Standard Recovery Diodes
Generation 2 DO-5 (Stud Version), 95 A

95PF(R)...

DO-203AB (DO-5)

95PF(R)...W

DO-203AB (DO-5)

FEATURES

- High surge current capability
- Designed for a wide range of applications
- Stud cathode and stud anode version
- Wire version available
- Low thermal resistance
- UL approval pending
- Compliant to RoHS directive 2002/95/EC
- Designed and qualified for multiple level

RoHS COMPLIANT

TYPICAL APPLICATIONS

- Battery charges
- Converters
- Power supplies
- Machine tool controls
- Welding

PRODUCT SUMMARY	
$I_{F(AV)}$	95 A

MAJOR RATINGS AND CHARACTERISTICS			
PARAMETER	TEST CONDITIONS	VALUES	UNITS
$I_{F(AV)}$		95	A
	T_C	140	°C
$I_{F(RMS)}$		149	A
I_{FSM}	50 Hz	2000	A
	60 Hz	2090	
I^2t	50 Hz	20 000	A^2s
	60 Hz	18 180	
V_{RRM}	Range	400 to 1200	V
T_J		- 55 to 180	°C

ELECTRICAL SPECIFICATIONS

VOLTAGE RATINGS				
TYPE NUMBER	VOLTAGE CODE	V_{RRM}, MAXIMUM REPETITIVE PEAK REVERSE VOLTAGE V	V_{RSM}, MAXIMUM NON-REPETITIVE PEAK REVERSE VOLTAGE V	I_{RRM} MAXIMUM AT T_J = 150 °C mA
95PF(R)...(W)	40	400	500	9
	80	800	960	
	120	1200	1440	

FORWARD CONDUCTION						
PARAMETER	**SYMBOL**	**TEST CONDITIONS**			**VALUES**	**UNITS**
Maximum average forward current at case temperature	$I_{F(AV)}$	180° conduction, half sine wave			95	A
					140	°C
Maximum RMS forward current	$I_{F(RMS)}$				149	A
Maximum peak, one cycle forward, non-repetitive surge current	I_{FSM}	t = 10 ms	No voltage reapplied	Sinusoidal half wave, initial T_J = 150 °C	2000	A
		t = 8.3 ms			2090	
		t = 10 ms	100 % V_{RRM} reapplied		1680	
		t = 8.3 ms			1760	
Maximum I^2t for fusing	I^2t	t = 10 ms	No voltage reapplied		20 000	A^2s
		t = 8.3 ms			18 180	
		t = 10 ms	100 % V_{RRM} reapplied		14 100	
		t = 8.3 ms			12 800	
Maximum $I^2\sqrt{t}$ for fusing	$I^2\sqrt{t}$	t = 0.1 ms to 10 ms, no voltage reapplied			200 000	$A^2\sqrt{s}$
Low level value of threshold voltage	$V_{F(TO)}$	(16.7 % x π x $I_{F(AV)}$ < I < π x $I_{F(AV)}$), T_J = T_J maximum			0.73	V
Low level value of forward slope resistance	r_f	(16.7 % x π x $I_{F(AV)}$ < I < π x $I_{F(AV)}$), T_J = T_J maximum			2.4	mΩ
Maximum forward voltage drop	V_{FM}	I_{pk} = 267 A, T_J = 25 °C, t_p = 400 µs rectangular wave			1.40	V

THERMAL AND MECHANICAL SPECIFICATIONS				
PARAMETER	**SYMBOL**	**TEST CONDITIONS**	**VALUES**	**UNITS**
Maximum junction and storage temperature range	T_J, T_{Stg}		- 55 to 180	°C
Maximum thermal resistance, junction to case	R_{thJC}	DC operation	0.27	K/W
Thermal resistance, case to heatsink	R_{thCS}	Mounting surface, smooth, flat and greased	0.25	
Maximum allowable mounting torque (+ 0 %, - 10 %)		Not lubricated thread, tighting on nut (1)	3.4 (30)	N · m (lbf · in)
		Lubricated thread, tighting on nut (1)	2.3 (20)	
		Not lubricated thread, tighting on hexagon (2)	4.2 (37)	
		Lubricated thread, tighting on hexagon (2)	3.2 (28)	
Approximate weight			15.8	g
			0.56	oz.
Case style		See dimensions - link at the end of datasheet	DO-203AB (DO-5)	

