

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

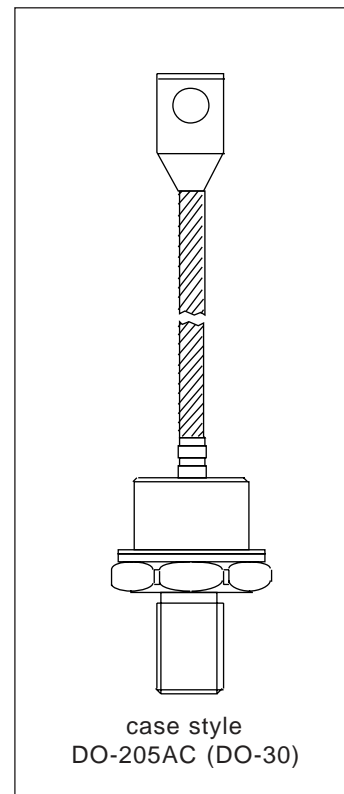
130 A

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	°C
$I_{F(RMS)}$	200	A
I_{FSM} @ 50Hz	2000	A
@ 60Hz	2100	A
I^2t @ 50Hz	20	KA ² s
@ 60Hz	18	KA ² s
V_{RRM} range	400 to 1200	V
T_J	-40 to 180	°C



130HF(R) Series

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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
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
	2100		t = 8.3ms reapplied
	1680		t = 10ms 100% V_{RRM}
	1760		t = 8.3ms reapplied
I^2t Maximum I^2t for fusing	20	KA ² s	t = 10ms No voltage
	18		t = 8.3ms reapplied
	14		t = 10ms 100% V_{RRM}
	13		t = 8.3ms reapplied
$I^2\sqrt{t}$ Maximum $I^2\sqrt{t}$ for fusing	200	KA ² √s	t = 0.1 to 10ms, no voltage reapplied
	$V_{F(TO)1}$ Low level value of threshold voltage	0.76	V
$V_{F(TO)2}$ High level value of threshold voltage		0.95	
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	$I_{pk} = 500A$, $T_J = 25^\circ C$

