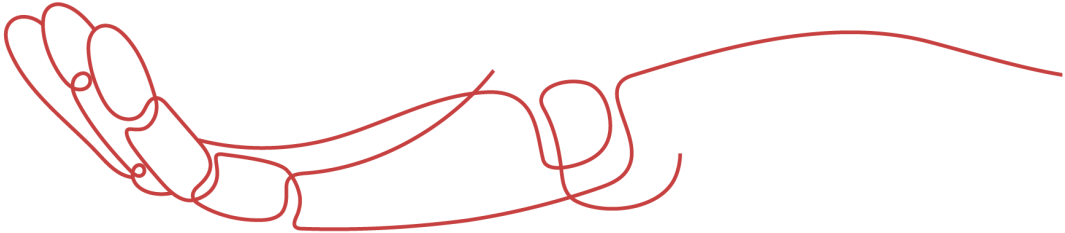




PRODUCT DATA SHEET



To learn more about JGSEMI, please visit our website at



Datasheet



Resources

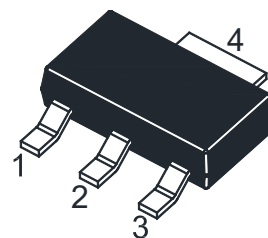


Samples

Please note: Please check the JINGAO Semiconductor website to verify the updated device numbers. The most current and up-to-date ordering information can be found at www.jg-semi.cn. Please email any questions regarding the system integration to JINGAO_questions@jgsemi.com.

Features

- Halogen and Antimony Free(HAF), RoHS compliant



1.Base 2.Collector 3.Emitter 4. Collector
SOT-223 Plastic Package

Absolute Maximum Ratings ($T_a = 25^{\circ}\text{C}$)

Parameter	Symbol	Value	Unit
Collector Base Voltage	$-V_{\text{CBO}}$	100	V
Collector Emitter Voltage	$-V_{\text{CEO}}$	80	V
Emitter Base Voltage	$-V_{\text{EBO}}$	5	V
Collector Current	$-I_{\text{C}}$	1	A
Peak Collector Current	$-I_{\text{CM}}$	1.5	A
Peak Base Current	$-I_{\text{BM}}$	0.2	A
Total Power Dissipation	P_{tot}	1.3	W
Junction Temperature	T_{j}	150	$^{\circ}\text{C}$
Storage Temperature Range	T_{stg}	- 65 to + 150	$^{\circ}\text{C}$

Thermal Characteristics

Parameter	Symbol	Max.	Unit
Thermal Resistance from Junction to Ambient ¹⁾	$R_{\theta\text{JA}}$	96	$^{\circ}\text{C/W}$

¹⁾ Device mounted on FR-4 substrate PC board, 2oz copper, with 1-inch square copper plate.

Characteristics at $T_a = 25^\circ\text{C}$

Parameter	Symbol	Min.	Typ.	Max.	Unit
DC Current Gain					
at $-V_{CE} = 2\text{ V}$, $-I_C = 5\text{ mA}$	h_{FE}	40	-	-	-
at $-V_{CE} = 2\text{ V}$, $-I_C = 500\text{ mA}$	h_{FE}	25	-	-	-
at $-V_{CE} = 2\text{ V}$, $-I_C = 150\text{ mA}$	h_{FE}	63	-	160	-
	h_{FE}	100	-	250	-
Collector Base Cutoff Current at $-V_{CB} = 30\text{ V}$	$-I_{CBO}$	-	-	100	nA
Emitter Base Cutoff Current at $-V_{EB} = 5\text{ V}$	$-I_{EBO}$	-	-	100	nA
Collector Base Breakdown Voltage at $-I_C = 100\text{ }\mu\text{A}$	$-V_{(BR)CBO}$	100	-	-	V
Collector Emitter Breakdown Voltage at $-I_C = 10\text{ mA}$	$-V_{(BR)CEO}$	80	-	-	V
Emitter Base Breakdown Voltage at $-I_E = 10\text{ }\mu\text{A}$	$-V_{(BR)EBO}$	5	-	-	V
Collector Emitter Saturation Voltage at $-I_C = 500\text{ mA}$, $-I_B = 50\text{ mA}$	$-V_{CE(sat)}$	-	-	0.5	V
Base Emitter Voltage at $-V_{CE} = 2\text{ V}$, $-I_C = 500\text{ mA}$	$-V_{BE(on)}$	-	-	1	V
Transition Frequency at $-V_{CE} = 10\text{ V}$, $-I_C = 50\text{ mA}$, $f = 100\text{ MHz}$	f_T	-	125	-	MHz