Notes

(1) Recommended for pass-through holes

(2) Torque must be appliable only to hexagon and not to plastic structure, recommended for holed heatsink

ΔR_{thJC} CONDUCTION				
CONDUCTION ANGLE	SINUSOIDAL CONDUCTION	RECTANGULAR CONDUCTION	TEST CONDITIONS	UNITS
180°	0.14	0.10	$T_J = T_J$ maximum	K/W
120°	0.16	0.17		
90°	0.21	0.22		
60°	0.30	0.31		
30°	0.50	0.50		

Note

- The table above shows the increment of thermal resistance R_{thJC} when devices operate at different conduction angles than DC

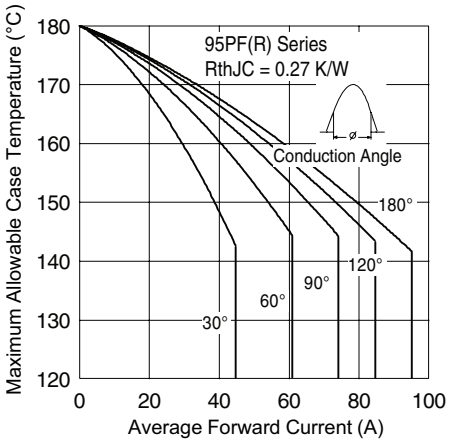


Fig. 1 - Current Ratings Characteristics

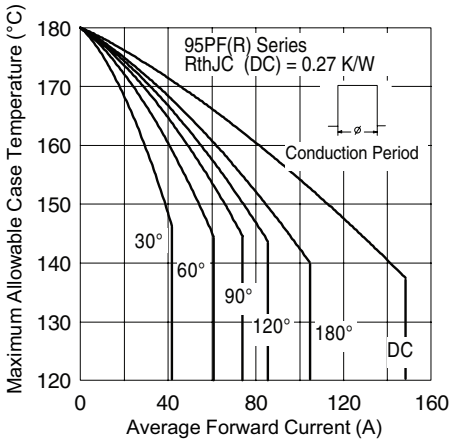


Fig. 2 - Current Ratings Characteristics

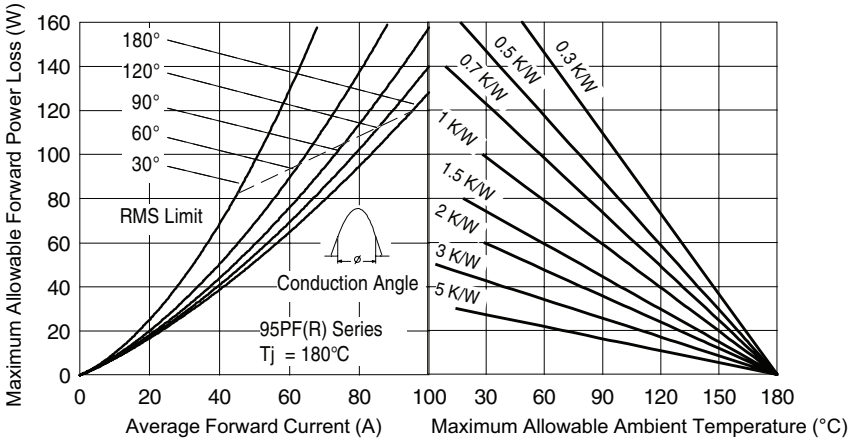


