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International IOR Rectifier

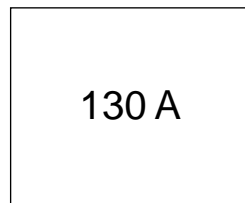
130HF(R) SERIES

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

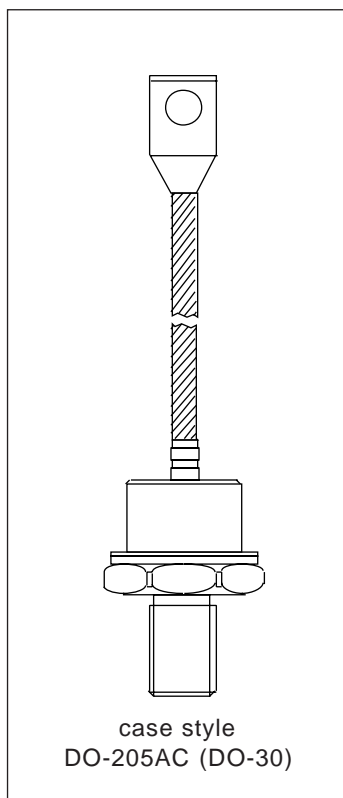


Typical Applications

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

Major Ratings and Characteristics

Parameters	130HF(R)	Units
$I_{F(AV)}$	130	A
$@ T_C$	125	$^{\circ}C$
$I_{F(RMS)}$	200	A
I_{FSM} @ 50Hz	2000	A
$@ 60Hz$	2100	A
I^2t @ 50Hz	20	KA^2s
$@ 60Hz$	18	KA^2s
V_{RRM} range	400 to 1200	V
T_J	-40 to 180	$^{\circ}C$



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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
130HF(R)	40	400	500	15
	80	800	900	
	120	1200	1300	

Forward Conduction

Parameter	130HF(R)	Units	Conditions
$I_{F(AV)}$ Max. average forward current @ Case temperature	130	A	180° conduction, half sine wave
	125	°C	
$I_{F(RMS)}$ Max. RMS forward current	200	A	DC @ 115°C case temperature
I_{FSM} Max. peak, one-cycle forward, non-repetitive surge current	2000	A	t = 10ms No voltage reappplied
	2100		t = 8.3ms reappplied
	1680		t = 10ms 100% V_{RRM} reappplied
	1760		t = 8.3ms reappplied
I^2t Maximum I^2t for fusing	20	KA ² s	t = 10ms No voltage reappplied
	18		t = 8.3ms reappplied
	14		t = 10ms 100% V_{RRM} reappplied
	13		t = 8.3ms reappplied
$I^2\sqrt{t}$ Maximum $I^2\sqrt{t}$ for fusing	200	KA ² /s	t = 0.1 to 10ms, no voltage reappplied
$V_{F(TO)1}$ Low level value of threshold voltage	0.76	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	0.95		$(I > \pi \times I_{F(AV)})$, $T_J = T_J \text{ max.}$
r_{f1} Low level value of forward slope resistance	1.41	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	1.02		$(I > \pi \times I_{F(AV)})$, $T_J = T_J \text{ max.}$
V_{FM} Max. forward voltage drop	1.5	V	$I_{pk} = 500A$, $T_J = 25^\circ\text{C}$

Thermal and Mechanical Specification

Parameter	130HF(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	0.3	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°	0.052	0.042	K/W	T _J = T _J max.
120°	0.064	0.070		
90°	0.083	0.090		
60°	0.117	0.120		
30°	0.177	0.180		

