

FrelTec

Mathildenstr. 10A
82319 Starnberg
Germany

Transistor Diode
SOT223

4/8/2025

© FrelTec GmbH

Please read cautions and warnings and important notes at the end of this document.

1/9

www.freltec.com

SOT223

SPECIFICATION

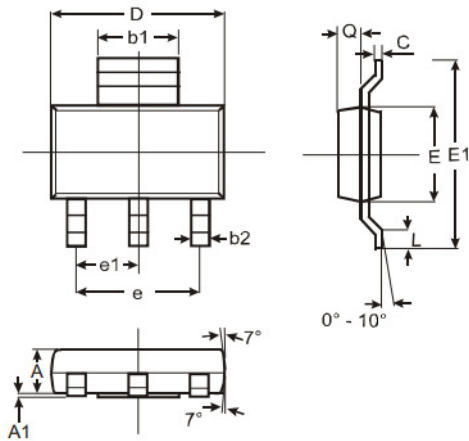
67A	BCP5__xx	ST22	E0Y
Type	Type	Package	Packing
67A: Transistor Diode	BCP51xxxx: BCP51	ST22: SOT223	E0Y: Embossed tape and reel for 2500 pc (13'REEL)
	BCP51-10xx: BCP51-10		
	BCP51-16xx: BCP51-16		
	BCP52xxxx: BCP52		
	BCP52-10xx: BCP52-10		
	BCP52-16xx: BCP52-16		
	BCP53xxxx: BCP53		
	BCP53-10xx: BCP53-10		
	BCP53-16xx: BCP53-16		

All products according to RoHS (2015/863/EU)

SOT223

FrelTec Transistor Diode

PACKAGE OUTLINE



SOT223			
Dim	M	Max	Typ
A	1.55	1.65	1.60
A1	0.010	0.15	0.05
b1	2.90	3.10	3.00
b2	0.60	0.80	0.70
C	0.20	0.30	0.25
D	6.45	6.55	6.50
E	3.45	3.55	3.50
E1	6.90	7.10	7.00
e	—	—	4.60
e1	—	—	2.30
L	0.85	1.05	0.95
Q	0.84	0.94	0.89
All Dimensions in mm			

4/8/2025

© FrelTec® GmbH

Please read cautions and warnings and important notes at the end of this document.

3/9

www.freltec.com

SOT223

Transistor Diode

Absolute Maximum Ratings TA = 25°C unless otherwise noted

Maximum Ratings & Thermal Characteristics (Ratings at 25°C ambient temperature unless otherwise specified.)

Parameters	Symbol		Value	Unit
Collector-Base Voltage	V _{CB0}	BCP51 BCP52 BCP53	-45 -60 -10	V
Collector-Emitter Voltage	V _{CEO}	BCP51 BCP52 BCP53	-45 -60 -80	V
Emitter -Base Voltage	V _{EBO}		-5	V
Collector Current-Continuous	I _C		-1,0	A
Collector Power Dissipation	P _C		500	mW
Junction Temperature	T _j		150	°C
Storage Temperature	T _{stg}		-55-+150	°C
Thermal resistance From junction to ambient	R _{θJA}		250	°C/W