Fig. 3 - Forward Power Loss Characteristics

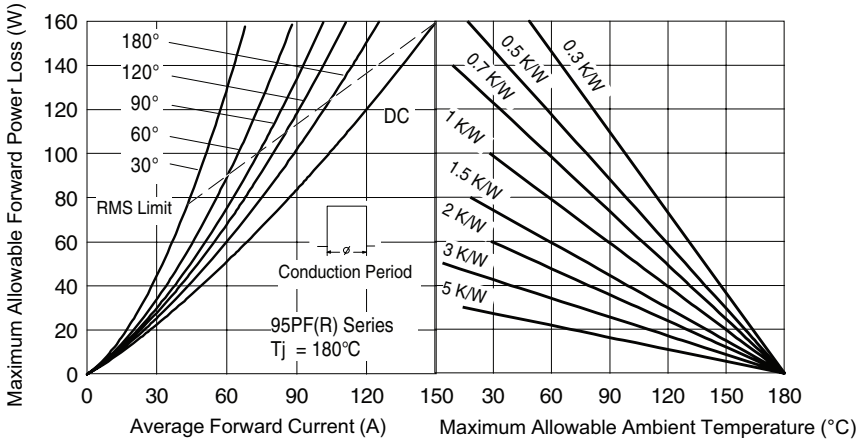


Fig. 4 - Forward Power Loss Characteristics

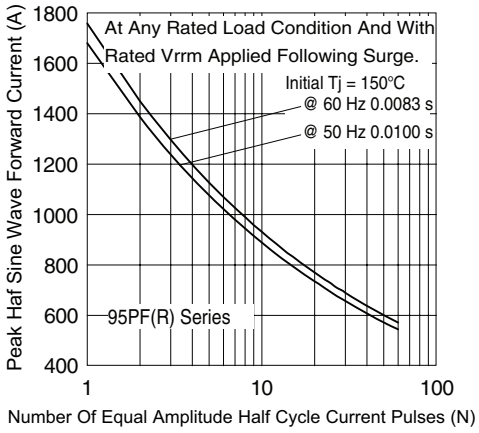


Fig. 5 - Maximum Non-Repetitive Surge Current

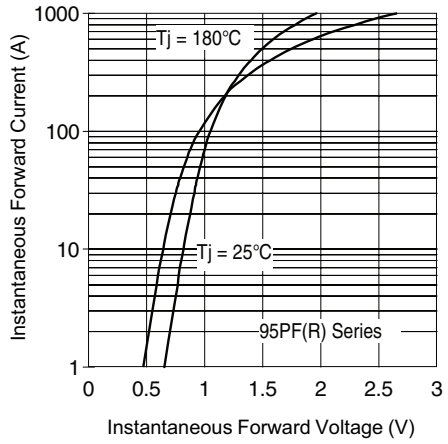


Fig. 7 - Forward Voltage Drop Characteristics

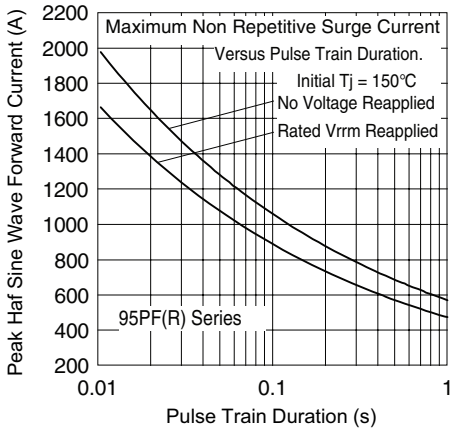


Fig. 6 - Maximum Non-Repetitive Surge Current

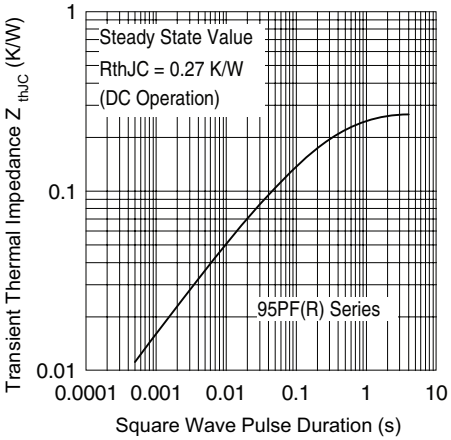


Fig. 8 - Thermal Impedance Z_{thJC} Characteristics

ORDERING INFORMATION TABLE

Device code

95	PF	R	120	W
1	2	3	4	5

1 -
- 95 = Standard device
- 97 = Isolated lead on standard terminal
  with silicone sleeve available for 1200 V only
  (red = Reverse polarity)
  (blue = Normal polarity)

