

200HF(R) SERIES

STANDARD RECOVERY DIODES

Stud Version

Features

- High current carrying capability
- High surge current capability
- Types up to 1200V V_{RRM}
- Stud cathode and stud anode version
- Standard JEDEC types
- Diffused junction

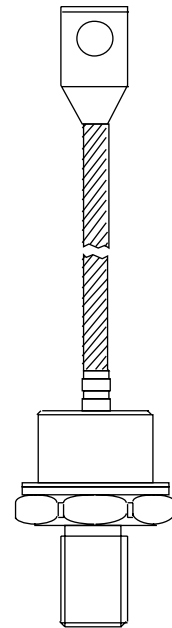
200 A

Typical Applications

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

Major Ratings and Characteristics

Parameters	200HF(R)	Units
$I_{F(AV)}$	200	A
@ T_C	125	°C
$I_{F(RMS)}$	314	A
I_{FSM} @ 50Hz	4400	A
@ 60Hz	4610	A
I^2t @ 50Hz	97	KA ² s
@ 60Hz	88	KA ² s
V_{RRM} range	400 to 1200	V
T_J	-40 to 180	°C



case style
DO-205AC (DO-30)

200HF(R) Series

Bulletin I2020 rev. A 07/94

International
IR Rectifier

ELECTRICAL SPECIFICATIONS

Voltage Ratings

Type number	Voltage Code	V_{RRM} , maximum repetitive peak reverse voltage V	V_{RSM} , maximum non-repetitive peak rev. voltage V	I_{RRM} max. @ 180°C mA
200HF(R)	40	400	500	15
	80	800	900	
	120	1200	1300	

Forward Conduction

Parameter		200HF(R)	Units	Conditions		
I _{F(AV)}	Max. average forward current @ Case temperature	200	A	180° conduction, half sine wave		
		125	°C			
I _{F(RMS)}	Max. RMS forward current	314	A	DC @ 120°C case temperature		
I _{FSM}	Max. peak, one-cycle forward, non-repetitive surge current	4400	A	t = 10ms	No voltage	Sinusoidal half wave, Initial T _J = T _J max
		4610		t = 8.3ms	reapplied	
		3700		t = 10ms	100% V _{RRM}	
		3870		t = 8.3ms	reapplied	
I ² t	Maximum I ² t for fusing	97	KA ² s	t = 10ms	No voltage	
		88		t = 8.3ms	reapplied	
		68		t = 10ms	100% V _{RRM}	
		62		t = 8.3ms	reapplied	
I ² √t	Maximum I ² √t for fusing	968	KA ² /s	t = 0.1 to 10ms, no voltage reapplied		
V _{F(TO)1}	Low level value of threshold voltage	0.85	V	(16.7% × π × I _{F(AV)} < I < π × I _{F(AV)}), T _J = T _J max.		
V _{F(TO)2}	High level value of threshold voltage	1.04		(I > π × I _{F(AV)}), T _J = T _J max.		
r _{f1}	Low level value of forward slope resistance	0.85	mΩ	(16.7% × π × I _{F(AV)} < I < π × I _{F(AV)}), T _J = T _J max.		
r _{f2}	High level value of forward slope resistance	0.59		(I > π × I _{F(AV)}), T _J = T _J max.		
V _{FM}	Max. forward voltage drop	1.45	V	I _{pk} = 628A, T _J = 25 °C		

Thermal and Mechanical Specification

Parameter	200HF(R)	Units	Conditions
T _j Max. operating temperature range	-40 to 180	°C	
T _{stg} Max. storage temperature range	-55 to 180		
R _{thJC} Max. thermal resistance, junction to case	0.17	K/W	DC operation
R _{thCS} Max. thermal resistance, case to heatsink	0.08		Mounting surface, smooth, flat and greased
T Max. allowed mounting torque +0 -20%	11	Nm	Not lubricated threads
	10		Lubricated threads
wt Approximate weight	120	g	
Case style	DO-205AC(DO-30)		See Outline Table

ΔR_{thJC} Conduction

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

Conduction angle	Sinusoidal conduction	Rectangular conduction	Units	Conditions
180°	0.045	0.037	K/W	T _j = T _j max.
120°	0.056	0.061		
90°	0.073	0.079		
60°	0.102	0.105		
30°	0.154	0.156		

