BR211 series

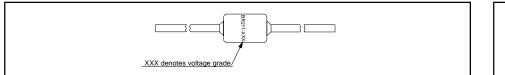
GENERAL DESCRIPTION

A range of bidirectional, breakover diodes in an axial, hermetically sealed, glass envelope. These devices feature controlled breakover voltage and high holding current together with high peak current handling capability. Typical applications include transient overvoltage protection in telecommunications equipment.

QUICK REFERENCE DATA

SYMBOL	PARAMETER	MIN.	MAX.	UNIT
V _(BO) I _H I _{TSM}	BR211-140 to 280 Breakover voltage Holding current Non-repetitive peak current	140 150 -	280 - 40	V mA A

OUTLINE - SOD84

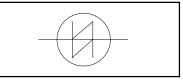


LIMITING VALUES

Limiting values in accordance with the Absolute Maximum System (IEC 134).

SYMBOL	PARAMETER	CONDITIONS	MIN.	MAX.	UNIT
V _D	Continuous voltage		-	75% of	V
I _{TSM1}	Non repetitive peak current	10/320 μs impulse equivalent to 10/700 μs, 1.6 kV voltage impulse (CCITT K17)	-	V _{(BO)typ} 40	А
I _{TSM2}	Non repetitive on-state current	half sine wave; t = 10 ms; $T_i = 70 \degree$ C prior to surge	-	15	A
l ² t	I ² t for fusing	$t_p = 10 \text{ ms}$	-	1.1	A ² s
dl _T /dt	Rate of rise of on-state current after V _(BO) turn-on	$t_p^p = 10 \ \mu s$	-	50	A/μs
P _{tot}	Continuous dissipation	$T_a = 25^{\circ}C$ $t_o = 1 \text{ ms; } T_a = 25^{\circ}C$	-	1.2	W
P _{TM}	Peak dissipation	$t_p = 1 \text{ ms}; T_a = 25^{\circ}\text{C}$	-	50	W
T _{stg}	Storage temperature		-65	150	°C
T _a T _a T _{vj}	Operating ambient temperature Overload junction temperature	off-state on-state	-	70 150	Ĵ Ĵ

SYMBOL



BR211 series

THERMAL RESISTANCES

SYMBOL	PARAMETER	CONDITIONS	MIN.	TYP.	MAX.	UNIT
R_{thj-e}	Thermal resistance junction to envelope		-	22	-	K/W
R _{th j-a}	Thermal resistance junction to ambient	mounted as fig:12	-	105		K/W
Z _{th j-a}	Thermal impedance junction to ambient	$t_p = 1 ms$	-	2.62	-	K/W
R _{th e-tp}	Thermal resistance envelope to	lead length = 5 mm	-	15	-	K/W
	tie point	lead length = 10 mm	-	30	-	K/W
R _{th e-a}	Thermal resistance envelope to	lead length = 5 mm	-	440	-	K/W
	ambient	lead length = 10 mm	-	350	-	K/W
R _{th tp-a}	Thermal resistance tie point to	mounted as fig:12	-	70	-	K/W
	ambient	mounted with 1 cm ² copper	-	55	-	K/W
		laminate per lead. mounted with 2.25 cm2 copper laminate per lead	-	45	-	K/W

STATIC CHARACTERISTICS

 $T_i = 25$ °C unless otherwise stated

SYMBOL	PARAMETER	CONDITIONS	MIN.	TYP.	MAX.	UNIT
V _{TM} ¹ V _(BR)	On-state voltage Avalanche voltage (min) Breakover voltage (max)	$I_{TM} = 2 A$ $I_{(BR)} = 10_{mA}$ $I \le I_S, t_p = 100 \ \mu s$	-	-	2.5	V
V _(BO)		BR211-140 BR211-160	123 140	140 160	157 180	V V V
		BR211-180 BR211-200 BR211-220	158 176 193	180 200 220	202 224 247	V V
		BR211-240 BR211-260 BR211-280	211 228 246	240 260 280	269 292 314	V V V
	T		-			V V
S _(br) I _H ²	Temperature coefficient of V _(BR) Holding current	$T_j = 25^{\circ}C$ $T_i = 70^{\circ}C$	- 150 100	+0.1	-	%/K mA mA
I _{S4} I _D	Switching current Off-state current	$V_{D} = 85\% V_{(BR)min}, T_{j} = 70^{\circ}C$	10	200 -	1000 10	mA μA

¹ Measured under pulsed conditions to avoid excessive dissipation

² The minimum current at which the diode will remain in the on-state

³ The avalanche current required to switch the diode to the on-state

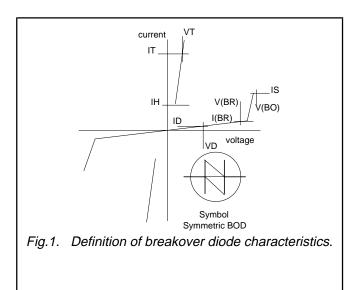
⁴ Measured at maximum recommended continuous voltage. Illuminance \leq 500 lux (daylight); relative humidity < 65%.