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		

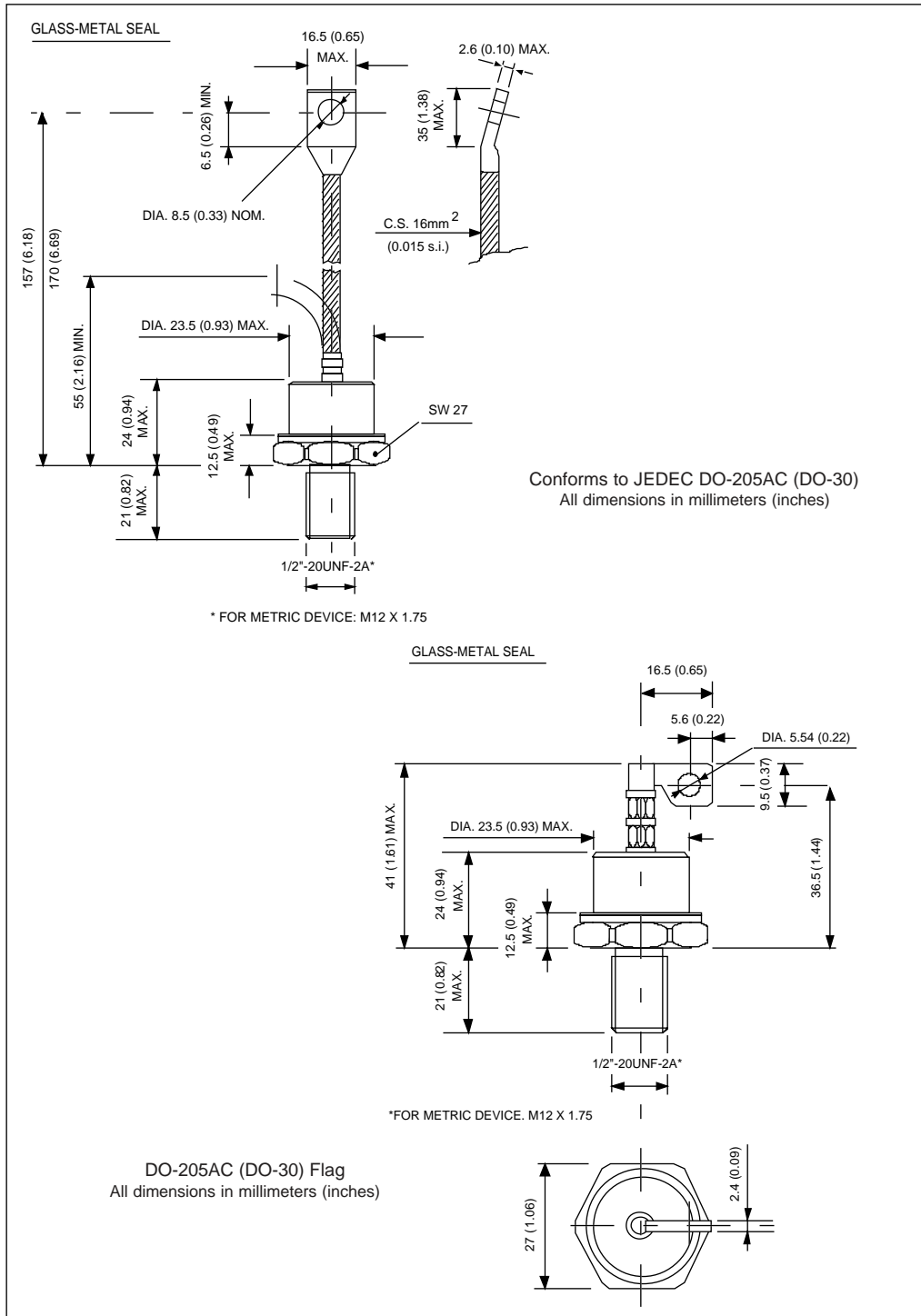
Ordering Information Table

Device Code															
<table border="1" style="margin: auto;"> <tr> <td style="padding: 5px;">130</td> <td style="padding: 5px;">HF</td> <td style="padding: 5px;">R</td> <td style="padding: 5px;">120</td> <td style="padding: 5px;">P</td> <td style="padding: 5px;">B</td> <td style="padding: 5px;">V</td> </tr> <tr> <td style="text-align: center;">①</td> <td style="text-align: center;">②</td> <td style="text-align: center;">③</td> <td style="text-align: center;">④</td> <td style="text-align: center;">⑤</td> <td style="text-align: center;">⑥</td> <td style="text-align: center;">⑦</td> </tr> </table>	130	HF	R	120	P	B	V	①	②	③	④	⑤	⑥	⑦	<p>1 - Essential Part Number</p> <p>2 - Diode</p> <p>3 - None = Stud Normal Polarity (Cathode to Stud) R = Stud Reverse Polarity (Anode to Stud)</p> <p>4 - Voltage code: Code x 10 = V_{RRM} (See Voltage Ratings table)</p> <p>5 - P = Stud base DO-205AC(DO-30) 1/2" 20UNF-2A M = Stud base DO-205AC(DO-30) M12x1.75</p> <p>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</p> <p>7 - V = Glass-metal seal</p>
130	HF	R	120	P	B	V									
①	②	③	④	⑤	⑥	⑦									

