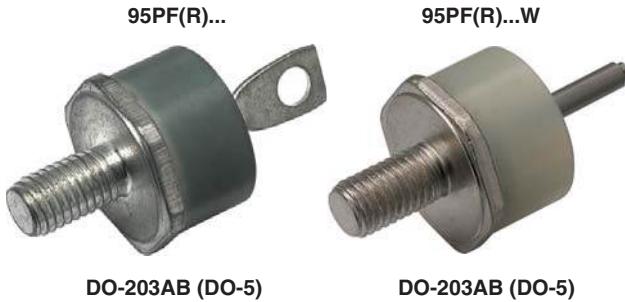


Standard Recovery Diodes, Generation 2 DO-5 (Stud Version), 95 A



FEATURES

- High surge current capability
- Designed for a wide range of applications
- Stud cathode and stud anode version
- Wire version available
- Low thermal resistance
- Designed and qualified for multiple level
- Material categorization: for definitions of compliance please see www.vishay.com/doc?99912



TYPICAL APPLICATIONS

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

PRODUCT SUMMARY	
$I_{F(AV)}$	95 A
Package	DO-203AB (DO-5)
Circuit configuration	Single diode

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 ² s
	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
VS-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			80	A			
					140	°C			
Maximum RMS forward current	$I_{F(RMS)}$				149	A			
Maximum peak, one-cycle forward, non-repetitive surge current	I_{FSM}	$t = 10 \text{ ms}$	No voltage reapplied	Sinusoidal half wave, initial $T_J = 150 \text{ °C}$	2000	A			
		$t = 8.3 \text{ ms}$	100 % V_{RRM} reapplied		2090				
		$t = 10 \text{ ms}$			1680				
		$t = 8.3 \text{ ms}$			1760				
Maximum I^2t for fusing	I^2t	$t = 10 \text{ ms}$	No voltage reapplied	20 000	20 000	A^2s			
		$t = 8.3 \text{ ms}$	100 % V_{RRM} reapplied		18 180				
		$t = 10 \text{ ms}$			14 100				
		$t = 8.3 \text{ ms}$			12 800				
Maximum $I^2\sqrt{t}$ for fusing	$I^2\sqrt{t}$	$t = 0.1 \text{ ms to } 10 \text{ ms, no voltage reapplied}$			200 000	$\text{A}^2\sqrt{\text{s}}$			
Low level value of threshold voltage	$V_{F(TO)}$	$(16.7 \% \times \pi \times I_{F(AV)} < I < \pi \times I_{F(AV)}, T_J = T_J \text{ maximum})$			0.73	V			
Low level value of forward slope resistance	r_f	$(16.7 \% \times \pi \times I_{F(AV)} < I < \pi \times I_{F(AV)}, T_J = T_J \text{ maximum})$			3.0	$\text{m}\Omega$			
Maximum forward voltage drop	V_{FM}	$I_{pk} = 267 \text{ A, } T_J = 25 \text{ °C, } t_p = 400 \mu\text{s rectangular wave}$			1.40	V			

THERMAL AND MECHANICAL SPECIFICATIONS					
PARAMETER	SYMBOL	TEST CONDITIONS		VALUES	UNITS
Maximum junction operating 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
Maximum thermal resistance, case to heatsink	R_{thCS}	Mounting surface, smooth, flat and greased		0.25	
Maximum allowable mounting torque (+0 %, -10 %)		Not lubricated threads, tightening on nut ⁽¹⁾		3.4 (30)	N · m (lbf · in)
		Lubricated threads, tightening on nut ⁽¹⁾		2.3 (20)	
		Not lubricated threads, tightening on Hexagon ⁽²⁾		4.2 (37)	
		Lubricated threads, tightening 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 applicable 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	$T_J = T_J \text{ maximum}$	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