2 - PF = Plastic package

3 -
- None = Stud normal polarity (cathode to stud)
- R = Stud reverse polarity (anode to stud)

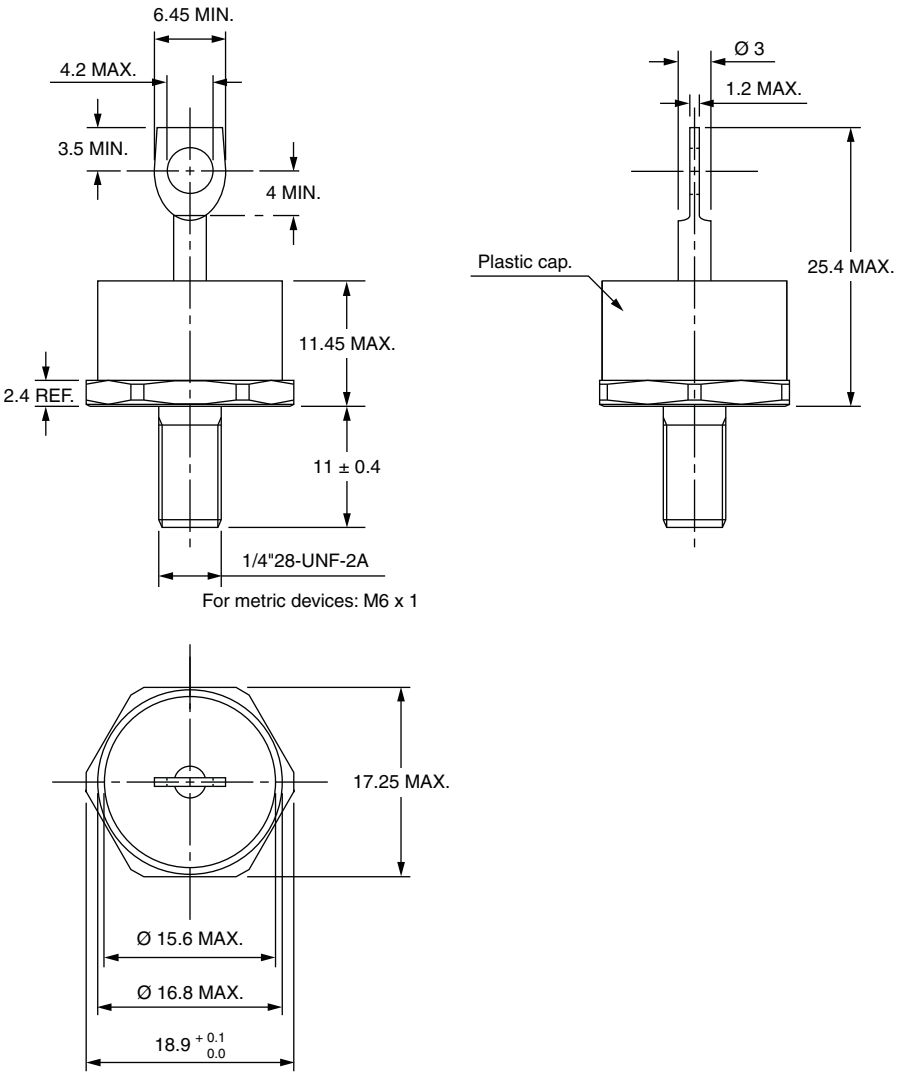
4 - Voltage code x 10 = V_{RRM} (see Voltage Ratings table)

5 -
- None = Standard terminal
  (see dimensions for 95PF(R)... - link at the end of datasheet)
- W = Wire terminal
  (see dimensions for 95PF(R)...W - link at the end of datasheet)