130HF(R) Series

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Outline Table



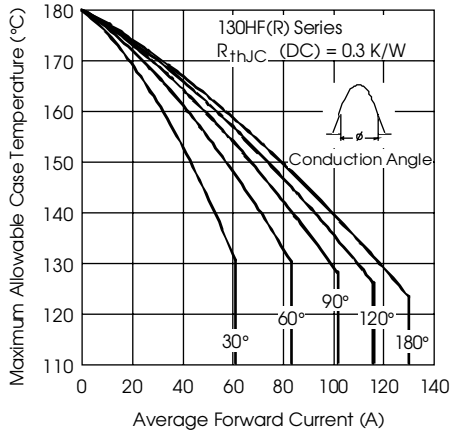


Fig. 1 - Current Ratings Characteristics

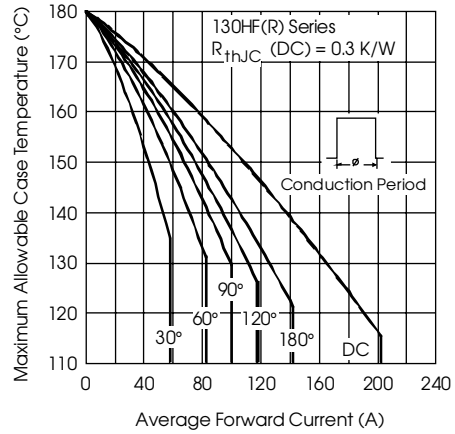


Fig. 2 - Current Ratings Characteristics

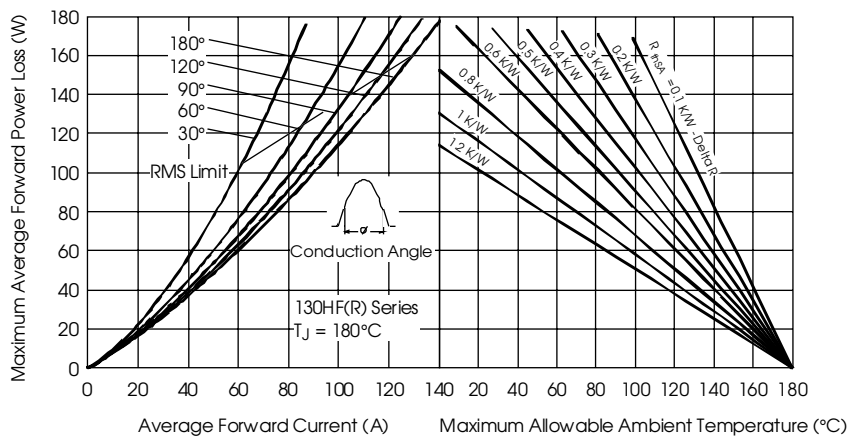


Fig. 3 - Forward Power Loss Characteristics

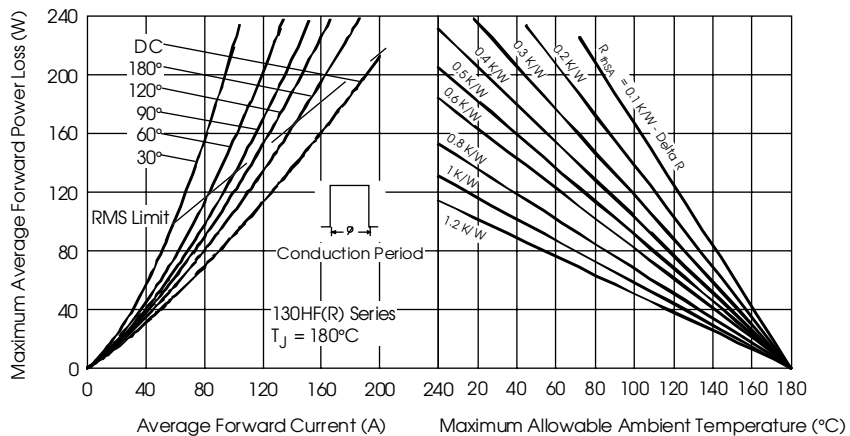


Fig. 4 - Forward Power Loss Characteristics

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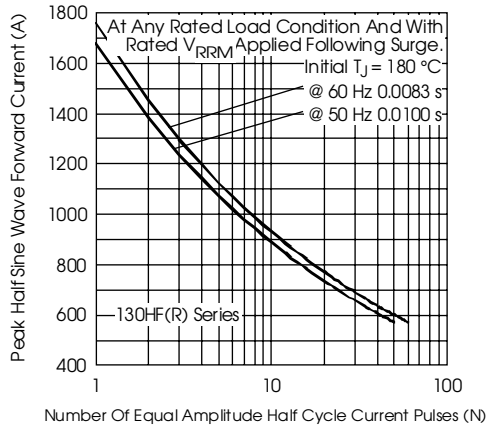


Fig. 5 - Maximum Non-Repetitive Surge Current

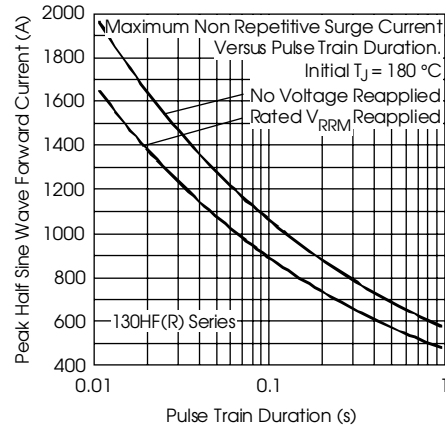


Fig. 6 - Maximum Non-Repetitive Surge Current

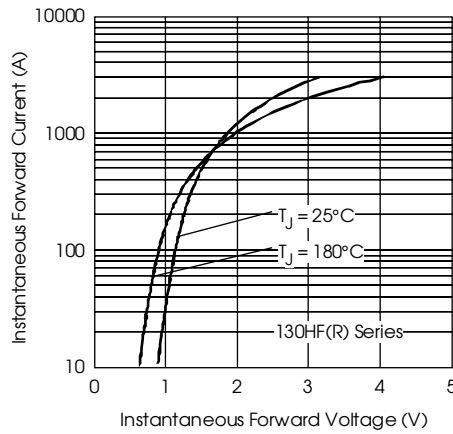


Fig. 7 - Forward Voltage Drop Characteristics

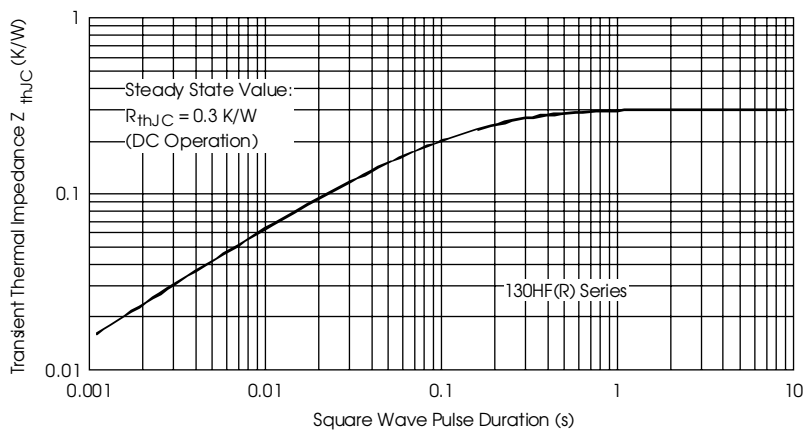


Fig. 8 - Thermal Impedance Z_{thJC} Characteristics