Bulletin I20207 rev. C 03/04

International
IOR Rectifier

80PF(R)...(W) SERIES

STANDARD RECOVERY DIODES
GEN II DO5

Stud Version

Features

- High surge current capability
- Designed for a wide range of applications
- Stud cathode and stud anode version
- Leaded version available/ wire version available
- Low thermal resistance
- UL approval pending

80 A

Typical Applications

- Battery charges
- Converters
- Power supplies
- Machine tool controls
- Welding

80PF(R)...



case style DO-203AB (DO-5)

80PF(R)...W



case style DO-203AB (DO-5)

Major Ratings and Characteristics

Parameters		80PF (R)...(W)	Units
		40 to 120	
$I_{F(AV)}$		80	A
	@ T_C	140	°C
$I_{F(RMS)}$		126	A
I_{FSM}	@50Hz	1500	A
	@ 60Hz	1570	
I^2t	@50Hz	11250	A^2s
	@ 60Hz	10230	
V_{RRM}	range	400 to 1200	V
T_J	range	- 55 to 180	°C

ELECTRICAL SPECIFICATIONS

Voltage Ratings

Type number	Voltage Code	V_{RRM}, maximum repetitive peak reverse voltage V	V_{RSM}, maximum non-repetitive peak reverse voltage V	I_{RRM} max. @ T_J = 150°C mA
80PF (R)...(W)	40	400	500	9
	80	800	960	
	120	1200	1440	

Forward Conduction

Parameter		80PF(R)...(W) 40 to 120	Units	Conditions		
$I_{F(AV)}$	Max. average forward current @ Case temperature	80	A	180° conduction, half sine wave		
		140	°C			
$I_{F(RMS)}$	Max. RMS forward current	126	A			
I_{FSM}	Max. peak, one-cycle forward, non-repetitive surge current	1500	A	t = 10ms	No voltage reapplied	Sinusoidal half wave, Initial T_J = 150°C
		1570		t = 8.3 ms		
		1260		t = 10ms	100% V_{RRM} reapplied	
		1320		t = 8.3 ms		
I^2t	Maximum I^2t for fusing	11250	A^2s	t = 10ms	No voltage reapplied	
		10230		t = 8.3ms		
		7950		t = 10ms	100% V_{RRM} reapplied	
		7200		t = 8.3ms		
$I^2\sqrt{t}$	Maximum $I^2\sqrt{t}$ for fusing	112500	$A^2\sqrt{s}$	t = 0.1 to 10ms, no voltage reapplied		
$V_{F(TO)}$	Low level value of threshold voltage	0.73	V	(16.7% x π x $I_{F(AV)}$ < I < π x $I_{F(AV)}$), T_J = T_J max.		
r_f	Low level value of forward slope resistance	3.0	mΩ	(16.7% x π x $I_{F(AV)}$ < I < π x $I_{F(AV)}$), T_J = T_J max.		
V_{FM}	Max. forward voltage drop	1.40	V	I_{pk}= 220A, T_J = 25°C, t_p = 400µs rectangular wave		

Thermal and Mechanical Specifications

	Parameter	80PF (R)...(W) 40 to 120	Units	Conditions
T_J	Max. junction operating temperature range	-55 to 180	°C	
T_{stg}	Max. storage temperature range	-55 to 180		
R_{thJC}	Max. thermal resistance, junction to case	0.30	K/W	DC operation
R_{thCS}	Max. thermal resistance, case to heatsink	0.25		Mounting surface, smooth, flat and greased
T	Max. allowed mounting torque ±10%	2.3 ÷ 3.4	Nm	Tighting on nut (1)
		20 ÷ 30	lbf·in	
		3.2 ÷ 4.3	Nm	Tighting on Hexagon (2)
		28 ÷ 38	lbf·in	
wt	Approximate weight	15.8 (0.56)	g (oz)	
	Case style	DO-203AB (DO5)		See Outline Table

(1) As general recommendation we suggest to tight on Hexagon and not on nut

(2) Torque must be appliable only to Hexagon and not to plastic structure

ΔR_{thJC} Conduction

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

Conduction angle	Sinusoidal conduction	Rectangular conduction	Units	Conditions
180°	0.14	0.10	K/W	$T_J = T_J$ max.
120°	0.16	0.17		
90°	0.21	0.22		
60°	0.30	0.31		
30°	0.50	0.50		