LINKS TO RELATED DOCUMENTS	
Dimensions	www.vishay.com/doc?95345

DO-203AB (DO-5) for 50PF(R)...(W), 80PF(R)...(W) and 95PF(R)...(W) Series

DIMENSIONS FOR 80PF(R), 50PF(R) AND 95PF(R) SERIES in millimeters



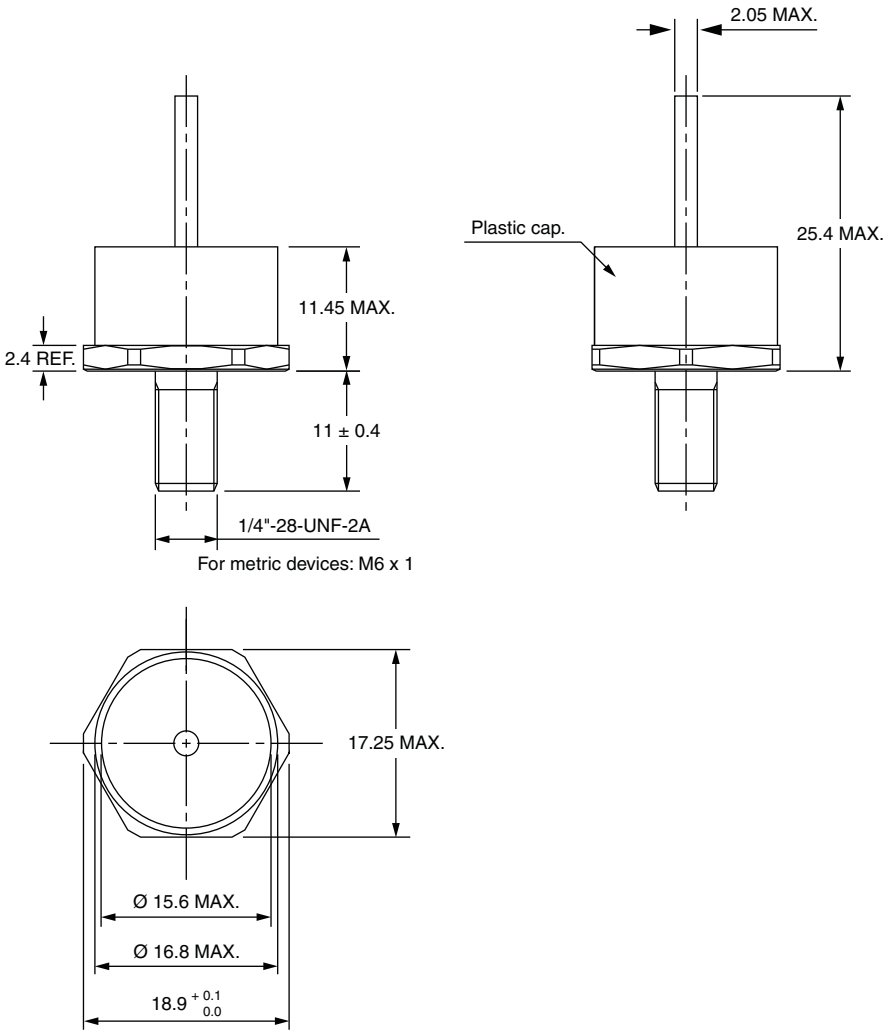
Note

- For metric device please contact factory

Outline Dimensions

Vishay Semiconductors — DO-203AB (DO-5) for 50PF(R)...(W), 80PF(R)...(W) and 95PF(R)...(W) Series

DIMENSIONS FOR 80PF(R)...(W), 50PF(R)...(W) AND 95PF(R)...(W) SERIES in millimeters