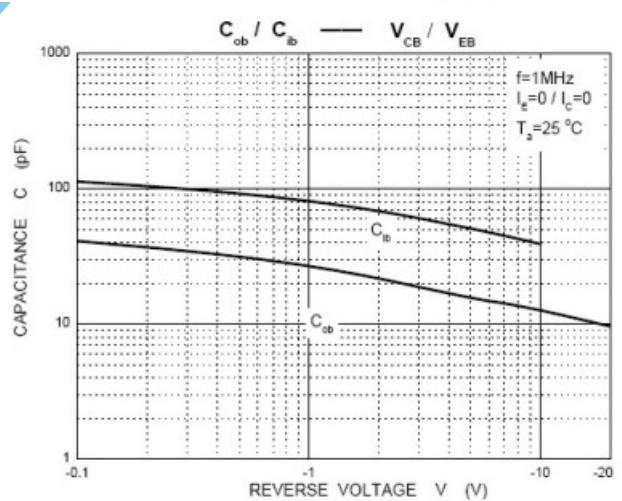
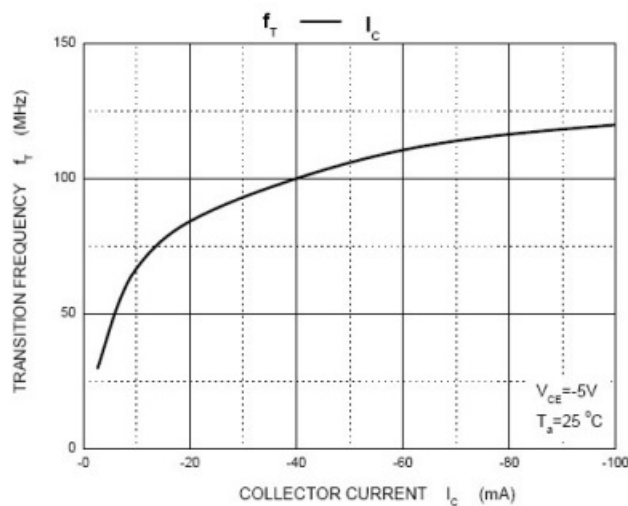
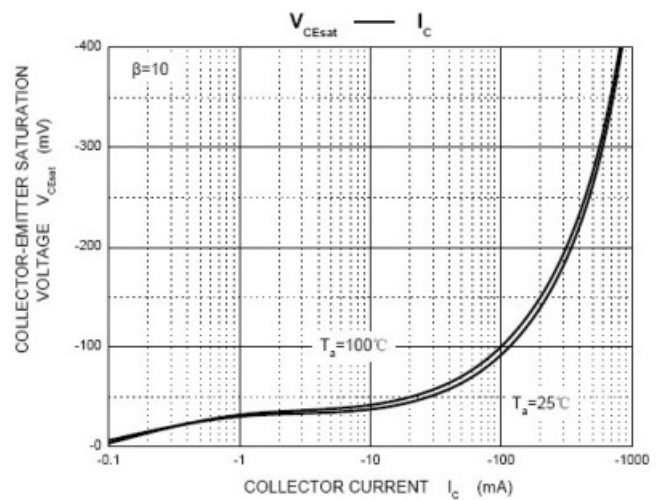
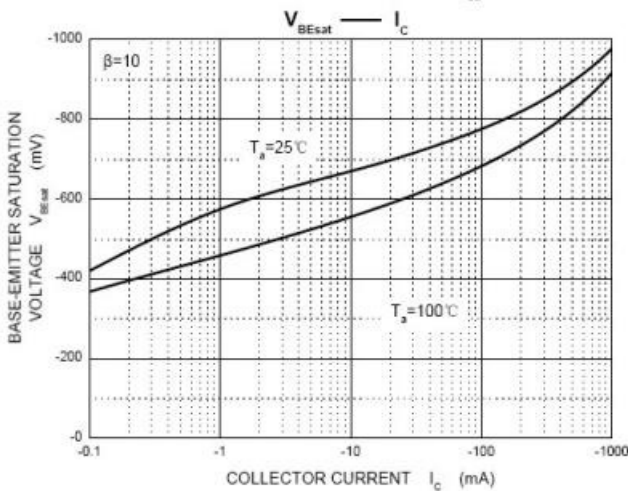
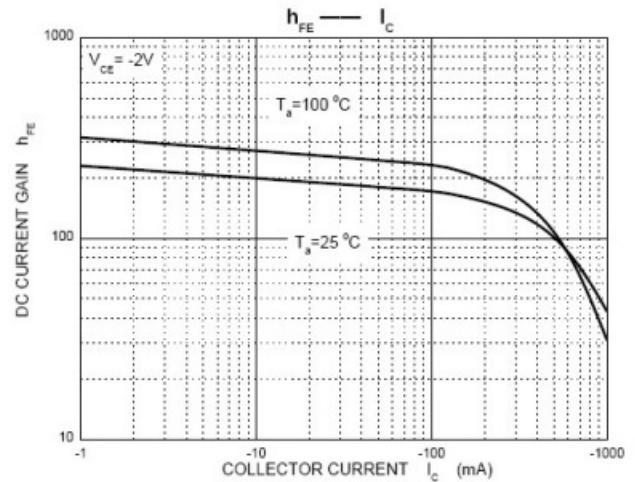
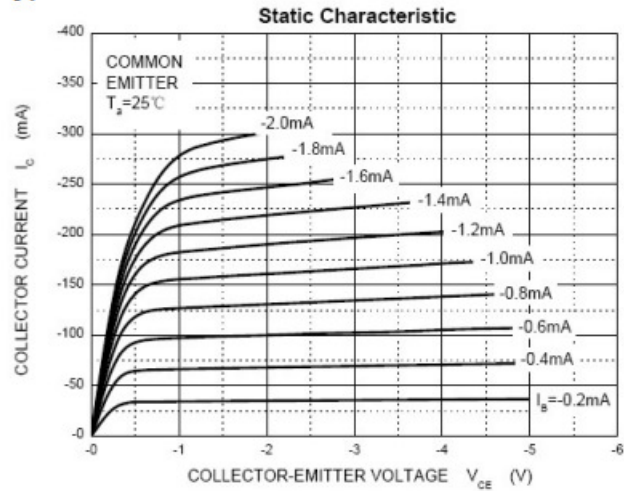
Electrical Characteristics (Ratings at 25°C ambient temperature unless otherwise specified).