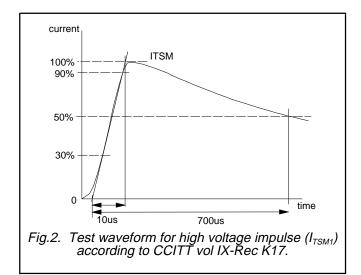
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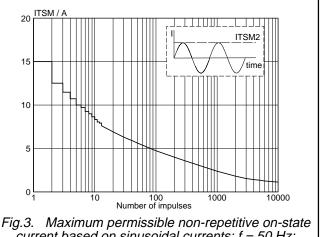
DYNAMIC CHARACTERISTICS

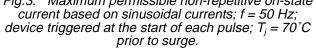
 $T_i = 25$ °C unless otherwise stated

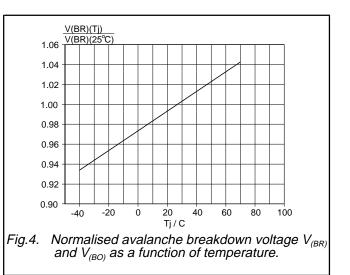
SYMBOL	PARAMETER	CONDITIONS	MIN.	TYP.	MAX.	UNIT
	Linear rate of rise of off-state voltage that will not trigger any device	$V_{(DM)} = 85\% V_{(BR)min}; T_j = 70 \ ^{\circ}C$	-	-	2000	V/µs
C _j	Off-state capacitance	$V_{D} = 0$ V; f = 1 kHz to 1 MHz	-	-	100	pF





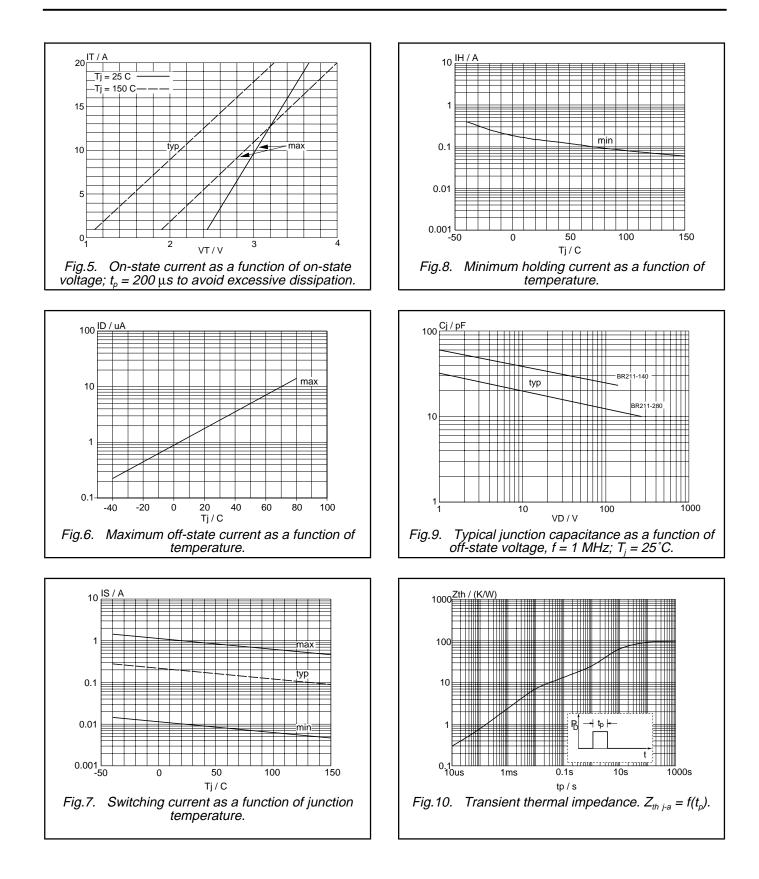




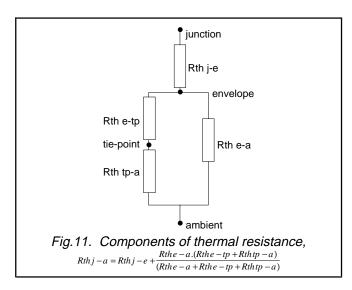


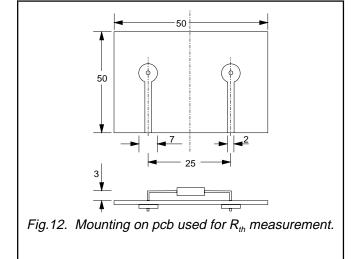
August 1996

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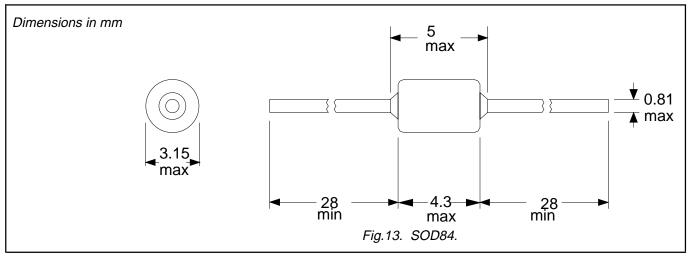
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BR211 series

MECHANICAL DATA



BR211 series

DEFINITIONS

Data sheet status				
Objective specification This data sheet contains target or goal specifications for product development.				
Preliminary specification	This data sheet contains preliminary data; supplementary data may be published later.			
Product specification	This data sheet contains final product specifications.			
Limiting values				
Limiting values are given in accordance with the Absolute Maximum Rating System (IEC 134). Stress above one or more of the limiting values may cause permanent damage to the device. These are stress ratings only and operation of the device at these or at any other conditions above those given in the Characteristics sections of this specification is not implied. Exposure to limiting values for extended periods may affect device reliability.				
Application information				
Where application information is given, it is advisory and does not form part of the specification.				
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