Standard Recovery Diodes, (Stud Version), 6 A

DO-4 (DO-203AA)

RoHS
COMPLIANT

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

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

PRIMARY CHARACTERISTICS

$I_{F(AV)}$	6 A
Package	DO-4 (DO-203AA)
Circuit configuration	Single

MAJOR RATINGS AND CHARACTERISTICS

PARAMETER	TEST CONDITIONS	VALUES	UNITS
$I_{F(AV)}$		6	A
	T_C	160	°C
$I_{F(RMS)}$		9.5	A
I_{FSM}	50 Hz	159	A
	60 Hz	167	
I^2t	50 Hz	134	A^2s
	60 Hz	141	
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 REVERSE VOLTAGE V	I_{RRM} MAXIMUM AT T_J = 175 °C mA
VS-6F(R)	10	100	150	12
	20	200	275	
	40	400	500	
	60	600	725	
	80	800	950	
	100	1000	1200	
	120	1200	1400	

FORWARD CONDUCTION

PARAMETER	SYMBOL	TEST CONDITIONS			VALUES	UNITS
Maximum average forward current at case temperature	$I_{F(AV)}$	180° conduction, half sine wave			6	A
					160	°C
Maximum RMS forward current	$I_{F(RMS)}$				9.5	A
Maximum peak, one cycle forward, non-repetitive surge current	I_{FSM}	t = 10 ms	No voltage reapplied	Sinusoidal half wave, initial T_J = T_J maximum	159	A
		t = 8.3 ms			167	
		t = 10 ms	100 % V_{RRM} reapplied		134	
		t = 8.3 ms			141	
Maximum I²t for fusing	I^2t	t = 10 ms	No voltage reapplied		127	A²s
		t = 8.3 ms			116	
		t = 10 ms	100 % V_{RRM} reapplied		90	
		t = 8.3 ms			82	
Maximum I²√t for fusing	$I^2\sqrt{t}$	t = 0.1 ms to 10 ms, no voltage reapplied			1270	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			0.63	V
High level value of threshold voltage	$V_{F(TO)2}$	(I > π x $I_{F(AV)}$), T_J = T_J maximum			0.86	
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			15.7	mΩ
High level value of forward slope resistance	r_{f2}	(I > π x $I_{F(AV)}$), T_J = T_J maximum			5.6	
Maximum forward voltage drop	V_{FM}	I_{pk} = 19 A, T_J = 25 °C, t_p = 400 μs rectangular wave			1.10	V

THERMAL AND MECHANICAL SPECIFICATIONS

PARAMETER	SYMBOL	TEST CONDITIONS	VALUES	UNITS
Maximum junction temperature range	T_J		-65 to +175	°C
Maximum storage temperature range	T_{Stg}		-65 to +200	
Maximum thermal resistance, junction to case	R_{thJC}	DC operation	2.5	K/W
Maximum thermal resistance, case to heat sink	R_{thCS}	Mounting surface, smooth, flat and greased	0.5	
Mounting torque, ± 10 %		Lubricated threads (Not lubricated threads)	1.2 (1.5)	N · m (lbf · in)
Approximate weight			7	g
			0.25	oz.
Case style		See dimensions - link at the end of datasheet	DO-4 (DO-203AA)	

ΔR_{thJC} CONDUCTION

CONDUCTION ANGLE	SINUSOIDAL CONDUCTION	RECTANGULAR CONDUCTION	TEST CONDITIONS	UNITS
180°	0.34	0.29	T_J = T_J maximum	K/W
120°	0.44	0.48		
90°	0.57	0.63		
60°	0.85	0.88		
30°	1.37	1.39		

