

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

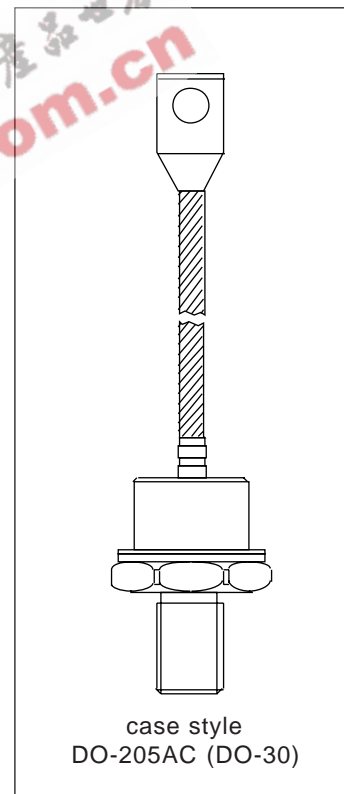
200 A

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



200HF(R) Series

Bulletin I2020 rev. A 07/94

International
 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
	4610		t = 8.3ms reapplied
	3700		t = 10ms 100% V_{RRM}
	3870		t = 8.3ms reapplied
I^2t Maximum I^2t for fusing	97	KA ² s	t = 10ms No voltage
	88		t = 8.3ms reapplied
	63		t = 10ms 100% V_{RRM}
	62		t = 8.3ms reapplied
$I^2\sqrt{t}$ Maximum $I^2\sqrt{t}$ for fusing	968	KA ² √s	t = 0.1 to 10ms, no voltage reapplied
		V	
$V_{F(TO)1}$ Low level value of threshold voltage	0.85	V	$(16.7\% \times \pi \times I_{F(AV)} < I < \pi \times I_{F(AV)})$, $T_J = T_J \text{ max.}$
$V_{F(TO)2}$ High level value of threshold voltage	1.04	V	$(I > \pi \times I_{F(AV)})$, $T_J = T_J \text{ max.}$
r_{f1} Low level value of forward slope resistance	0.85	mΩ	$(16.7\% \times \pi \times I_{F(AV)} < I < \pi \times I_{F(AV)})$, $T_J = T_J \text{ max.}$
r_{f2} High level value of forward slope resistance	0.59	mΩ	$(I > \pi \times I_{F(AV)})$, $T_J = T_J \text{ max.}$
V_{FM} Max. forward voltage drop	1.45	V	$I_{pk} = 6.28A$, $T_J = 25^\circ\text{C}$