Parameter	Symbols	Test Condition	Limits			Unit
			Min	Typ	Max	
Collector-base breakdown voltage	V(BR)CBO	I _C =-10μA, I _E =0 BCP51 BCP52 BCP53	-45 -60 -100			V
Collector-emitter breakdown voltage	V(BR)CEO	I _C =-10mA, I _B =0 BCP51 BCP52 BCP53	-45 -60 -80			V
Emitter-base breakdown voltage	V(BR)EBO	I _E =10μA, I _C =0	-5			V
Collector cut-off current	I _{CBO}	V _{CB} =-30V, I _E =0			-100	nA
Emitter cut-off current	I _{EBO}	V _{EB} =-5V, I _C =0			-100	nA
DC current gain	h _{FE} (1)	V _{CE} =-5V, I _C =-2mA	63			
	h _{FE} (2)	V _{CE} =-2V, I _C =-150mA	63		250	
	h _{FE} (3)	V _{CE} =-2V, I _C =-500mA	25			
Collector-emitter saturation voltage	V _{CE(sat)}	I _C =-500mA, I _B =-50mA			-0,50	V
Base -emitter saturation voltage	V _{BE}	V _{CE} =-2V, I _C =-500mA			-1,0	V
Transition frequency	f _T	V _{CE} =-5V, I _C =-10mA, f=100MHz		50		MHz

