

Standard Recovery Diodes (Stud Version), 25 A



PRODUCT SUMMARY			
I _{F(AV)}	25 A		
Package	DO-203AA (DO-4)		
Circuit configuration	Single diode		

FEATURES

- High surge current capability
- Stud cathode and stud anode version



- Wide current range
- Types up to 1200 V V_{RRM}
- Material categorization: for definitions of compliance please see www.vishay.com/doc?99912

TYPICAL APPLICATIONS

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

MAJOR RATINGS AND CHARACTERISTICS				
PARAMETER	TEST CONDITIONS	VALUES	UNITS	
		25	A	
I _{F(AV)}	T _C	120	°C	
I _{F(RMS)}		40	А	
	50 Hz	356	۸	
I _{FSM}	60 Hz	373	Α	
l ² t	50 Hz	636	A ² s	
	60 Hz	580	A-S	
V _{RRM}	Range	100 to 1200	V	
T _J		-65 to +175	°C	

ELECTRICAL SPECIFICATIONS

VOLTAGE RATINGS					
TYPE NUMBER	VOLTAGE CODE	V _{RRM} , MAXIMUM REPETITIVE PEAK REVERSE VOLTAGE V	V _{RSM} , MAXIMUM NON-REPETITIVE PEAK VOLTAGE V	I _{RRM} MAXIMUM AT T _J = 175 °C mA	
	10	100	150		
	20	200	275		
	40	400	500		
VS-25F(R)	60	600	725	12	
	80	800	950		
	100	1000	1200		
	120	1200	1400		



FORWARD CONDUCTION						
PARAMETER	SYMBOL	TEST CONDITIONS		VALUES	UNITS	
Maximum average forward current	I _{F(AV)}	180° conduction, half sine wave		25	Α	
at case temperature	1 (AV)				120	°C
Maximum RMS forward current	I _{F(RMS)}				40	Α
		t = 10 ms	No voltage	Sinusoidal half wave, initial $T_J = T_J$ maximum	356	A
Maximum peak, one-cycle forward,	1	t = 8.3 ms	reapplied		373	
non-repetitive surge current	I _{FSM}	t = 10 ms	100 % V _{RRM}		300	
		t = 8.3 ms	reapplied		314	
	l ² t	t = 10 ms	No voltage reapplied		636	A ² s
Marriagna 12t for fusions		t = 8.3 ms			580	
Maximum I ² t for fusing		t = 10 ms	100 % V _{RRM} reapplied		450	
		t = 8.3 ms			410	
Maximum I ² √t for fusing	I ² √t	t = 0.1 to 10 ms, no voltage reapplied		6360	A²√s	
Low level value of threshold voltage	V _{F(TO)1}	(16.7 % x π x I _{F(AV)} < I < π x I _{F(AV)}), T _J = T _J maximum		0.80	V	
High level value of threshold voltage	V _{F(TO)2}	$(I > \pi \times I_{F(AV)}), T_J = T_J \text{ maximum}$		0.90	v	
Low level value of forward slope resistance	r _{f1}	(16.7 % x π x I _{F(AV)} < I < π x I _{F(AV)}), T _J = T _J maximum		6.80	mΩ	
High level value of forward slope resistance	r _{f2}	$(I > \pi \times I_{F(AV)}), T_J = T_J \text{ maximum}$ 5.70		1115.2		
Maximum forward voltage drop	V_{FM}	$I_{pk} = 78 \text{ A}, T_J = 25 ^{\circ}\text{C}, t_p = 400 \mu \text{s} \text{ rectangular wave}$		1.30	V	

THERMAL AND MECHANICAL SPECIFICATIONS					
PARAMETER	SYMBOL	TEST CONDITIONS	VALUES	UNITS	
Maximum junction operating temperature range	TJ		-65 to +175	°C	
Maximum storage temperature range	T _{Stg}		-65 to +200		
Maximum thermal resistance, junction to case	R _{thJC}	DC operation		K/W	
Maximum thermal resistance, case to heat sink	R _{thCS}	Mounting surface, smooth, flat and greased			
Allowable mounting torque		Not lubricated threads	1.5 + 0 - 10 % (13)	$N \cdot m$ (lbf \cdot in)	
Allowable mounting torque Lubricat		Lubricated threads	1.2 + 0 - 10 % (10)	$N \cdot m$ (lbf \cdot in)	
Approximate weight			7	g	
Approximate weight			0.25	oz.	
Case style		See dimensions - link at the end of datasheet DO-203AA (DO-4)		A (DO-4)	