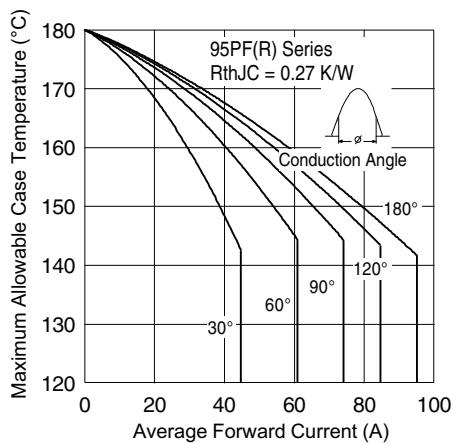


Fig. 1 - Current Ratings Characteristics

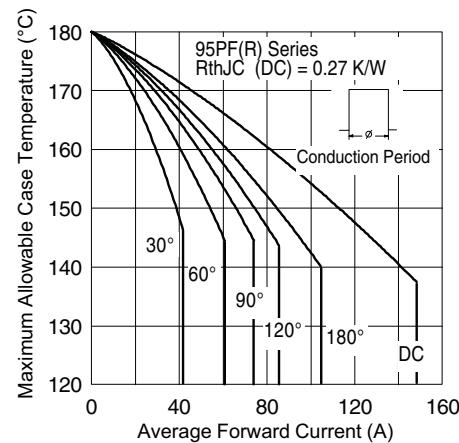


Fig. 2 - Current Ratings Characteristics

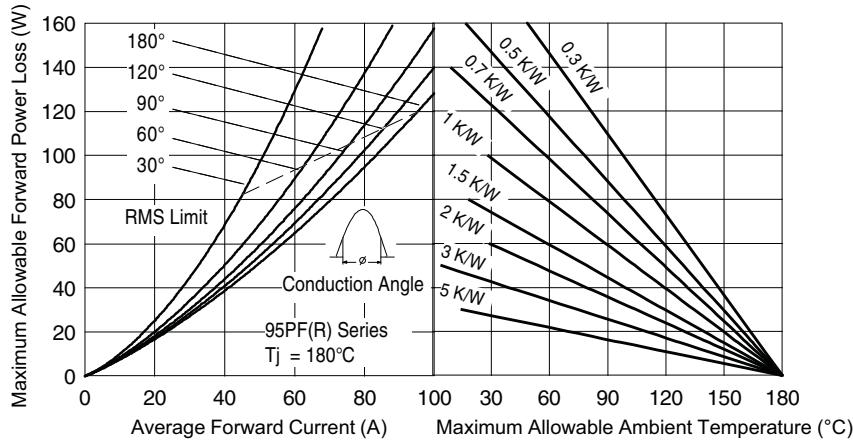


Fig. 3 - Forward Power Loss Characteristics

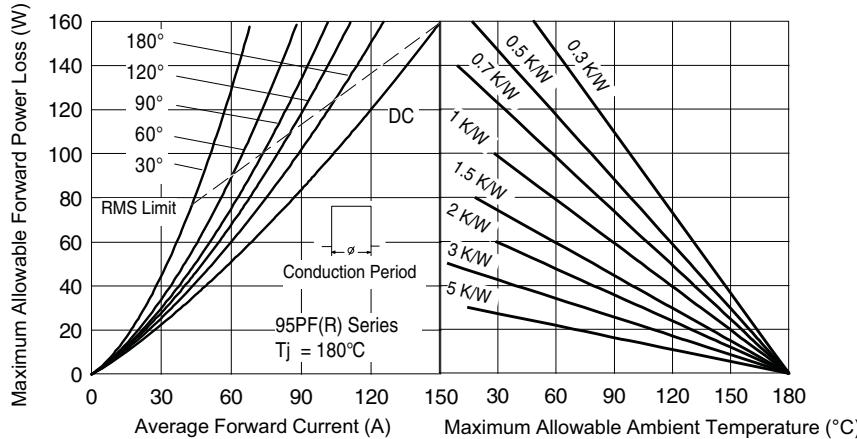


Fig. 4 - Forward Power Loss Characteristics

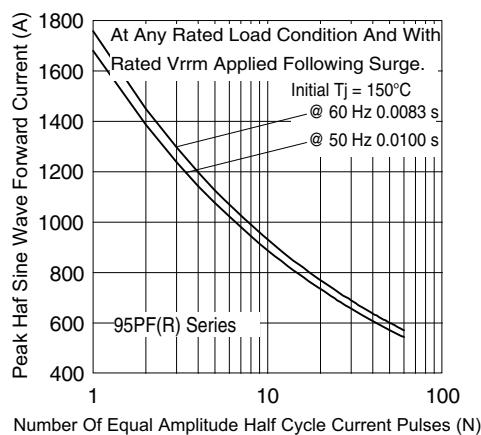


Fig. 5 - Maximum Non-Repetitive Surge Current