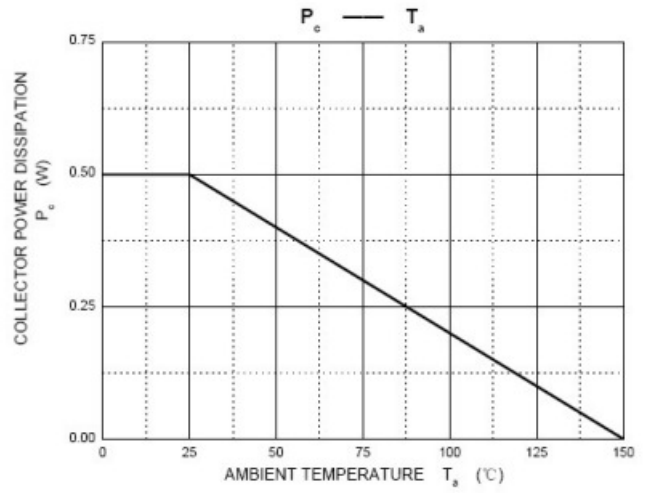
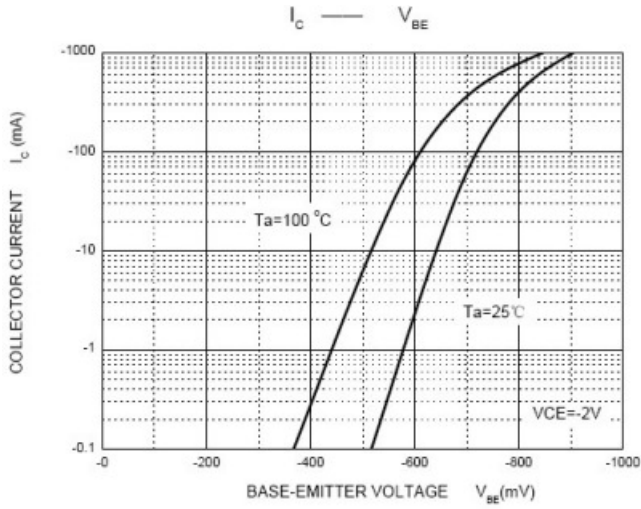
CLASSIFICATION OF h_{FE}(2)

Rank	BCP51 BCP52 BCP53	BCP51-10 BCP52-10 BCP53-10	BCP51-16 BCP52-16 BCP53-16
Range	63-250	63-160	100-250

Typical characteristics



SOT223



FrelTec

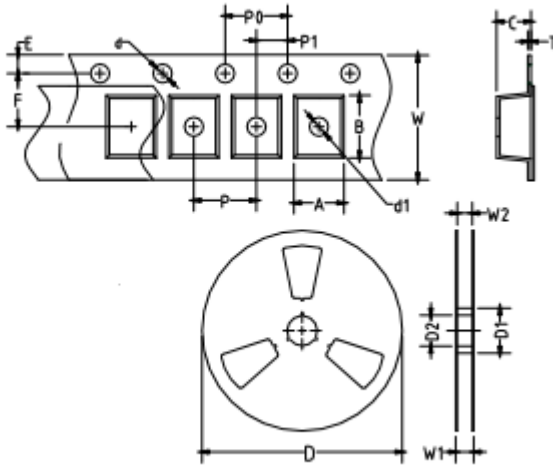
SOT223

Packag Information

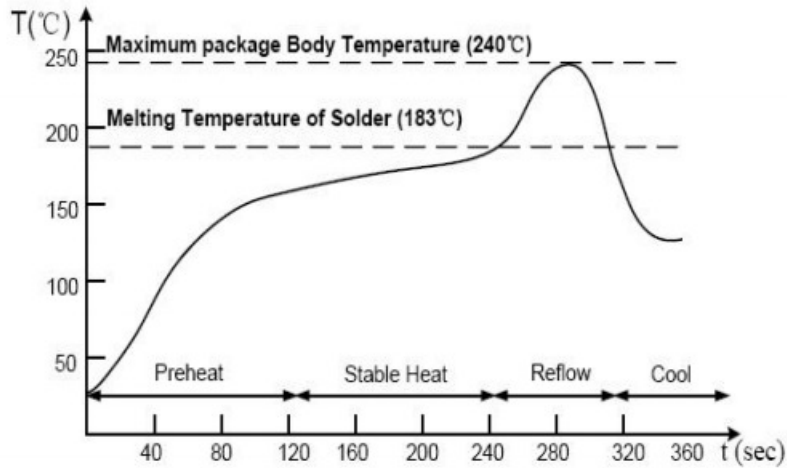
FrelTec

Transistor Diode

Size (Unit:mm)