Electrical Characteristics Curves

Fig. 1 Output Characteristics Curve

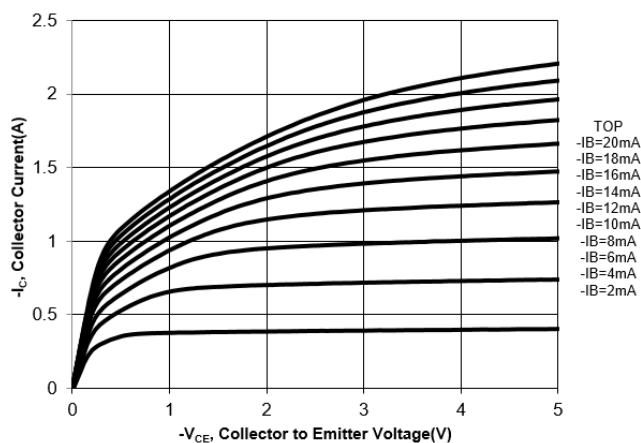


Fig. 2 Output Characteristics Curve

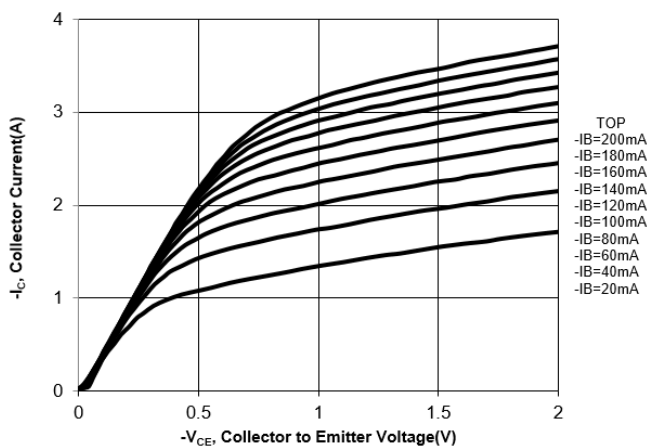


Fig. 3 Collector Current vs. Base to Emitter Voltage

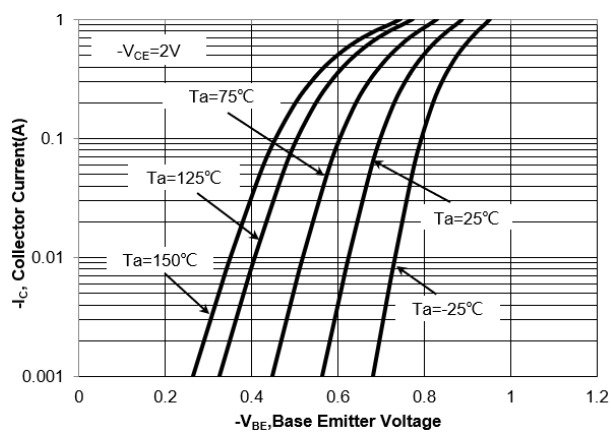
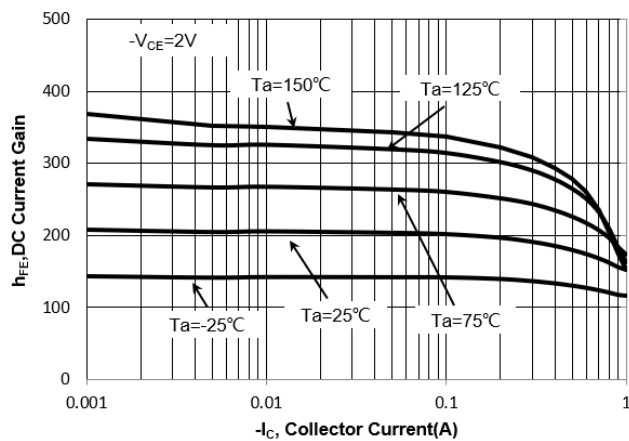


