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
- RoHS compliant
- 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 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	
Allowable mounting torque		Tighting on nut (1) Not lubricated threads	3.4 + 0 - 10 % (30)	N · m (lbf · in)
		Tighting on hexagon (2) Lubricated threads	2.3 + 0 - 10 % (20)	
Approximate weight			15.8	g
			0.56	oz.
Case style		See dimensions - link at the end of datasheet	DO-203AB (DO-5)	

Notes

(1) As general recommendation we suggest to tight on hexagon and not on nut

(2) Torque must be appliable only to hexagon and not to plastic structure

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

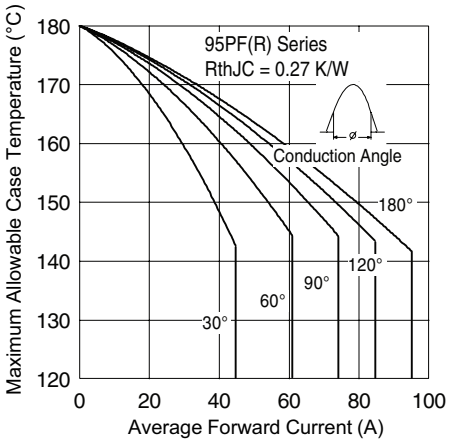


Fig. 1 - Current Ratings Characteristics

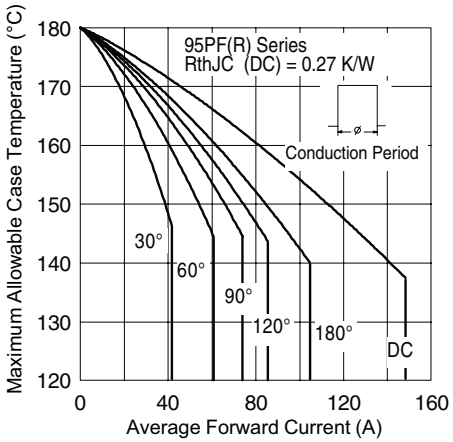