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

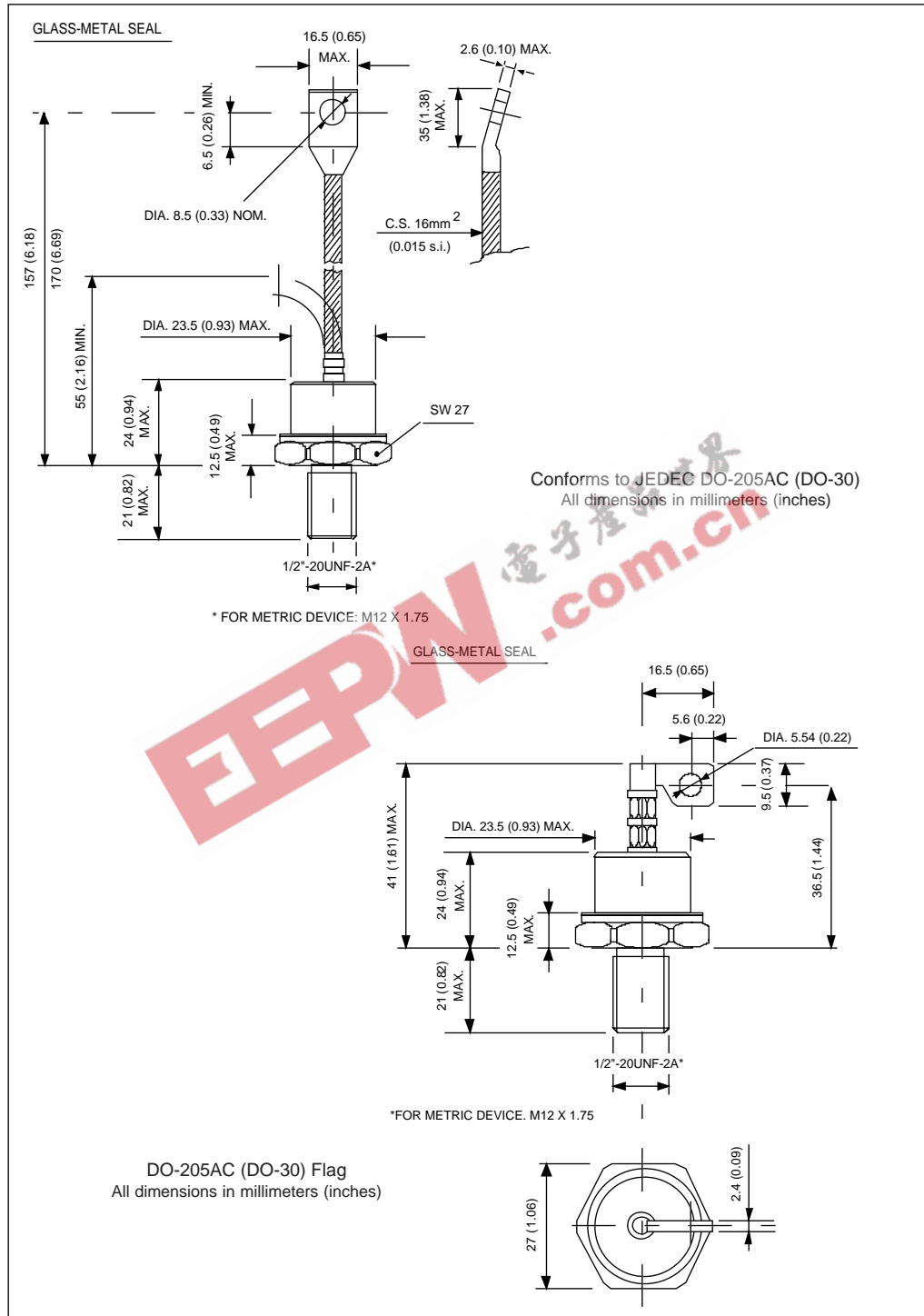
200	HF	R	120	P	B	V
①	②	③	④	⑤	⑥	⑦

- 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

200HF(R) Series

Bulletin I2020 rev. A 07/94

Outline Table



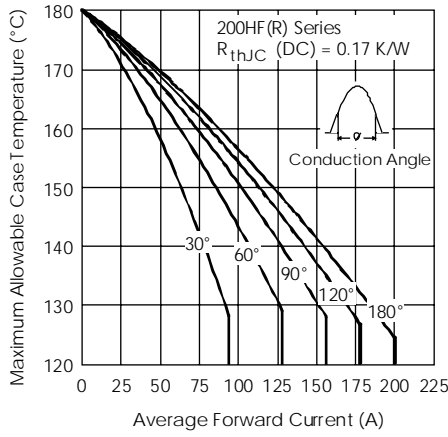


Fig. 1 - Current Ratings Characteristics

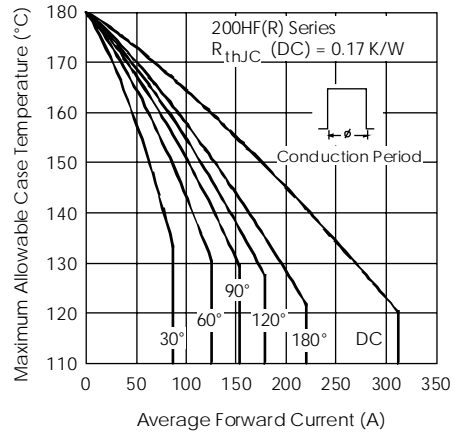


Fig. 2 - Current Ratings Characteristics

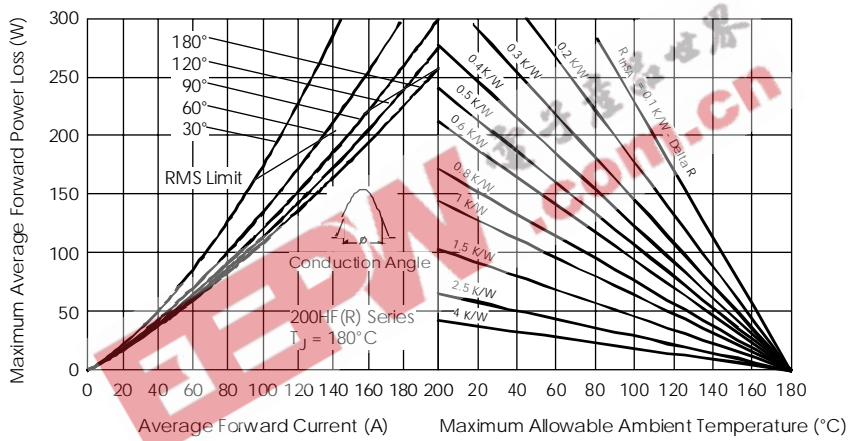


Fig. 3 - Forward Power Loss Characteristics

