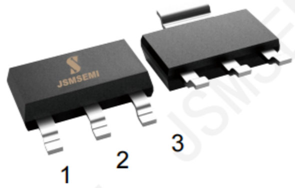
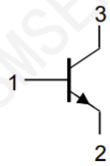
Features

- High collector current capability
- High collector current gain
- Improved efficiency due to reduced heat generation.
- Low collector-emitter saturation voltage VCEsat and corresponding low RCEsat





1. BASE
2. COLLECTOR
3. EMITTER

Absolute Maximum Ratings Ta = 25℃

Parameter		Symbol	Rating	Unit
Collector - Base Voltage		V_{CBO}	50	V
Collector - Emitter Voltage		V_{CEO}	50	
Emitter - Base Voltage		V_{EBO}	5	
Collector Current - Continuous		I_C	3	A
Repetitive Peak Collector Current	(Note.1)	I_{CRP}	3	
Collector Current - Pulse		I_{CP}	5	
Base Current		I_B	0.5	
Collector Power Dissipation	(Note.2)	P_C	300	mW
	(Note.3)		480	
	(Note.4)		540	
	(Note.1 and 2)		1.2	W
Thermal Resistance Junction to Ambient	(Note.2)	$R_{\theta JA}$	417	℃/W
	(Note.3)		260	
	(Note.4)		230	
	(Note.1 and 2)		104	
Junction Temperature		T_J	150	℃
Operating Ambient Temperature		T_{amb}	-65 to 150	
Storage Temperature Range		T_{stg}	-65 to 150	

Note.1: Operated under pulsed conditions: pulse width tp ≤ 100 ms; duty cycle δ ≤ 0.25.

Note.2: Device mounted on a printed-circuit board; single sided copper; tinplated; standard footprint.

Note.3: Device mounted on a printed-circuit board; single sided copper; tinplated; mounting pad for collector 1 cm^2.

Note.4: Device mounted on a printed-circuit board; single sided copper; tinplated; mounting pad for collector 6 cm^2.

Ordering Information

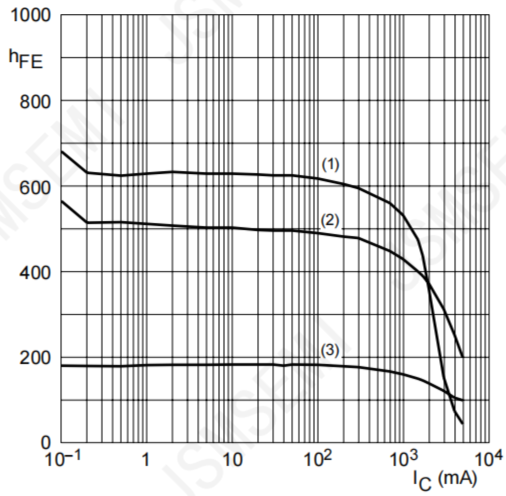
Order number	Package	Marking	Operation Temperature Range	MSL Grade	Ship, Quantity	Green
PBSS4350Z-JSM	SOT-223-3L	4350Z	-65 to150°C	3	T&R,4000	Rohs

Electrical Characteristics Ta = 25℃

Parameter	Symbol	Test Conditions	Min	Typ	Max	Unit
Collector- base breakdown voltage	V_{CBO}	I_C= 100 μA, I_E= 0	50			V
Collector- emitter breakdown voltage	V_{CEO}	I_C= 1 mA, I_B= 0	50			V
Emitter - base breakdown voltage	V_{EBO}	I_E= 100 μ A, I_C= 0	5			V
Collector-base cut-off current	I_{CBO}	V_{CB}= 50 V , I_E= 0			0.1	uA
		V_{CB}= 50 V , I_E= 0 ,T_J = 150℃			50	uA
Emitter cut-off current	I_{EBO}	V_{EB}= 5V , I_C=0			0.1	uA
Collector-emitter saturation voltage	$V_{CE(sat)}$	I_C=500 mA, I_B=50mA			80	mV
		I_C=1 A, I_B=50mA			160	mV
		I_C=2 A, I_B=100mA (Note.1)			280	mV
		I_C=2 A, I_B=200mA (Note.1)			260	mV
		I_C=3 A, I_B=300mA (Note.1)			370	mV
Base - emitter saturation voltage	$V_{BE(sat)}$	I_C=2 A, I_B=100mA (Note.1)			1.1	V
		I_C=3 A, I_B=300mA (Note.1)			1.2	V
Base - emitter turn on voltage	$V_{BE(on)}$	V_{CE}= 2V, I_C= 1 A (Note.1)			1.2	V
Equivalent on-resistance	$R_{CE(sat)}$	I_C=2 A, I_B=200mA (Note.1)			130	mΩ
DC current gain	h_{FE}	V_{CE}= 2V, I_C= 100mA	300			
		V_{CE}= 2V, I_C= 500mA	300			
		V_{CE}= 2V, I_C= 1 A (Note.1)	300			
		V_{CE}= 2V, I_C= 2 A (Note.1)	200			
		V_{CE}= 2V, I_C= 3 A (Note.1)	100			
Collector output capacitance	C_{ob}	V_{CB}= 10V, I_E=Ie=0,f=1MHz			25	pF
Transition frequency	f_T	V_{CE}= 5V, I_C= 100mA,f=100MHz	100			MHz