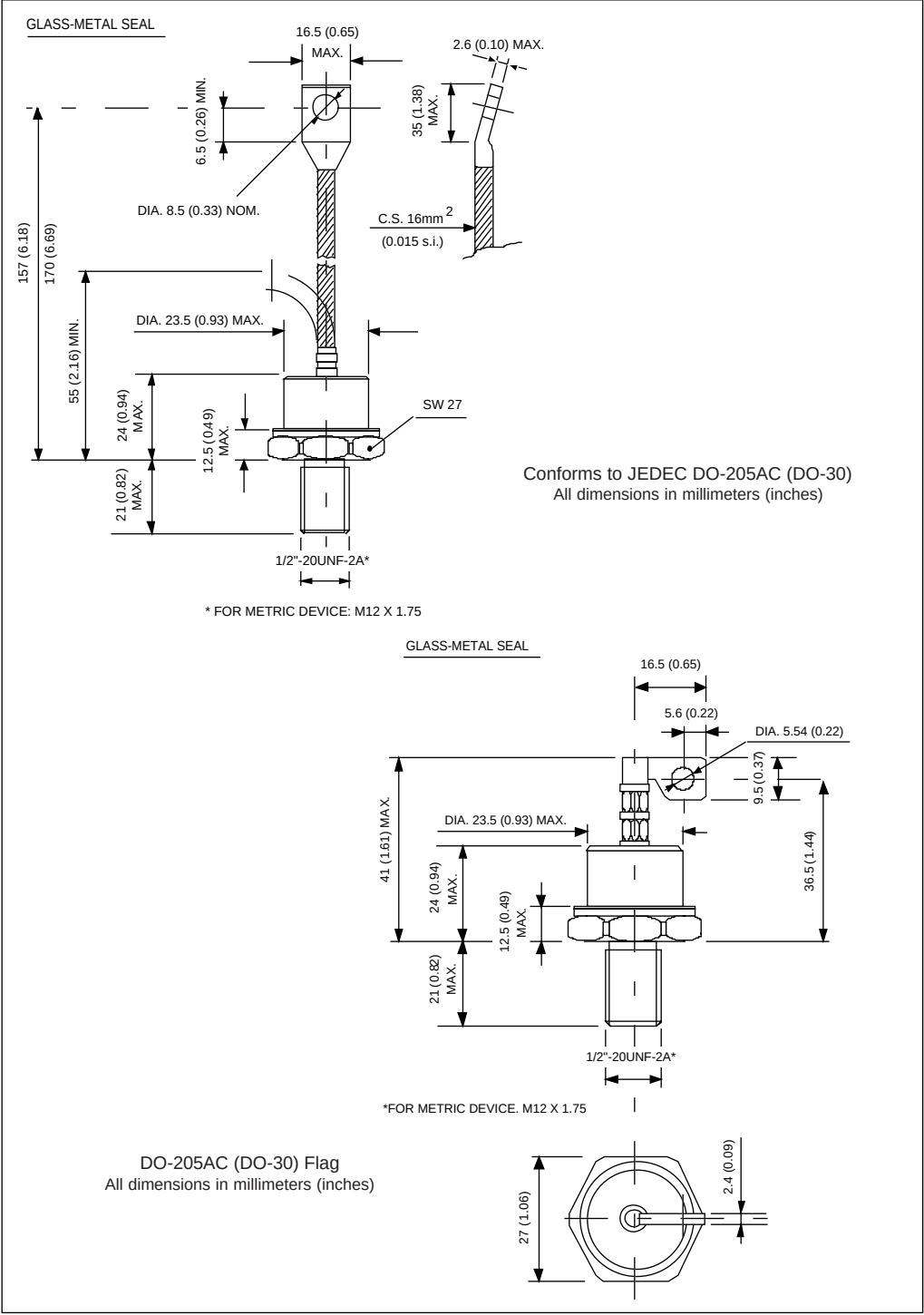
Ordering Information Table

Device Code						
	200	HF	R	120	P	B V
	(1)	(2)	(3)	(4)	(5)	(6) (7)
1	- Essential Part Number					
2	- Diode					
3	- None = Stud Normal Polarity (Cathode to Stud) R = Stud Reverse Polarity (Anode to Stud)					
4	- Voltage code: Code x 10 = V _{RRM} (See Voltage Ratings table)					
5	- P = Stud base DO-205AC(DO-30) 1/2" 20UNF-2A M = Stud base DO-205AC(DO-30) M12x1.75					
6	- B = Flag top terminals (for Cathode/ Anode Leads) S = Isolated lead with silicone sleeve (Red = Reverse Polarity; Blue = Normal Polarity) None = Not isolated lead					
7	- V = Glass-metal seal					