Fig. 4 h_{FE} , DC Current Gain vs. Collector Current



Electrical Characteristics Curves

Fig. 5 $V_{BE(SAT)}$ vs. Collector Current

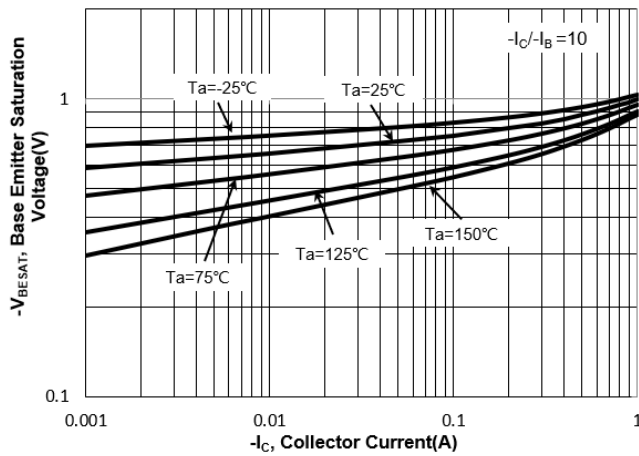


Fig. 6 $V_{CE(SAT)}$ vs. Collector Current

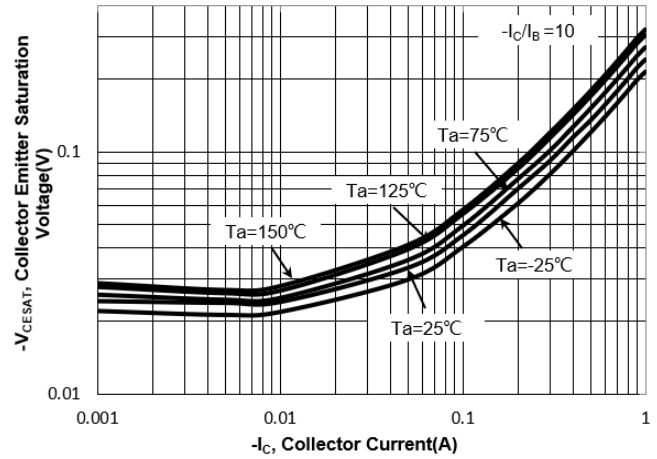


Fig. 7 Junction Capacitance

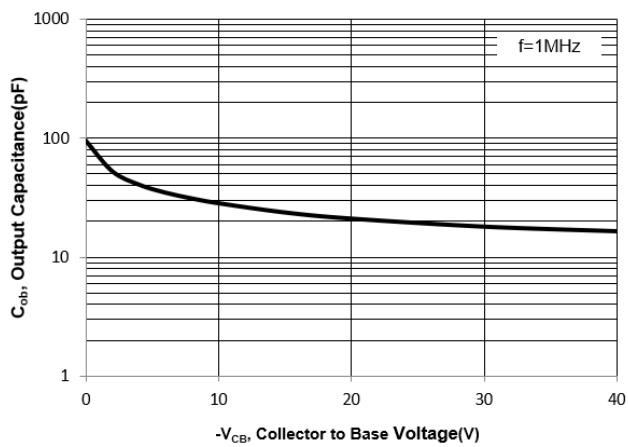
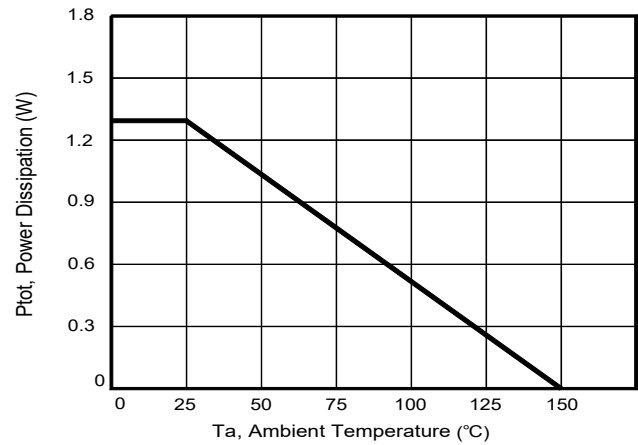
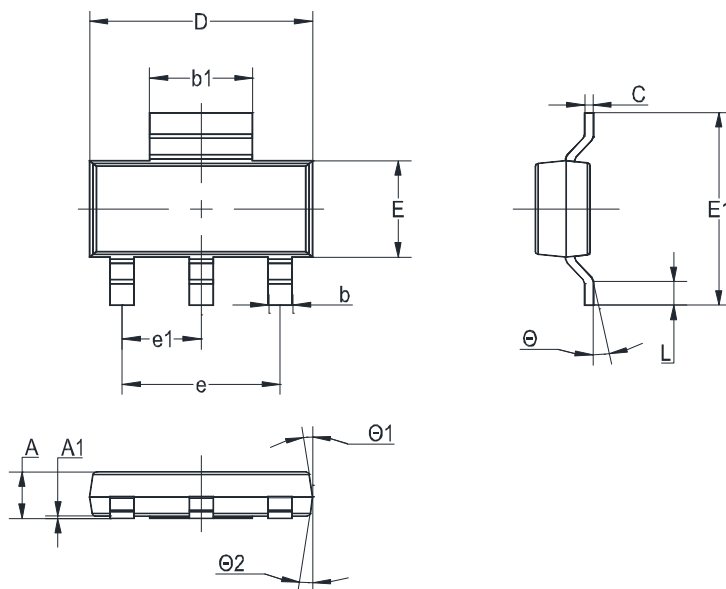


Fig. 8 Power Derating Curve



Package Outline (Dimensions in mm)
SOT-223


Unit	A	A1	b	b1	C	D	E	E1	e	e1	L	Θ	Θ1	Θ2
mm	1.8	0.1	0.8	3.1	0.32	6.7	3.7	7.3	4.6	2.3	1.1	10°	7°	7°
	1.5	MAX	0.6	2.9	0.22	6.3	3.3	6.7	TYP	TYP	0.7	0°	0°	0°

Attention

1, Any and all JGSEMI products described or contained herein do not have specifications that can handle applications that require extremely high levels of reliability, such as life-support systems, aircraft's control systems, or other applications whose failure can be reasonably expected to result in serious physical or material damage. Consult with your JGSEMI representative nearest you before using any JGSEMI products described or contained herein in such applications.

2, JGSEMI assumes no responsibility for equipment failures that result from using products at values that exceed, even momentarily, rated values (such as maximum ratings, operating condition ranges, or other parameters) listed in products specifications of any and all JGSEMI products described or contained herein.

3, Specifications of any and all JGSEMI products described or contained herein stipulate the performance, characteristics, and functions of the described products in the independent state, and are not guarantees of the performance, characteristics, and functions of the described products as mounted in the customer's products or equipment. To verify symptoms and states that cannot be evaluated in an independent device, the customer should always evaluate and test devices mounted in the customer's products or equipment.

4, In the event that any or all JGSEMI products (including technical data, services) described or contained herein are controlled under any of applicable local export control laws and regulations, such products must not be exported without obtaining the export license from the authorities concerned in accordance with the above law.

5, No part of this publication may be reproduced or transmitted in any form or by any means, electronic or mechanical, including photocopying and recording, or any information storage or retrieval system, or otherwise, without the prior written permission of JGSEMI Semiconductor CO., LTD.

6, Any and all information described or contained herein are subject to change without notice due to product technology improvement, etc. When designing equipment, refer to the "Delivery Specification" for the JGSEMI product that you intend to use.