5	Α
	Іср	3	A *1
		500	mW/Total *2
Power dissipation	Pc	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.

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^{*3} Mounted on a 25mm× 25mm× 10.8mm ceramic substrate.

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QSZ2 Data Sheet

●Electrical characteristics (Ta=25°C)

Tr1

Parameter	Symbol	Min.	Тур.	Max.	Unit	Conditions
Collector-base breakdown voltage	ВУсво	-30	_	_	V	Ic=-10μA
Collector-emitter breakdown viltage	BVceo	-30	_	_	V	Ic=-1mA
Emitter-base breakdown voltage	ВVево	-6	_	_	V	I _E =-10μA
Collector cutoff current	Ісво	_	_	-100	nA	Vcb=-30V
Emitter cutoff current	ІЕВО	_	_	-100	nA	V _{EB} =-6V
Collerctor-emitter saturation voltage	VCE(sat)	_	-200	-370	mV	Ic=-1mA, I _B =-50mA
DC current transfer ratio	hfe	270	_	680	_	Vce=-2V, Ic=-100mA*
Transition frequency	f⊤	_	280	_	MHz	Vc=-2V, Ie=100mA, f=100MHz *
Output capacitance	Cob	_	13	_	pF	Vcb=-10V, Ie=0mA, f=1MHz

^{*} Pulsed

Tr2

Parameter	Symbol	Min.	Тур.	Max.	Unit	Conditions
Collector-base breakdown voltage	ВУсво	30	_	_	V	Ic=10μA
Collector-emitter breakdown voltage	BVceo	30	_	_	V	Ic=1mA
Emitter-base breakdown voltage	BVEBO	6	_	_	V	Iε=10μA
Collector cutoff current	Ісво	_	_	100	nA	Vcb=30V
Emitter cutoff current	ІЕВО	_	_	100	nA	V _{EB} =6V
Collector-emitter saturation voltage	VCE(sat)	_	140	350	mV	Ic=1A, Iв=50mA
DC current gain	hfe	270	_	680	_	Vce=2V, Ic=100mA*
Transition frequency	f⊤	_	300	-	MHz	Vce=2V, Ie=-100mA, f=100MHz*
Corrector output capacitance	Cob	_	11	_	pF	Vcb=10V, Ie=0A, f=1MHz

^{*} Pulsed

QSZ2 Data Sheet

•Electrical characteristic curves

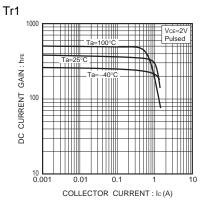


Fig.1 DC current gain vs. collector current

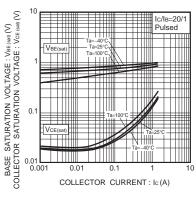


Fig.2 Collector-emitter saturation voltage base-emitter saturation voltage vs. collector current

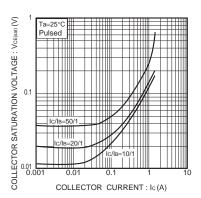


Fig.3 Collector-emitter saturation voltage vs. collector current

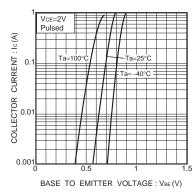


Fig.4 Grounded emitter propagation characteristics

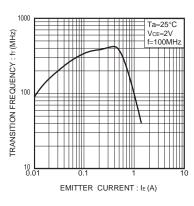


Fig.5 Gain bandwidth product vs. emitter current

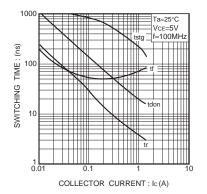


Fig.6 Switching time

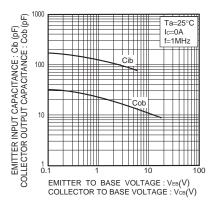


Fig.7 Collector output capacitance vs. collector-base voltage Emitter input capacitance vs. emitter-base voltage

QSZ2 Data Sheet

Tr2

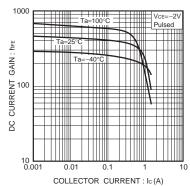


Fig.8 DC current gain vs. collector current

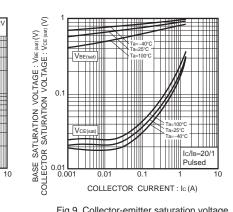


Fig.9 Collector-emitter saturation voltage base-emitter saturation voltage vs. collector current

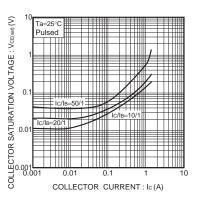


Fig.10 Collector-emitter saturation voltage vs. collector current

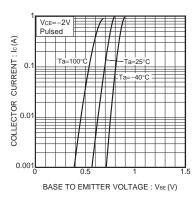


Fig.11 Grounded emitter propagation characteristics

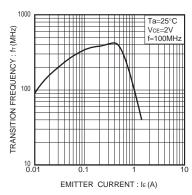


Fig.12 Gain bandwidth product vs. emitter current

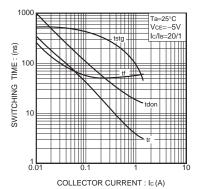


Fig.13 Switching time

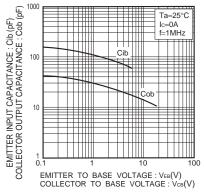


Fig.14 Collector output capacitance vs. collector-base voltage Emitter input capacitance vs. emitter-base voltage

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