Fig. 2 - Current Ratings Characteristics

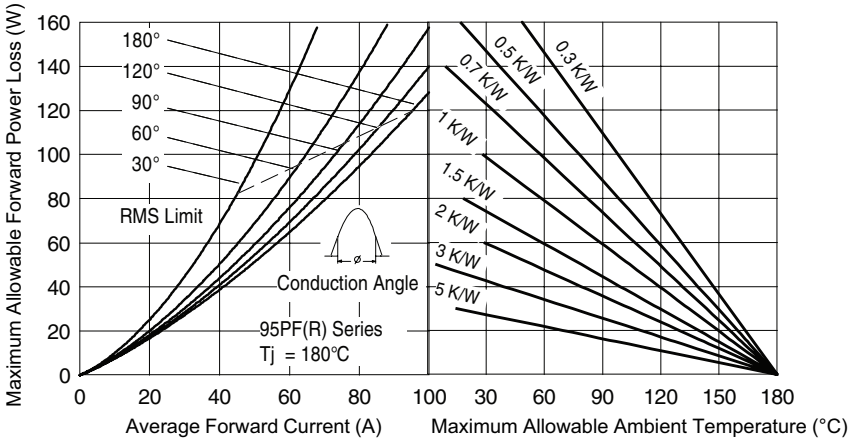


Fig. 3 - Forward Power Loss Characteristics

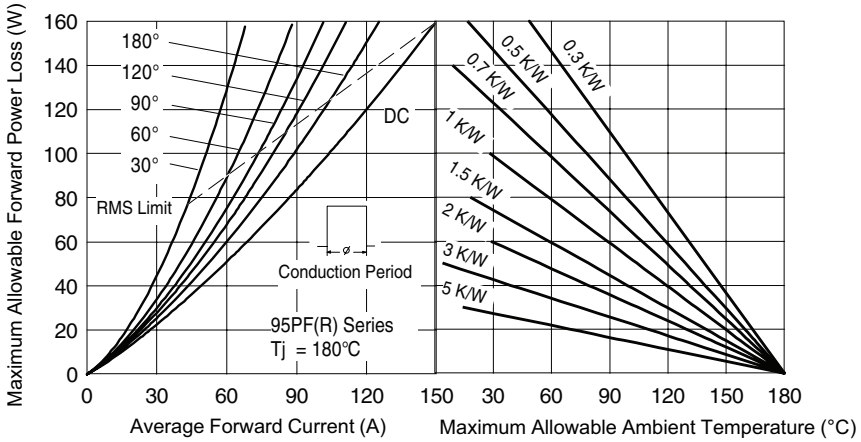


Fig. 4 - Forward Power Loss Characteristics

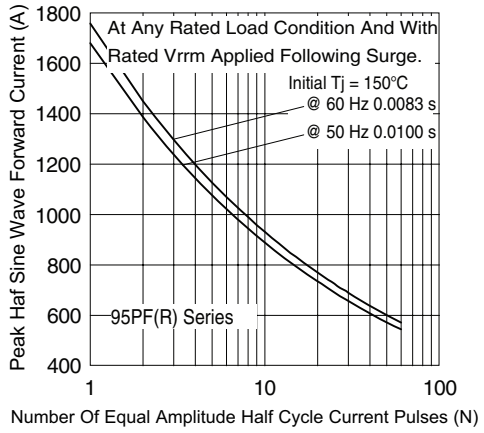


Fig. 5 - Maximum Non-Repetitive Surge Current

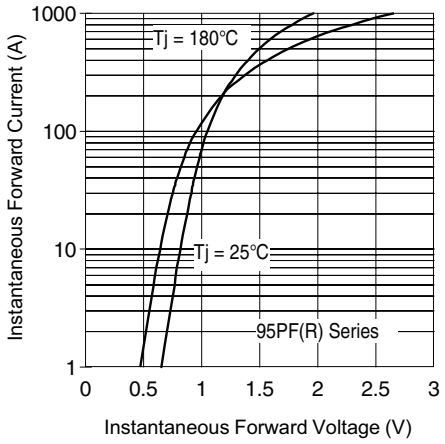


Fig. 7 - Forward Voltage Drop Characteristics

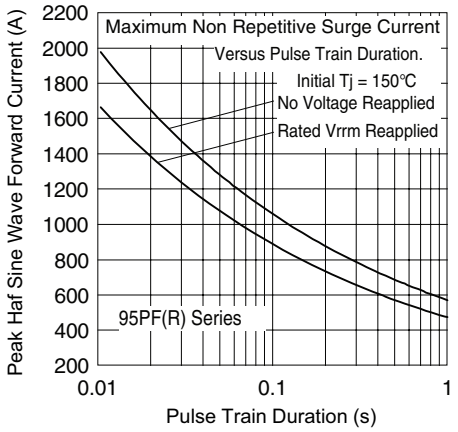


Fig. 6 - Maximum Non-Repetitive Surge Current

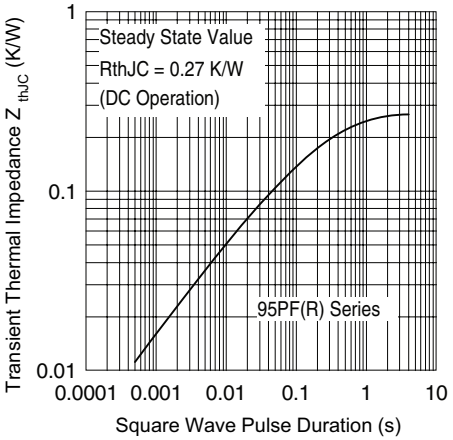
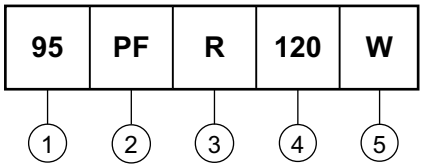


Fig. 8 - Thermal Impedance Z_{thJC} Characteristics

ORDERING INFORMATION TABLE

Device code



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	http://www.vishay.com/doc?95345

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