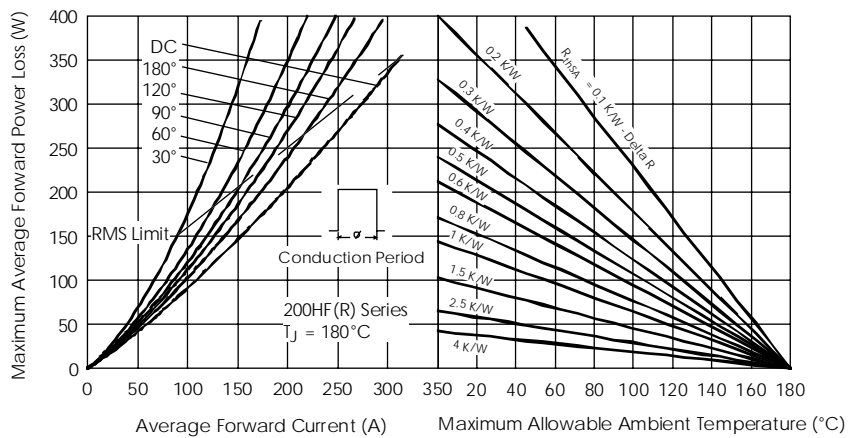


Fig. 4 - Forward Power Loss Characteristics

200HF(R) Series

Bulletin I2020 rev. A 07/94

International
IRF Rectifier

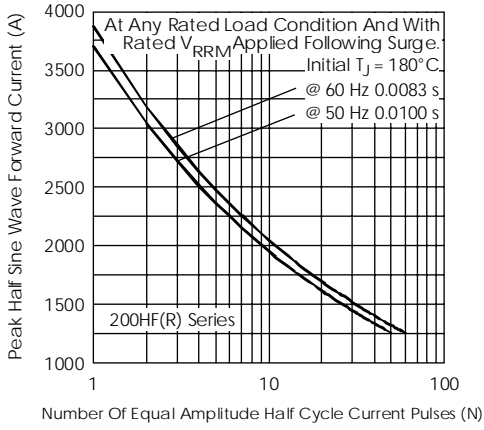


Fig. 5 - Maximum Non-Repetitive Surge Current

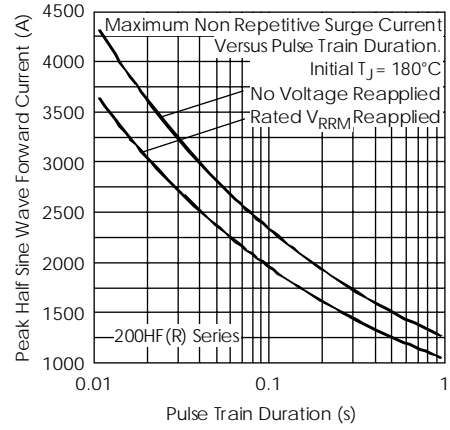


Fig. 6 - Maximum Non-Repetitive Surge Current

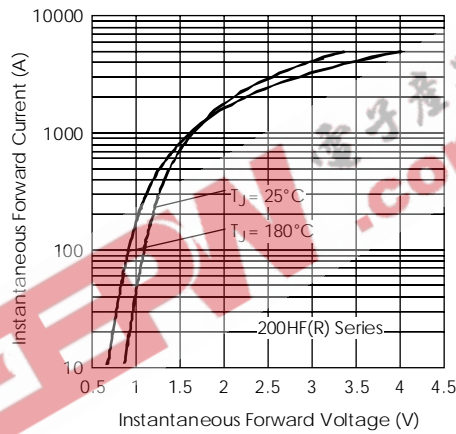


Fig. 7 - Forward Voltage Drop Characteristics

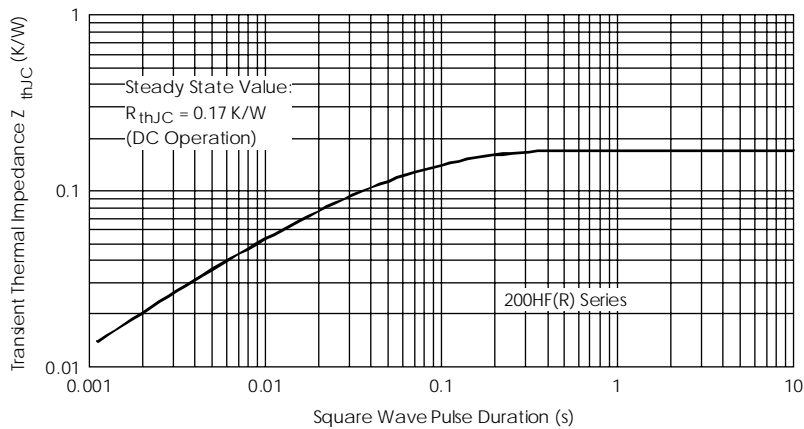


Fig. 8 - Thermal Impedance Z_{thJC} Characteristics