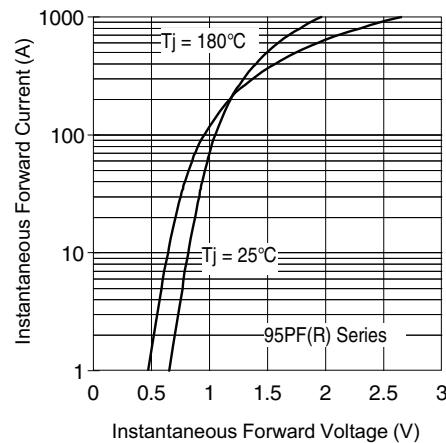


Fig. 7 - Forward Voltage Drop Characteristics

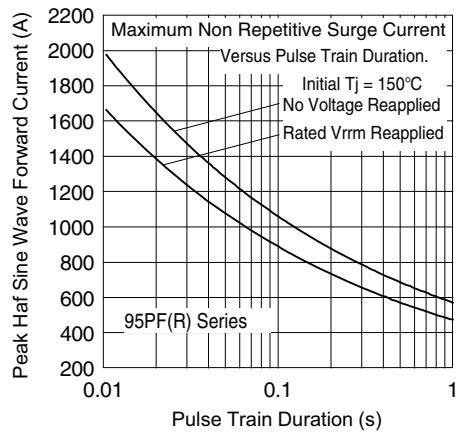


Fig. 6 - Maximum Non-Repetitive Surge Current

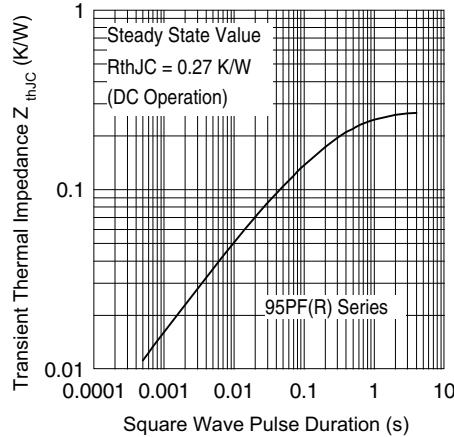


Fig. 8 - Thermal Impedance Z_{thJC} Characteristics

ORDERING INFORMATION TABLE

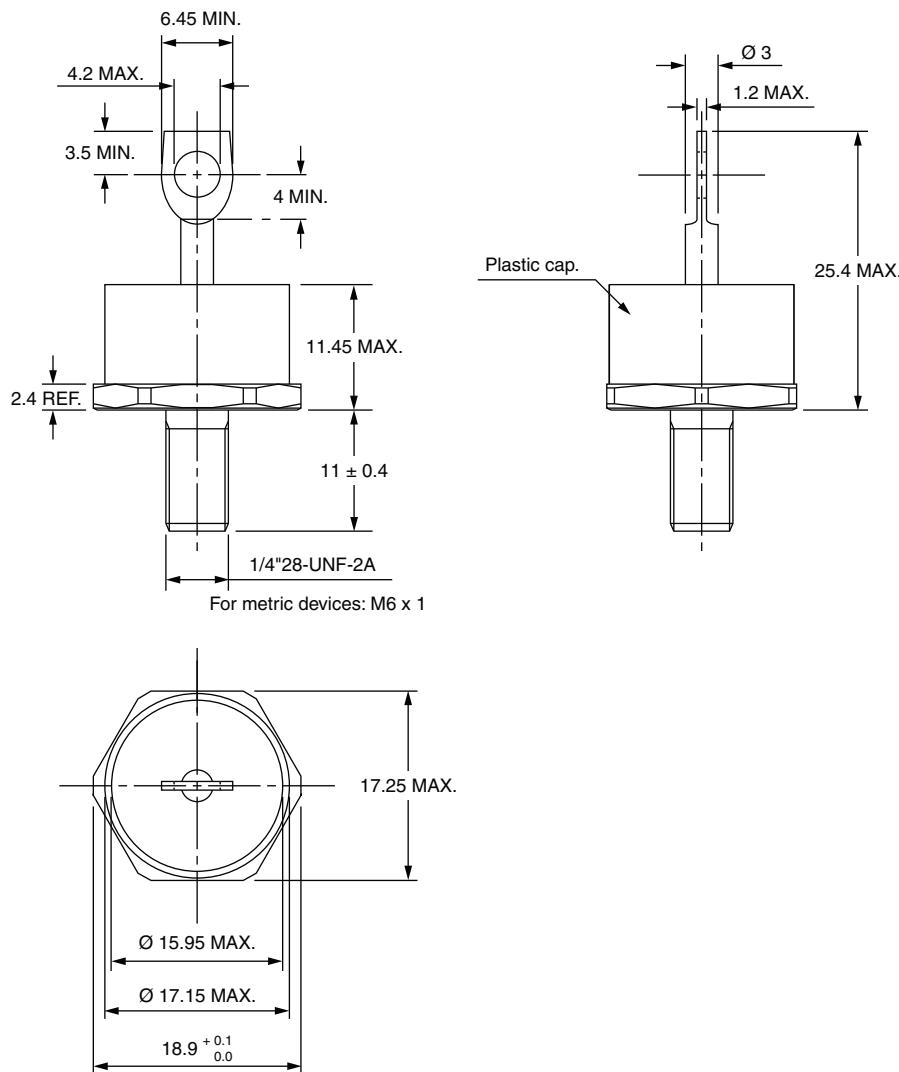
Device code	VS-	95	PF	R	120	W
	1	2	3	4	5	6

- 1** - Vishay Semiconductors product
- 2**
 - 95 = Standard device
 - 97 = Isolated lead on standard terminal
with silicone sleeve available for 1200 V only
(red = Reverse polarity)
(blue = Normal polarity)
- 3** - PF = Plastic package
- 4**
 - None = Stud normal polarity (cathode to stud)
 - R = Stud reverse polarity (anode to stud)
- 5** - Voltage code x 10 = V_{RRM} (see Voltage Ratings table)
- 6**
 - 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