Item	Symbol	SMC
Carrier width	A	6.00±0.10
Carrier length	B	8.31±0.10
Carrier depth	C	2.54±0.10
Sprocket hole	d	1.50±0.10
Carrier hole	d1	1.50±0.10
Reel outside diameter	D	330.0±1.0
Reel inner diameter	D1	75±1.0
Feed hole diameter	D2	13.5±1.0
Sprocket hole position	E	1.75±0.10
Punch hole position	F	7.50±0.10
Punch hole pitch	P	8.00±0.10
Sprocket hole pitch	P0	4.00±0.10
Embossment center	P1	2.00±0.10
Total tape thickness	T	0.25±0.10
Tape width	W	16.10±0.30
Reel width	W1	22.7±1.5
Reel width	W2	18.1±1.0

Suggested Soldering Temperature Profile**Note**

- Recommended reflow methods: IR, vapor phase oven, hot air oven, wave solder.
- The device can be exposed to a maximum temperature of 265°C for 10 seconds.
- Devices can be cleaned using standard industry methods and solvents.
- If reflow temperatures exceed the recommended profile, devices may not meet the performance requirements.

FrelTec

Stock period

The performance of these products, including the solderability, is guaranteed for 12 month, provided that they remain packed as they were when delivered and stored at a temperature of $25^{\circ}\text{C} \pm 3^{\circ}\text{C}$ and a relative humidity less than 80%RH

Published by FrelTec® GmbH
Mathildenstr. 10A; 82319 Starnberg; Germany
© 2025 FrelTec® GmbH. All Rights Reserved.

The following applies to all products named in this publication:

1. The information describes the type of component and shall not be considered as assured characteristics.
2. Terms of delivery and rights to change design reserved.
3. Some parts of this publication contain statements about the suitability of our products for certain areas of application. These statements are based on our knowledge of typical requirements that are often placed on our products in the areas of application concerned. Nevertheless, we explicitly point out that such statements cannot be regarded as binding statements about the suitability of our products for a particular customer application. As a rule, FrelTec® is either unfamiliar with individual customer applications or less familiar with them than the customers themselves. For these reasons, it is always ultimately incumbent on the customer to check and decide whether a FrelTec® product with the properties described in the product specification is suitable for use in a particular customer application.
4. We also point out that in individual cases, a malfunction of electronic components or failure before the end of their usual service life cannot be completely ruled out in the current state of the art, even if they are operated as specified. In customer applications requiring a very high level of operational safety and especially in customer applications in which the malfunction or failure of an electronic component could endanger human life or health (e.g. in accident prevention or life-saving systems), it must therefore be ensured by means of suitable design of the customer application or other action taken by the customer (e.g. installation of protective circuitry or redundancy) that no injury or damage is sustained by third parties in the event of malfunction or failure of an electronic component.
5. The warnings, cautions and product-specific notes must be observed.
6. In order to satisfy certain technical requirements, some of the products described in this publication may contain substances subject to restrictions in certain jurisdictions (e.g. because they are classed as "hazardous"). Useful information on this will be found in our Material Data Sheets. Should you have any more detailed questions, please contact our sales offices.
7. We constantly strive to improve our products. Consequently, the products described in this publication may change from time to time. The same is true for the corresponding product specifications. Please check therefore to what extent product descriptions and specifications contained in this publication are still applicable before or when you place an order. We also reserve the right to discontinue production and delivery of products. Consequently, we cannot guarantee that all products named in this publication will always be available.
8. Unless otherwise agreed in individual contracts, all orders are subject to the current version of the "General conditions for the supply of products and services of the electrical and electronics industry" published by the German Electrical and Electronics Industry Association (ZVEI), available at www.freltec.com.
9. As far as patents or other rights of third parties are concerned, liability is only assumed for components per se, not for applications, processes and circuits implemented within components or assemblies.
10. The trade name FrelTec® is a trademark registered or pending in Europe and in other countries.

4/8/2025

© FrelTec® GmbH

Please read cautions and warnings and important notes at the end of this document.

9/9

www.freltec.com