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Outline Table



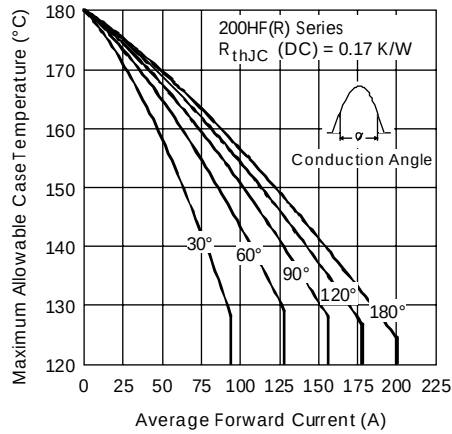


Fig. 1 - Current Ratings Characteristics

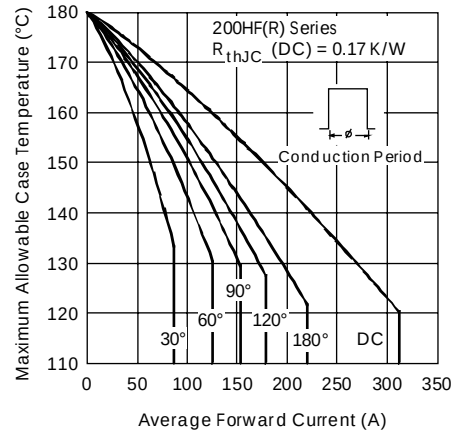


Fig. 2 - Current Ratings Characteristics

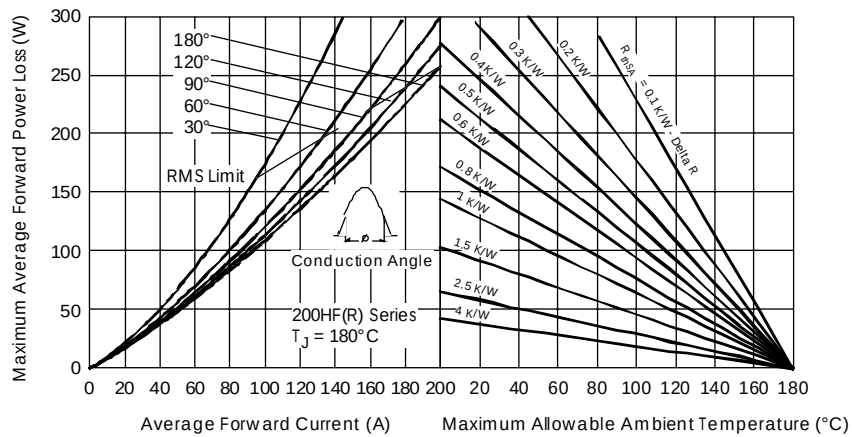


Fig. 3 - Forward Power Loss Characteristics

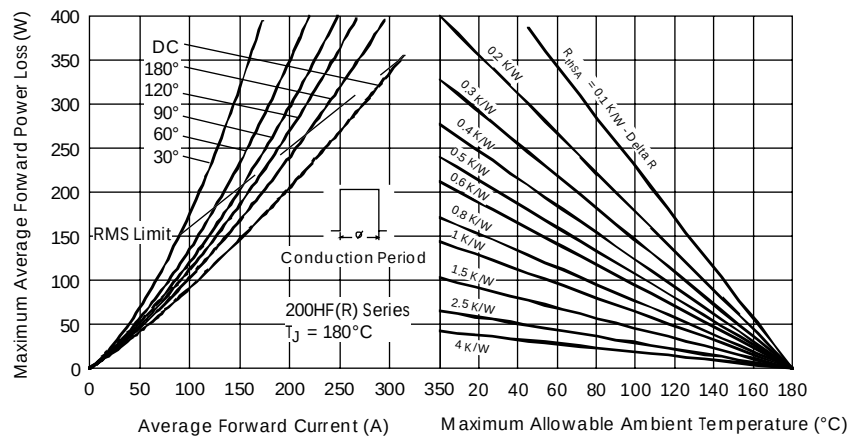


Fig. 4 - Forward Power Loss Characteristics