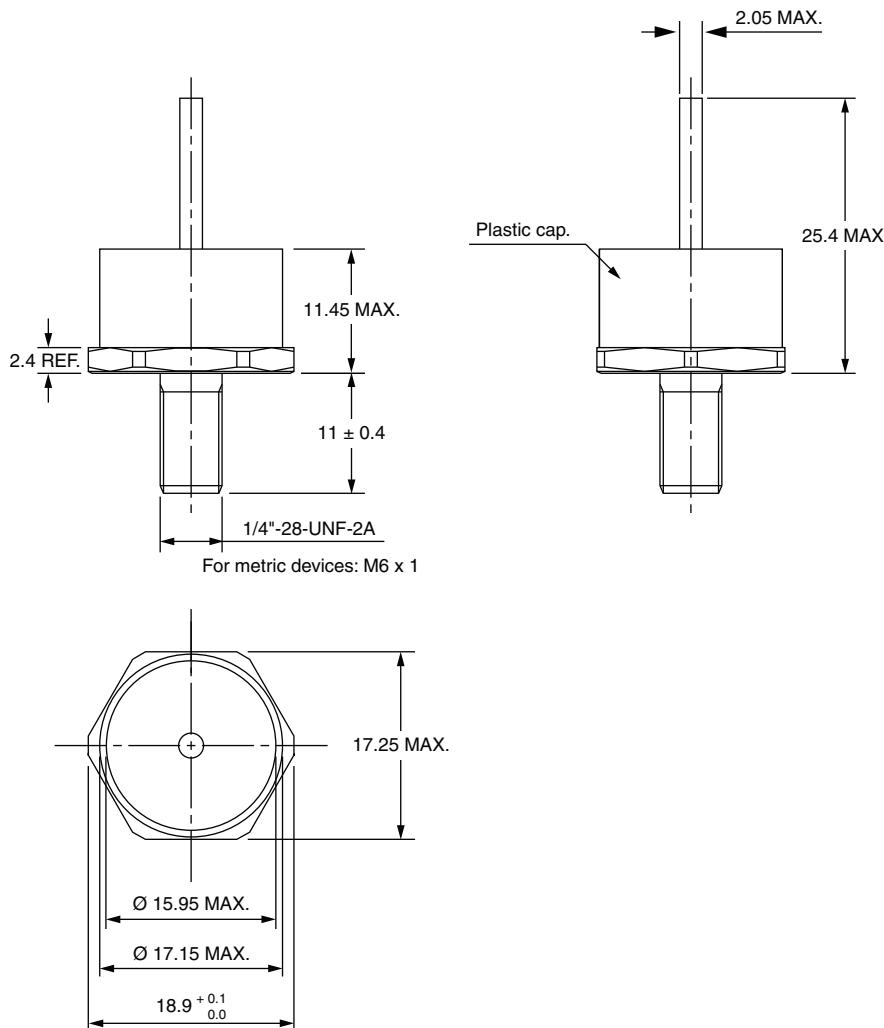
DO-203AB (DO-5) for 50PF(R)...(W), 80PF(R)...(W), and 95PF(R)...(W) Series

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


Note

- For metric device please contact factory

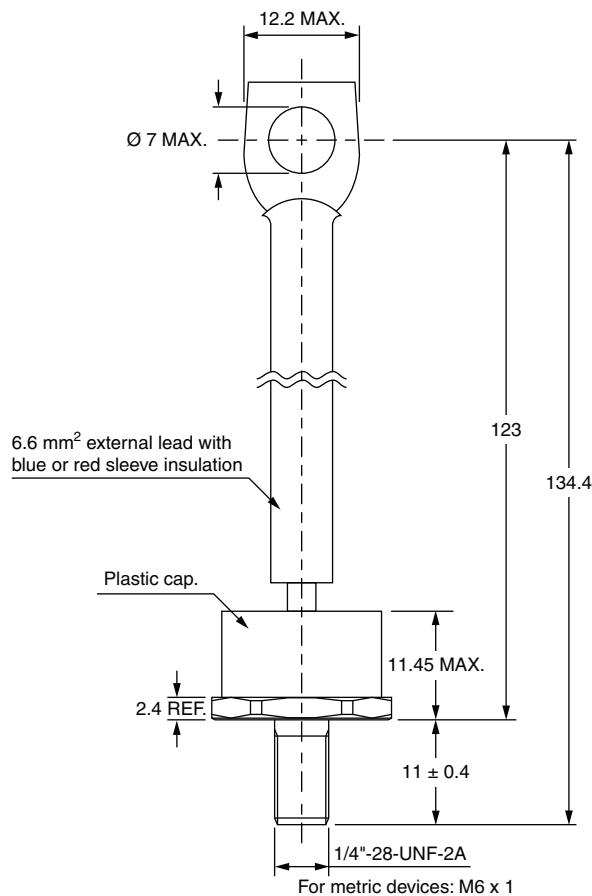
DIMENSIONS FOR 80PF(R)...(W), 50PF(R)...(W) AND 95PF(R)...(W) SERIES in millimeters



Note

- For metric device please contact factory

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



Note

- For metric device please contact factory

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