Note
• The table above shows the increment of thermal resistance R_{thJC} when devices operate at different conduction angles than DC
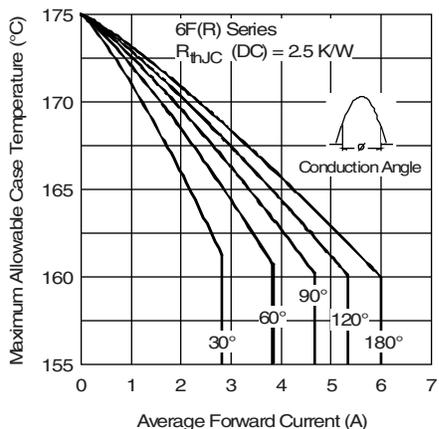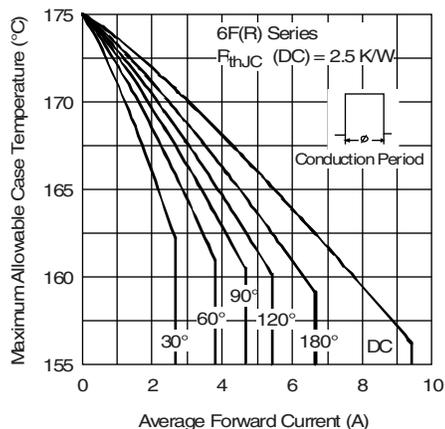
Fig. 1 - Current Ratings Characteristics

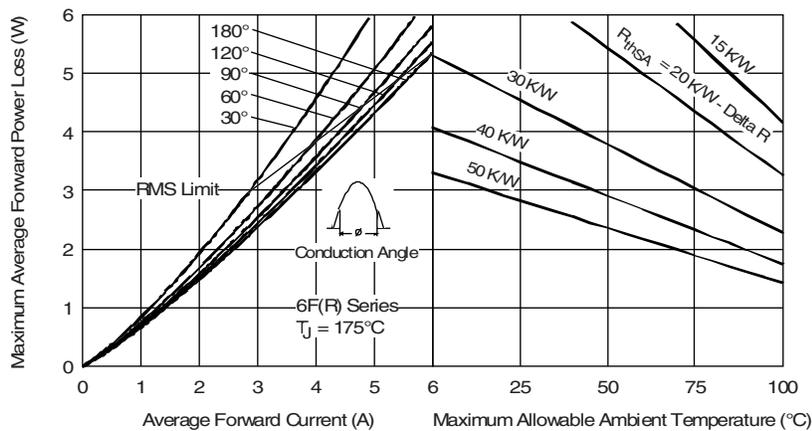Fig. 2 - Current Ratings Characteristics
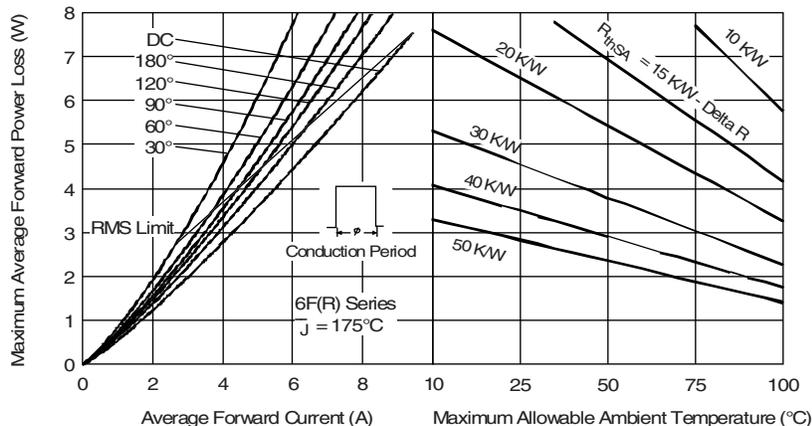

Fig. 3 - Forward Power Loss Characteristics

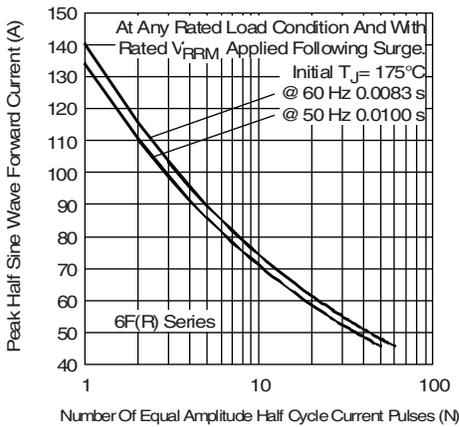Fig. 4 - Forward Power Loss Characteristics