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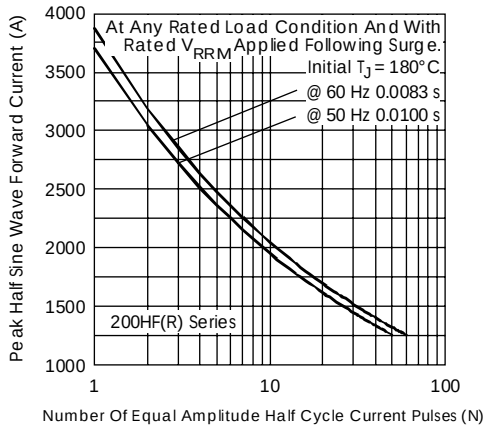


Fig. 5 - Maximum Non-Repetitive Surge Current

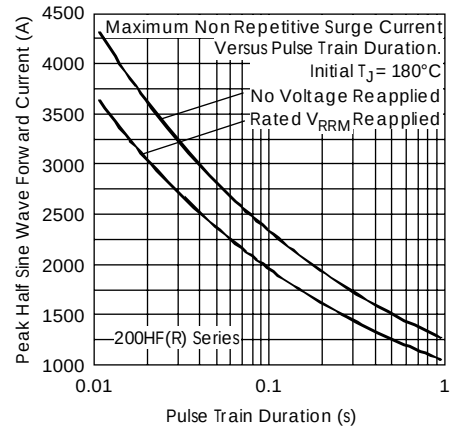


Fig. 6 - Maximum Non-Repetitive Surge Current

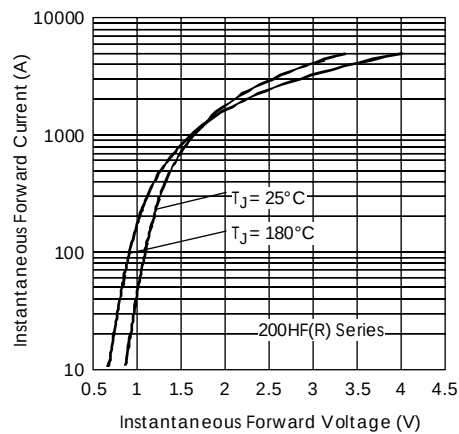


Fig. 7 - Forward Voltage Drop Characteristics

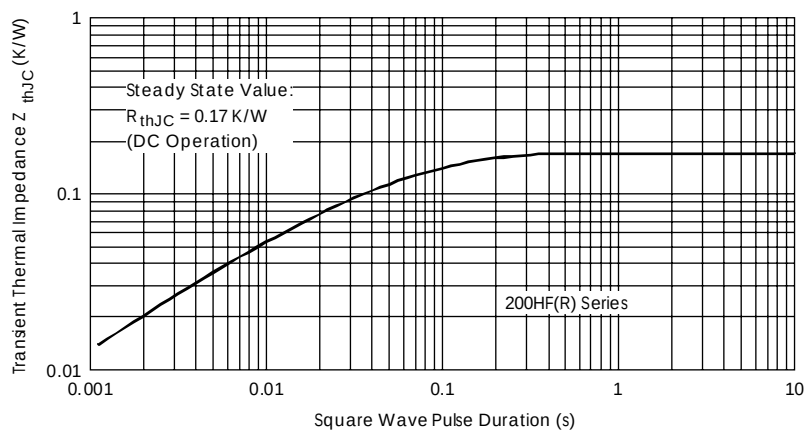


Fig. 8 - Thermal Impedance Z_{thJC} Characteristics