Ordering Information Table

Device Code

130	HF	R	120	P	B	V
①	②	③	④	⑤	⑥	⑦

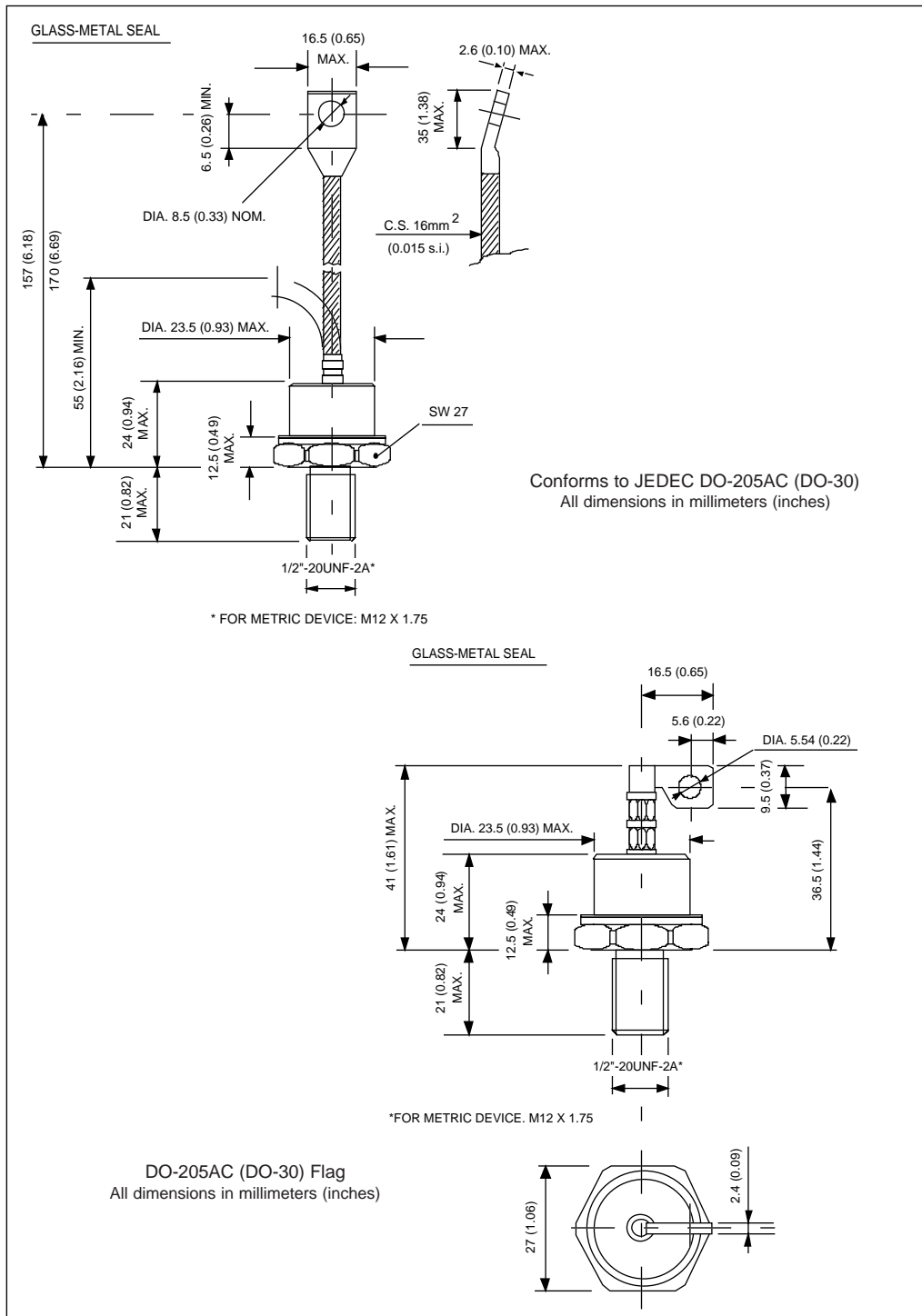
- 1** - Essential Part Number
- 2** - Diode
- 3** - None = Stud Normal Polarity (Cathode to Stud)
 R = Stud Reverse Polarity (Anode to Stud)
- 4** - Voltage code: Code x 10 = V_{RRM} (See Voltage Ratings table)
- 5** - P = Stud base DO-205AC(DO-30) 1/2" 20UNF-2A
 M = Stud base DO-205AC(DO-30) M12x1.75
- 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