Fig. 5 - Maximum Non-Repetitive Surge Current
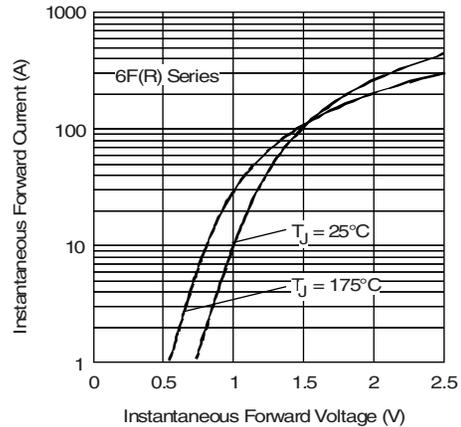

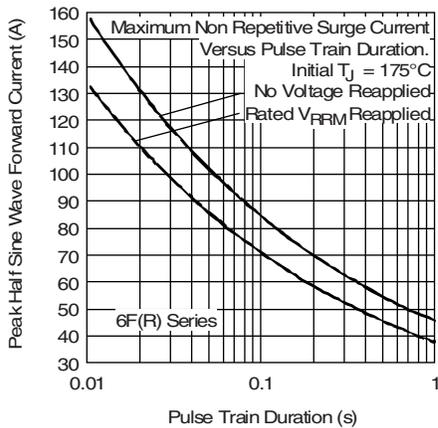Fig. 7 - Forward Voltage Drop Characteristics
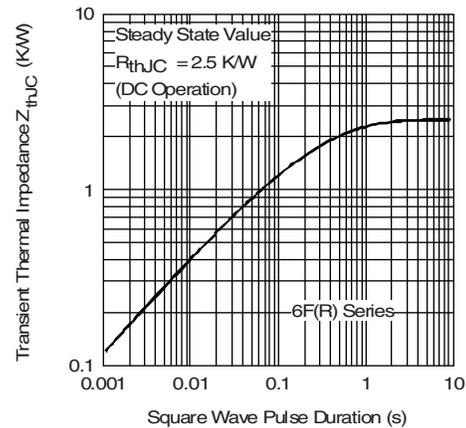

Fig. 6 - Maximum Non-Repetitive Surge Current

Fig. 8 - Thermal Impedance Z_{thJC} Characteristics
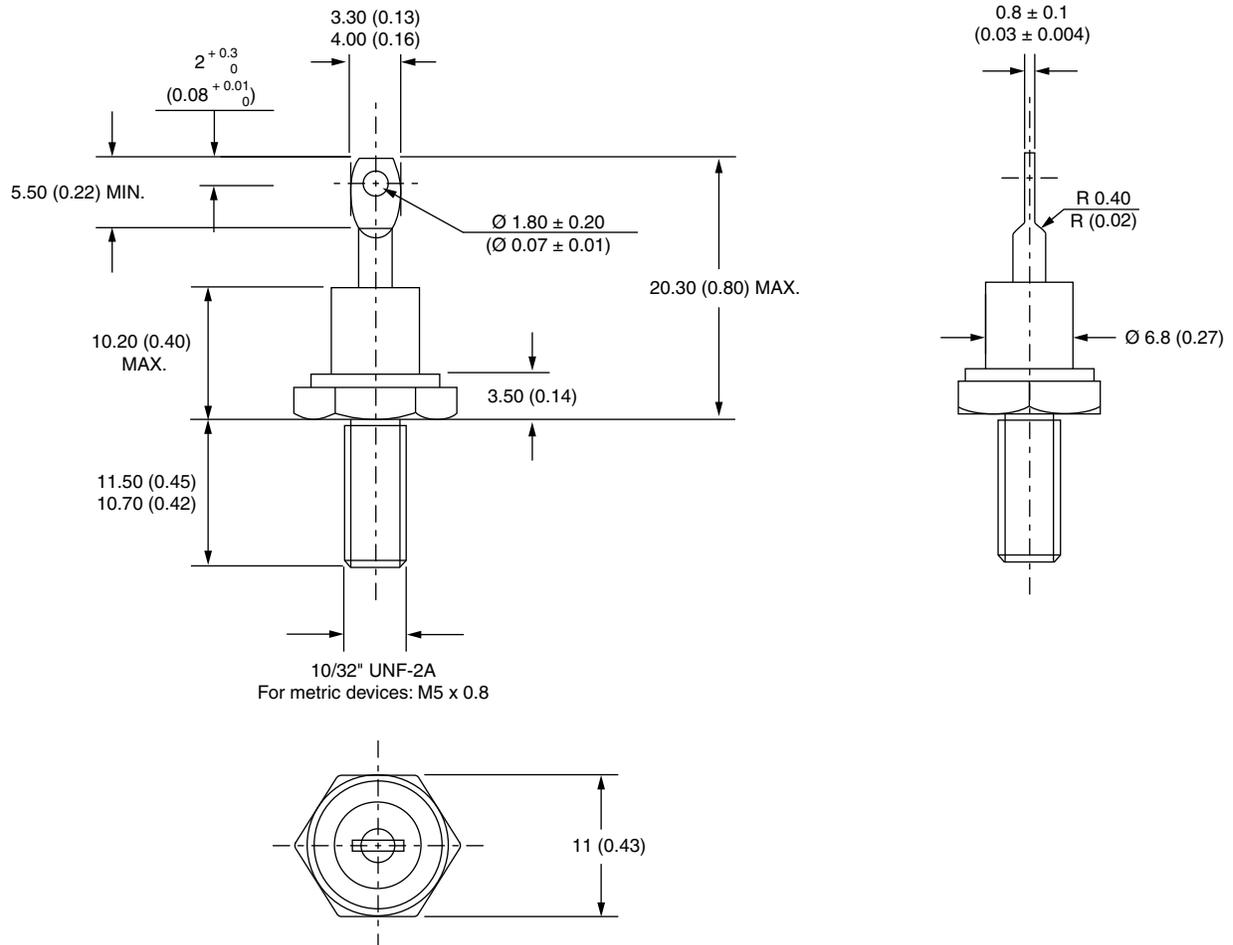
ORDERING INFORMATION TABLE