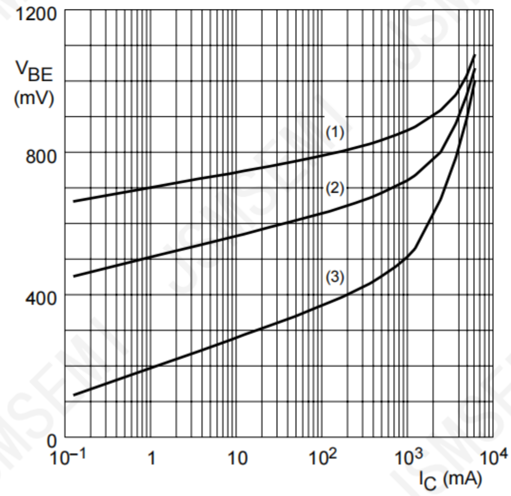
Note.1: Pulse test: tp ≤ 300 us; δ ≤ 0.02.

Typical Characterisitics



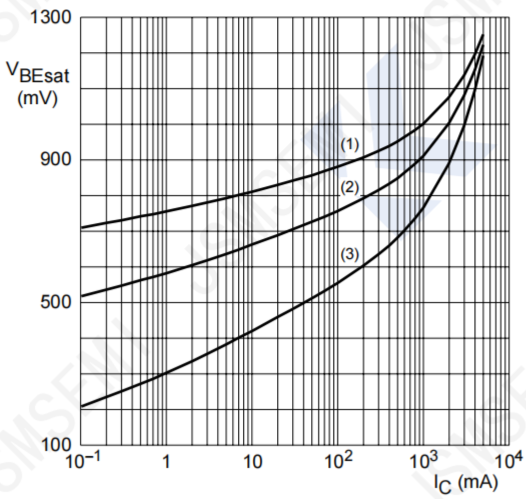
V_{CE} = 2 V.
(1) T_{amb} = 150 °C. (2) T_{amb} = 25 °C. (3) T_{amb} = −55 °C.

Fig.1 DC current gain as a function of collector current; typical values.



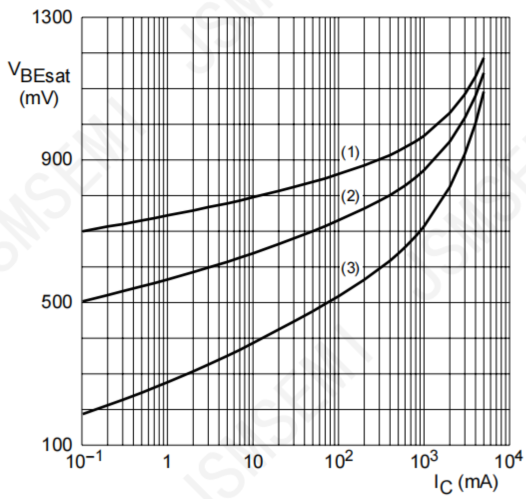
V_{CE} = 2 V.
(1) T_{amb} = −55 °C. (2) T_{amb} = 25 °C. (3) T_{amb} = 150 °C.

Fig.2 Base-emitter voltage as a function of collector current; typical values.



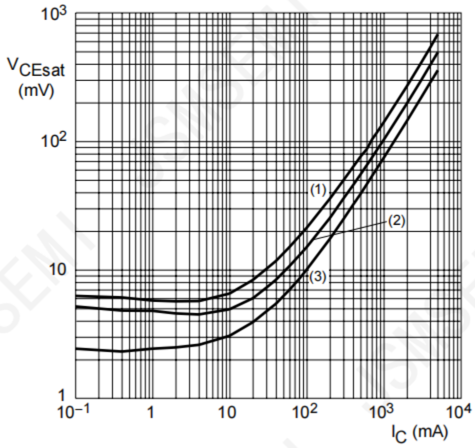
I_C/I_B = 10.
(1) T_{amb} = −55 °C. (2) T_{amb} = 25 °C. (3) T_{amb} = 150 °C.