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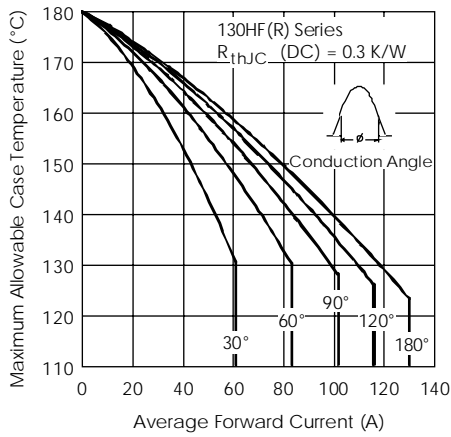


Fig. 1 - Current Ratings Characteristics

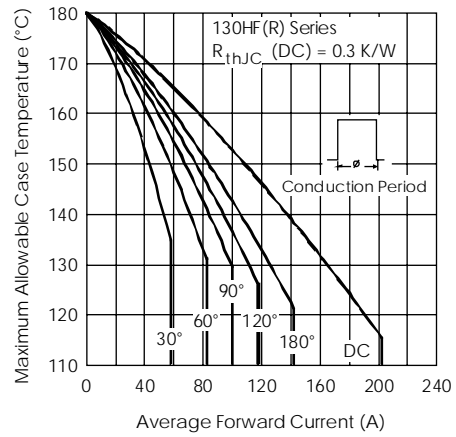


Fig. 2 - Current Ratings Characteristics

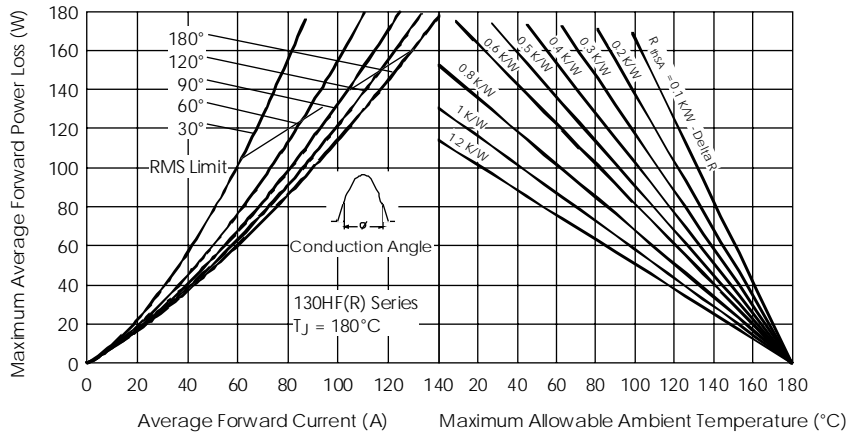


Fig. 3 - Forward Power Loss Characteristics

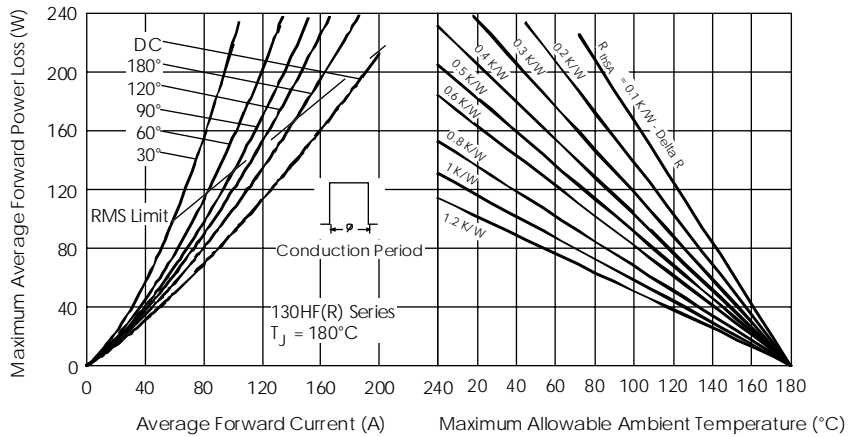


Fig. 4 - Forward Power Loss Characteristics