Device code	VS-	6	F	R	120	M
	①	②	③	④	⑤	⑥

1	-	Vishay Semiconductors product
2	-	Current rating: code = $I_{F(AV)}$
3	-	F = standard device
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 = stud base DO-4 (DO-203AA) 10-32UNF-2A • M = stud base DO-4 (DO-203AA) M5 x 0.8

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

DO-203AA (DO-4)

DIMENSIONS in millimeters (inches)

3.30 (0.13)
4.00 (0.16)

$2^{+0.3}_{0}$
$(0.08^{+0.01}_{0})$

5.50 (0.22) MIN.

Ø 1.80 ± 0.20
(Ø 0.07 ± 0.01)

20.30 (0.80) MAX.

10.20 (0.40) MAX.

3.50 (0.14)

11.50 (0.45)
10.70 (0.42)

10/32" UNF-2A
For metric devices: M5 x 0.8

11 (0.43)

0.8 ± 0.1
(0.03 ± 0.004)

R 0.40
R (0.02)

Ø 6.8 (0.27)

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. 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.

X-ON Electronics

Largest Supplier of Electrical and Electronic Components

Click to view similar products for Schottky Diodes & Rectifiers *category:*

Click to view products by Vishay *manufacturer:*

Other Similar products are found below :

MA4E2039 D1FH3-5063 MBR10100CT-BP MBR1545CT MMBD301M3T5G RB160M-50TR RB551V-30 BAS16E6433HTMA1 BAT 54-02LRH E6327 NSR05F40QNXT5G NTE555 JANS1N6640 SB07-03C-TB-H SB1003M3-TL-W SK310-T SK32A-LTP SK33A-TP SK34B-TP SS3003CH-TL-E GA01SHT18 CRS10I30A(TE85L,QM MA4E2501L-1290 MBRA140TRPBF MBRB30H30CT-1G SB007-03C-TB-E SK32A-TP SK33B-TP SK35A-TP SK38B-TP NRVBM120LT1G NTE505 NTSB30U100CT-1G SS15E-TP VS-6CWQ10FNHM3 ACDBA1100LR-HF ACDBA1200-HF ACDBA140-HF ACDBA2100-HF ACDBA3100-HF CDBQC0530L-HF CDBQC0240LR-HF ACDBA340-HF ACDBA260LR-HF ACDBA1100-HF SK310B-TP MA4E2502L-1246 MA4E2502H-1246 NRVBM120ET1G NSR01L30MXT5G NTE573