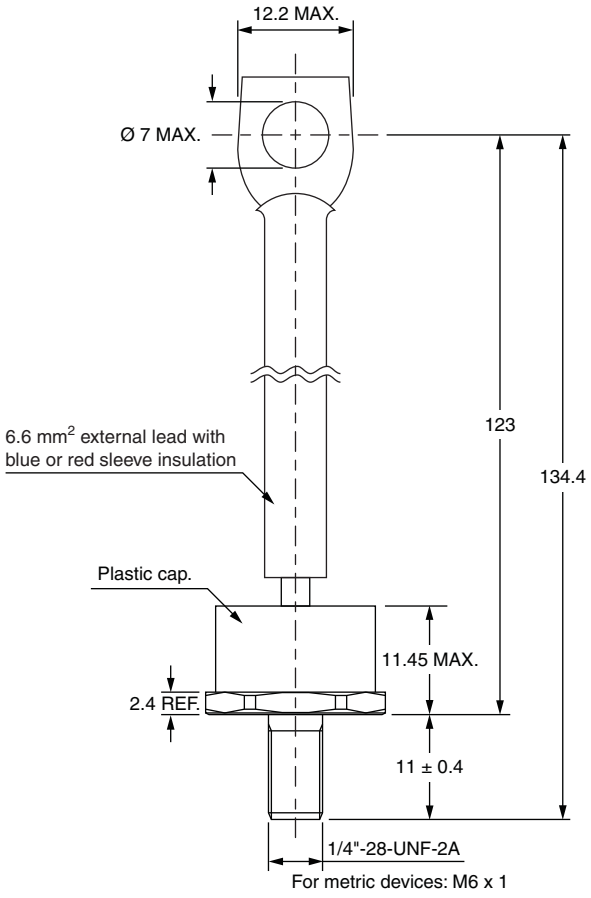


Note

- For metric device please contact factory

DO-203AB (DO-5) for 50PF(R)...(W),
80PF(R)...(W) and 95PF(R)...(W) Series

DIMENSIONS FOR 52PF(R), 82PF(R) AND 97PF(R) SERIES in millimeters



Note

- For metric device please contact factory

Disclaimer

ALL PRODUCT, PRODUCT SPECIFICATIONS AND DATA ARE SUBJECT TO CHANGE WITHOUT NOTICE TO IMPROVE RELIABILITY, FUNCTION OR DESIGN OR OTHERWISE.

Vishay Intertechnology, Inc., its affiliates, agents, and employees, and all persons acting on its or their behalf (collectively, “Vishay”), disclaim any and all liability for any errors, inaccuracies or incompleteness contained in any datasheet or in any other disclosure relating to any product.

Vishay makes no warranty, representation or guarantee regarding the suitability of the products for any particular purpose or the continuing production of any product. To the maximum extent permitted by applicable law, Vishay disclaims (i) any and all liability arising out of the application or use of any product, (ii) any and all liability, including without limitation special, consequential or incidental damages, and (iii) any and all implied warranties, including warranties of fitness for particular purpose, non-infringement and merchantability.

Statements regarding the suitability of products for certain types of applications are based on Vishay’s knowledge of typical requirements that are often placed on Vishay products in generic applications. Such statements are not binding statements about the suitability of products for a particular application. It is the customer’s responsibility to validate that a particular product with the properties described in the product specification is suitable for use in a particular application. Parameters provided in datasheets and/or specifications may vary in different applications and performance may vary over time. All operating parameters, including typical parameters, must be validated for each customer application by the customer’s technical experts. Product specifications do not expand or otherwise modify Vishay’s terms and conditions of purchase, including but not limited to the warranty expressed therein.

Except as expressly indicated in writing, Vishay products are not designed for use in medical, life-saving, or life-sustaining applications or for any other application in which the failure of the Vishay product could result in personal injury or death. Customers using or selling Vishay products not expressly indicated for use in such applications do so at their own risk and agree to fully indemnify and hold Vishay and its distributors harmless from and against any and all claims, liabilities, expenses and damages arising or resulting in connection with such use or sale, including attorneys fees, even if such claim alleges that Vishay or its distributor was negligent regarding the design or manufacture of the part. Please contact authorized Vishay personnel to obtain written terms and conditions regarding products designed for such applications.

No license, express or implied, by estoppel or otherwise, to any intellectual property rights is granted by this document or by any conduct of Vishay. Product names and markings noted herein may be trademarks of their respective owners.

Material Category Policy

Vishay Intertechnology, Inc. hereby certifies that all its products that are identified as RoHS-Compliant fulfill the definitions and restrictions defined under Directive 2011/65/EU of The European Parliament and of the Council of June 8, 2011 on the restriction of the use of certain hazardous substances in electrical and electronic equipment (EEE) - recast, unless otherwise specified as non-compliant.

Please note that some Vishay documentation may still make reference to RoHS Directive 2002/95/EC. We confirm that all the products identified as being compliant to Directive 2002/95/EC conform to Directive 2011/65/EU.