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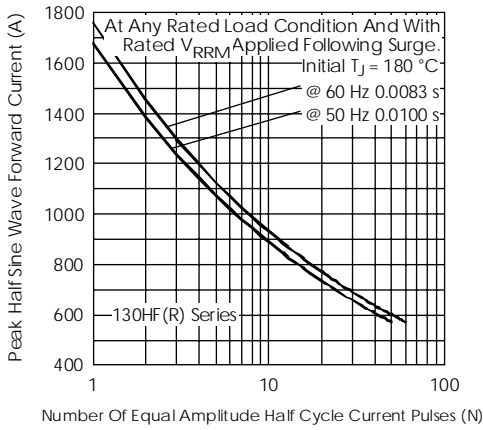


Fig. 5 - Maximum Non-Repetitive Surge Current

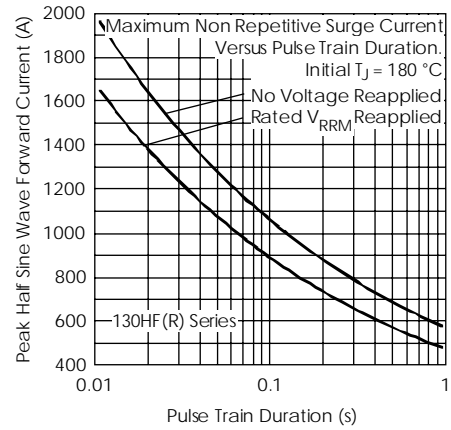


Fig. 6 - Maximum Non-Repetitive Surge Current

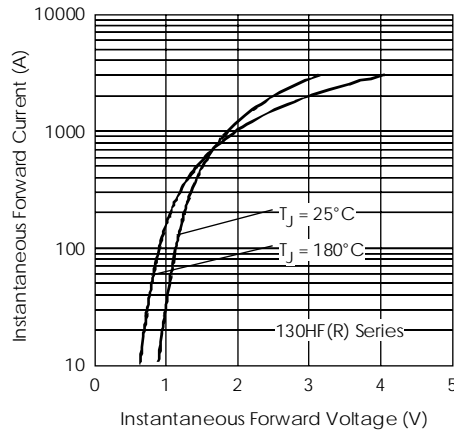


Fig. 7 - Forward Voltage Drop Characteristics

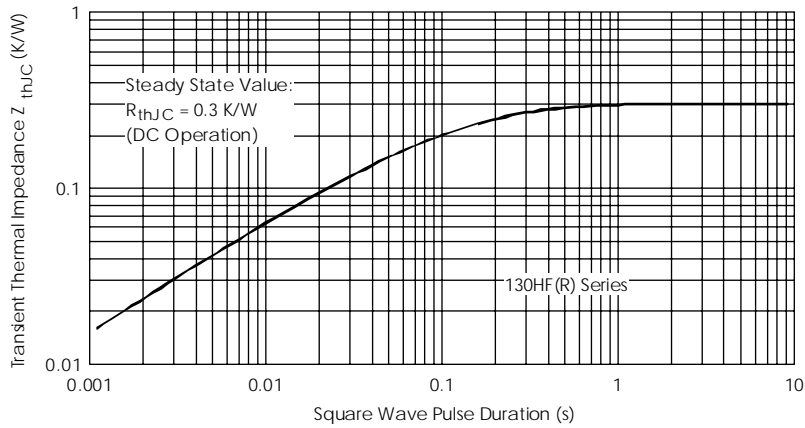


Fig. 8 - Thermal Impedance Z_{thJC} Characteristics