Fig.3 Base-emitter saturation voltage as a function of collector current; typical values.



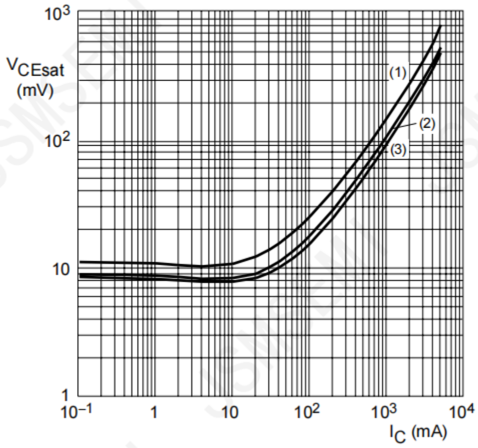
I_C/I_B = 20.
(1) T_{amb} = −55 °C. (2) T_{amb} = 25 °C. (3) T_{amb} = 150 °C.

Fig.4 Base-emitter saturation voltage as a function of collector current; typical values.



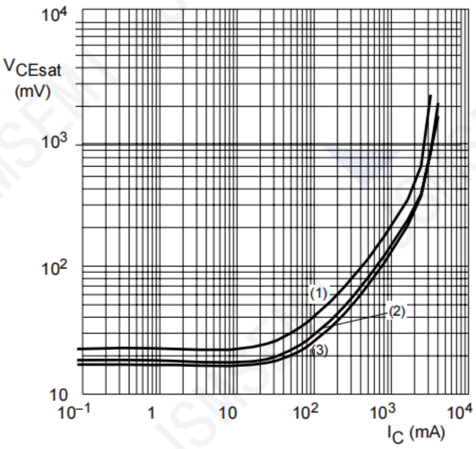
$I_C/I_B = 10$.
(1) $T_{amb} = 150$ °C. (2) $T_{amb} = 25$ °C. (3) $T_{amb} = -55$ °C.

Fig.5 Collector-emitter saturation voltage as a function of collector current; typical values.



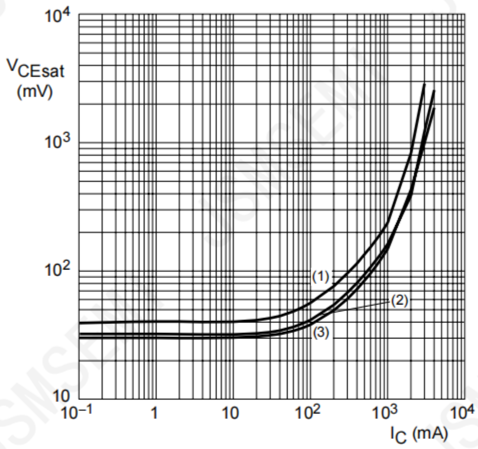
$I_C/I_B = 20$.
(1) $T_{amb} = 150$ °C. (2) $T_{amb} = 25$ °C. (3) $T_{amb} = -55$ °C.

Fig.6 Collector-emitter saturation voltage as a function of collector current; typical values.



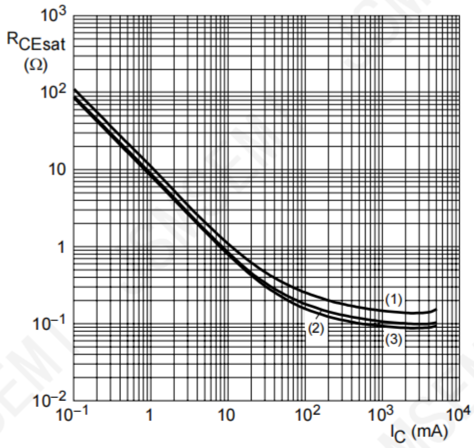
$I_C/I_B = 50$.
(1) $T_{amb} = 150$ °C. (2) $T_{amb} = 25$ °C. (3) $T_{amb} = -55$ °C.

Fig.7 Collector-emitter saturation voltage as a function of collector current; typical values.



$I_C/I_B = 100$.
(1) $T_{amb} = 150$ °C. (2) $T_{amb} = 25$ °C. (3) $T_{amb} = -55$ °C.

Fig.8 Collector-emitter saturation voltage as a function of collector current; typical values.

