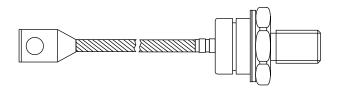


Standard Recovery Diodes, (Stud Version), 200 A



DO-30 (DO-205AC)

PRIMARY CHARACTERISTICS			
I _{F(AV)} 200 A			
Package	DO-30 (DO-205AC)		
Circuit configuration	Single		

FEATURES

- Wide current range
- High voltage ratings up to 2400 V
- · High surge current capabilities
- Stud cathode and stud anode version
- Standard JEDEC® types
- · Compression bonded encapsulations
- · Designed and qualified for industrial level
- Material categorization: for definitions of compliance please see <u>www.vishay.com/doc?99912</u>

TYPICAL APPLICATIONS

- Converters
- Power supplies
- · Machine tool controls
- High power drives
- Medium traction applications

MAJOR RATINGS AND CHARACTERISTICS				
PARAMETER	TECT COMPITIONS	VS-SD20		
	TEST CONDITIONS —	1600 to 2000	2400	UNITS
1		200	200	A
I _{F(AV)}	T _C	110	110	°C
I _{F(RMS)}		314	314	
1	50 Hz	4700	4700	A
I _{FSM}	60 Hz	4920	4920	
I ² t	50 Hz	110	110	kA ² s
1-1	60 Hz	101	101	KA-S
V _{RRM}	Range	1600 to 2000	2400	V
TJ		-40 to +180	+150	°C

ELECTRICAL SPECIFICATIONS

VOLTAGE RATINGS						
TYPE NUMBER VOLTAGE CODE VRRM, MAXIMUM REPETITIVE PEAK REVERSE VOLTAGE V		V _{RSM} , MAXIMUM NON-REPETITIVE PEAK REVERSE VOLTAGE V	I_{RRM} MAXIMUM AT T _J = T _J MAXIMUM mA			
	16	1600	1700			
VS-SD200N/R	20	2000	2100	15		
	24	2400	2500			



FORWARD CONDUCTION						
PARAMETER	SYMBOL	OL TEST CONDITIONS		VALUES	UNITS	
Maximum average forward current					200	Α
at case temperature	I _{F(AV)}	100° conduction half sine ways		110	°C	
Maximum average forward current		160 Cona	180° conduction, half sine wave		220	Α
at case temperature					100	°C
Maximum RMS forward current	I _{F(RMS)}	DC at 95 °	C case tempera	ature	314	
		t = 10 ms	No voltage		4700	
Maximum peak, one-cycle forward,		t = 8.3 ms	reapplied		4920	Α
non-repetitive surge current	I _{FSM}	t = 10 ms	100 % V _{RRM}	Sinusoidal half wave,	3950	
		t = 8.3 ms	reapplied		4140	
	l ² t	t = 10 ms	No voltage	initial $T_J = T_J$ maximum	110	
Maximum I ² t for fusing		t = 8.3 ms	reapplied		101	kA ² s
Maximum i-t for fusing		t = 10 ms	100 % V _{RRM}		78	KA-S
		t = 8.3 ms	reapplied		71	1
Maximum I ² Öt for fusing	l ² Öt	t = 0.1 to 10 ms, no voltage reapplied		1100	kA ² Ös	
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		0.90	V	
High level value of threshold voltage	V _{F(TO)2}	$(I > \pi \times I_{F(AV)}), T_J = T_J \text{ maximum}$		1.00		
Low level value of forward slope resistance	r _{f1}	(16.7 % x π x $I_{F(AV)}$ < I < π x $I_{F(AV)}$), $I_J = I_J$ maximum		0.79	mW	
High level value of forward slope resistance	r _{f2}	$(I > \pi \times I_{F(AV)}), T_J = T_J \text{ maximum}$		0.64		
Maximum forward voltage drop	V_{FM}	$I_{pk} = 630 \text{ A}, T_J = T_J \text{ maximum},$ $t_p = 10 \text{ ms sinusoidal wave}$		1.40	V	

THERMAL AND MECHANICAL SPECIFICATIONS					
PARAMETER	SYMBOL	TEST CONDITIONS	SD200	LINITO	
PANAMETER	STIVIBUL		1600 to 2000	2400	UNITS
Maximum junction operating temperature range	T _J		-40 to 180	-40 to 150	°C
Maximum storage temperature range	T _{Stg}		-55 to	200	
Maximum thermal resistance, junction to case	R _{thJC}	DC operation 0.23		3	K/W
Maximum thermal resistance, case to heatsink	R _{thCS}	Mounting surface, smooth, flat and greased	surface, smooth, flat and greased 0.08		N/W
Maximum allowed mounting torque ± 10 %		Not-lubricated threads 14			Nm
Approximate weight		120)	g
Case style		See dimensions (link at the end of datasheet) DO-30 (DO-205		(DO-205AC	()