△R _{th} JC CONDUCTION					
CONDUCTION ANGLE	SINUSOIDAL CONDUCTION	RECTANGULAR CONDUCTION	TEST CONDITIONS	UNITS	
180°	0.28	0.24			
120°	0.39	0.41			
90°	0.50	0.54	$T_J = T_J \text{ maximum}$	K/W	
60°	0.73	0.75			
30°	1.20	1.21			

Note

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



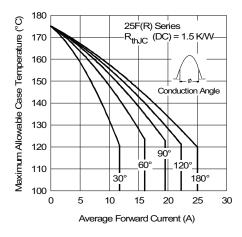


Fig. 1 - Current Ratings Characteristics

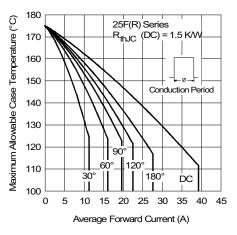


Fig. 2 - Current Ratings Characteristics

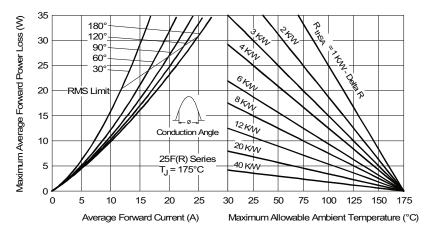


Fig. 3 - Forward Power Loss Characteristics

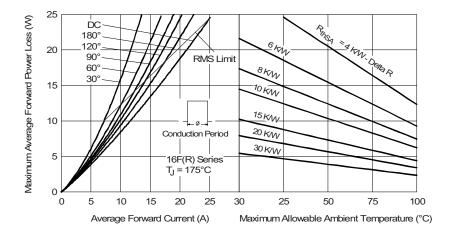
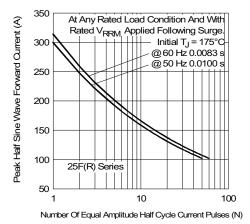


Fig. 4 - Forward Power Loss Characteristics



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Fig. 5 - Maximum Non-Repetitive Surge Current

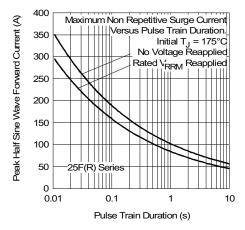


Fig. 6 - Maximum Non-Repetitive Surge Current

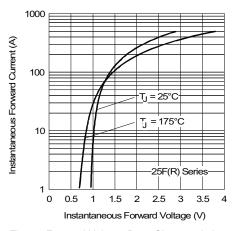


Fig. 7 - Forward Voltage Drop Characteristics

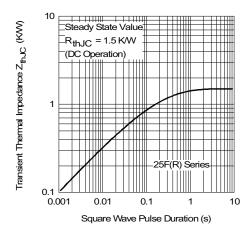
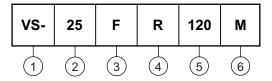


Fig. 8 - Thermal Impedance Z_{thJC} Characteristics

ORDERING INFORMATION TABLE

Device code



- 1 Vishay Semiconductors product
- 2 Current rating: code = I_{F(AV)}
- 3 F = standard device
- A 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 = stud base DO-203AA (DO-4) 10-32UNF-2A

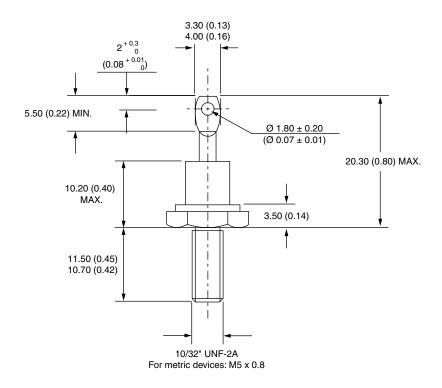
M = stud base DO-203AA (DO-4) M5 X 0.8

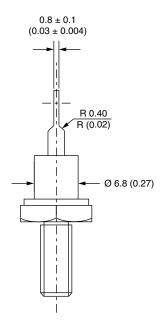
LINKS TO RELATED DOCUMENTS		
Dimensions	www.vishay.com/doc?95311	



DO-203AA (DO-4)

DIMENSIONS in millimeters (inches)







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