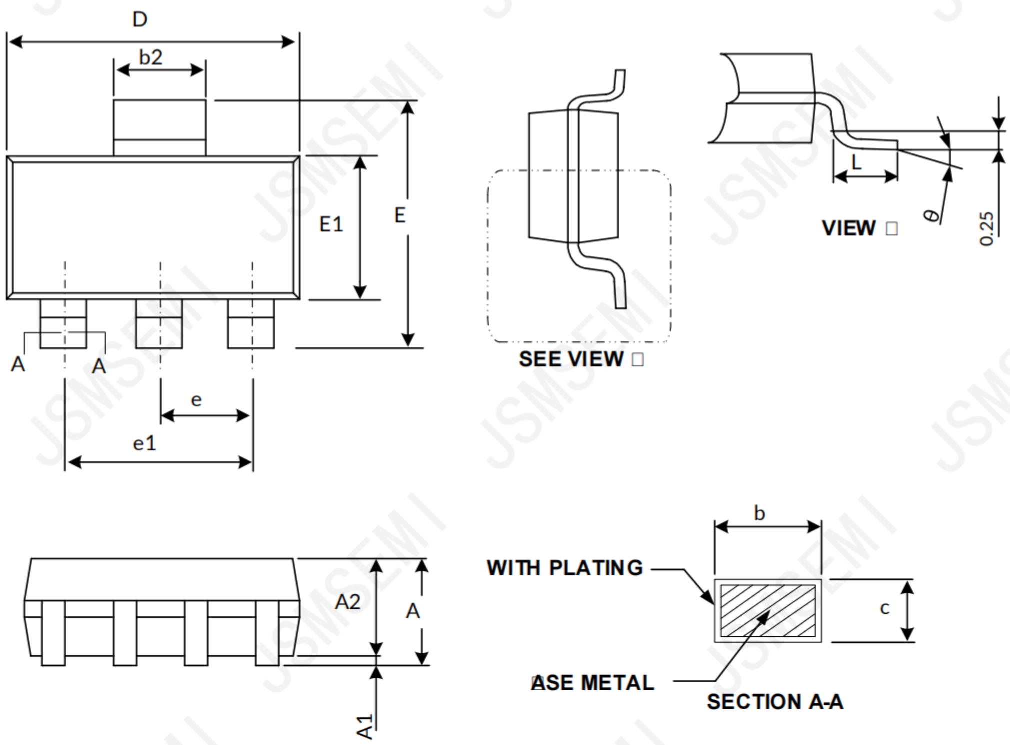


$I_C/I_B = 20$.
(1) $T_{amb} = 150$ °C. (2) $T_{amb} = 25$ °C. (3) $T_{amb} = -55$ °C.

Fig.10 Equivalent on-resistance as a function of collector current; typical values.

Package Information

SOT-223-3L



(Unit: mm)

Symbol	Dimensions In Millimeters		Dimensions In Inches	
	Min	Max	Min	Max
A	-	1.800	-	0.071
A1	0.02	0.10	0.001	0.004
A2	1.55	1.65	0.061	0.065
b	0.66	0.84	0.026	0.033
b2	2.90	3.10	0.114	0.122
c	0.23	0.33	0.009	0.013
D	6.30	6.70	0.248	0.263
E	6.70	7.30	0.263	0.287
E1	3.30	3.70	0.130	0.145
e	2.30 BSC		0.090 BSC	
e1	4.60 BSC		0.181 BSC	
L	0.90	-	0.035	-

Revision History

Rev.	Change	Date
V1.0	Initial version	2/23/2024
V1.1	Add Volume Diagram and Marking	7/26/2025

Important Notice

JSMSEMI Semiconductor (JSMSEMI) PRODUCTS ARE NEITHER DESIGNED NOR INTENDED FOR USE IN MILITARY AND/OR AEROSPACE, AUTOMOTIVE OR MEDICAL DEVICES OR SYSTEMS UNLESS THE SPECIFIC JSMSEMI PRODUCTS ARE SPECIFICALLY DESIGNATED BY JSMSEMI FOR SUCH USE. BUYERS ACKNOWLEDGE AND AGREE THAT ANY SUCH USE OF JSMSEMI PRODUCTS WHICH JSMSEMI HAS NOT DESIGNATED FOR USE IN MILITARY AND/OR AEROSPACE, AUTOMOTIVE OR MEDICAL DEVICES OR SYSTEMS IS SOLELY AT THE BUYER' S RISK.

JSMSEMI assumes no liability for application assistance or customer product design. Customers are responsible for their products and applications using JSMSEMI products.

Resale of JSMSEMI products or services with statements diferent from or beyond the parameters stated by JSMSEMI for that product or service voids all express and any implied warranties for the associated JSMSEMI product or s ervice. JSMSEMI is not responsible or liable for any such statements.

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 JSMSEMI product that you intend to use.

For additional information please contact Kevin@ jsmsemi.com or visit www.jsmsemi.com