△R _{thJC} CONDUCTION				
CONDUCTION ANGLE	SINUSOIDAL CONDUCTION	RECTANGULAR CONDUCTION	TEST CONDITIONS	UNITS
180°	0.041	0.030		
120°	0.049	0.051		
90°	0.063	0.068	$T_J = T_J$ maximum	K/W
60°	0.093	0.096		
30°	0.156	0.157		

Note

• The table above shows the increment of thermal resistance RthJC when devices operate at different conduction angles than DC

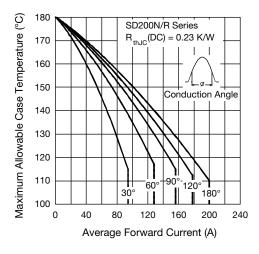


Fig. 1 - Current Ratings Characteristics

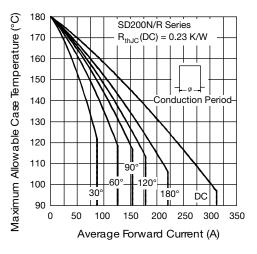


Fig. 2 - Current Ratings Characteristics

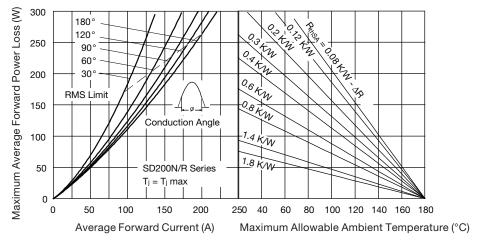


Fig. 3 - Forward Power Loss Characteristics

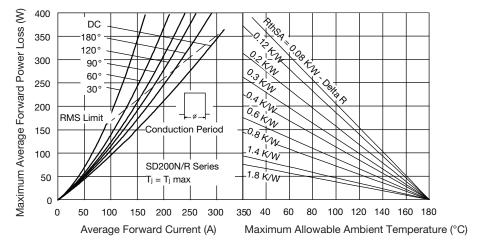


Fig. 4 - Forward Power Loss Characteristics

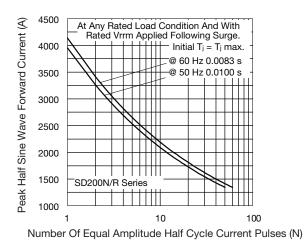


Fig. 5 - Maximum Non-Repetitive Surge Current

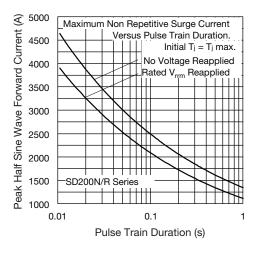


Fig. 6 - Maximum Non-Repetitive Surge Current

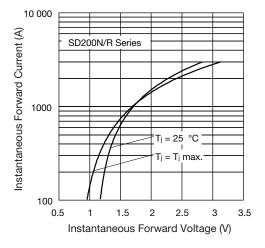


Fig. 7 - Forward Voltage Drop Characteristics

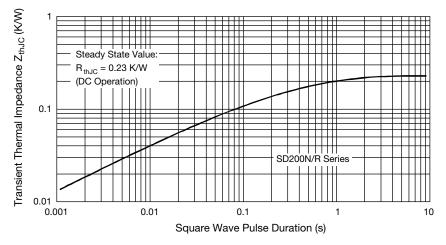
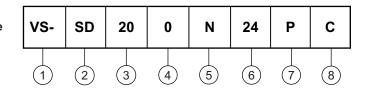


Fig. 8 - Thermal Impedance Z_{thJC} Characteristic



ORDERING INFORMATION TABLE

Device code



- 1 Vishay Semiconductors product
- 2 Diode
- 3 Essential part number
- 4 0 = standard recovery
- 5 • N = stud normal polarity (cathode to stud)
 - R = stud reverse polarity (anode to stud)
- 6 Voltage code x 100 = V_{RRM} (see Voltage Ratings table)
- 7 • P = stud base DO-30 (DO-205AC) 1/2" 20UNF-2A
 - M = stud base DO-30 (DO-205AC) M12 x 1.75
- 8 C = ceramic housing

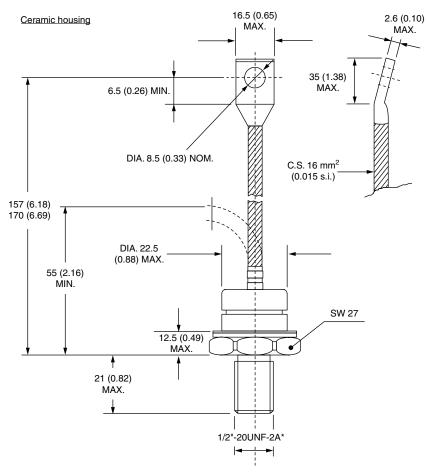
For metric device M12 x 1.75 contact factory

LINKS TO RELATED DOCUMENTS			
Dimensions	www.vishay.com/doc?95302		



DO-205AC (DO-30)

DIMENSIONS in millimeters (inches)



*For metric device: M12 x 1.75 contact factory



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Vishay

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