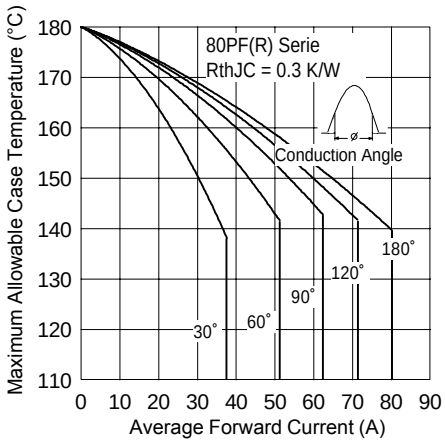


Fig. 1 - Current Ratings Characteristics

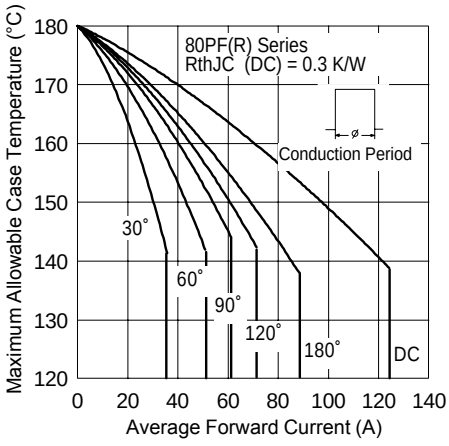


Fig. 2 - Current Ratings Characteristics

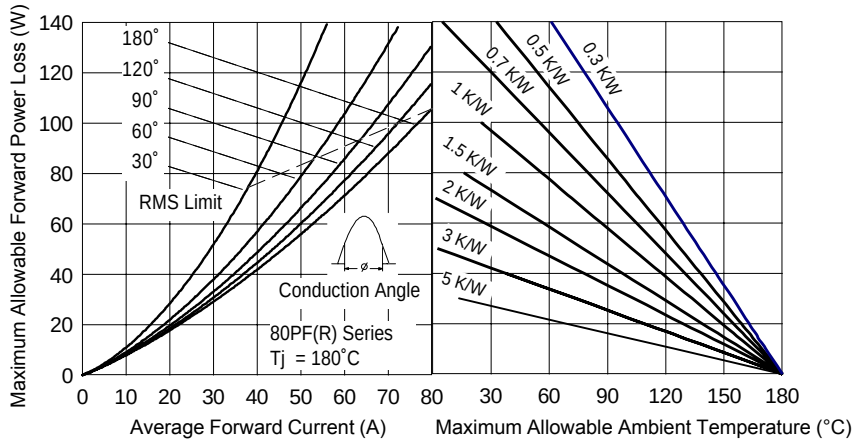


Fig. 3 - Forward Power Loss Characteristics

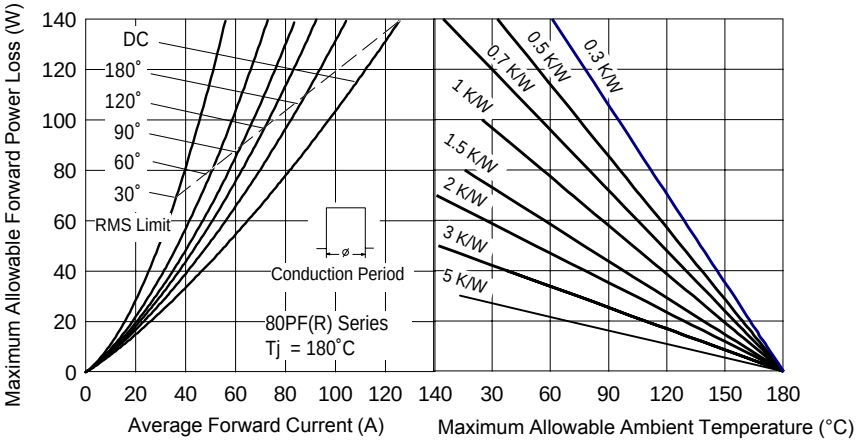


Fig. 4 - Forward Power Loss Characteristics

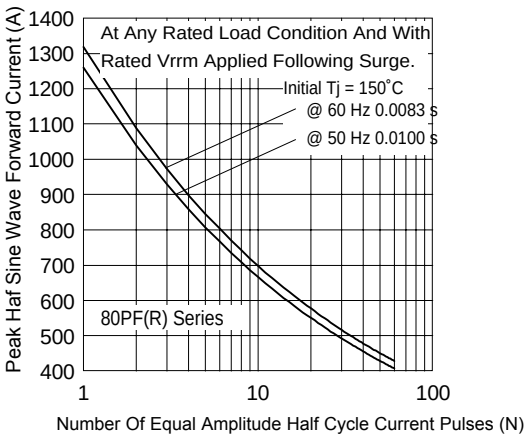


Fig. 5 - Maximum Non -Repetitive Surge Current

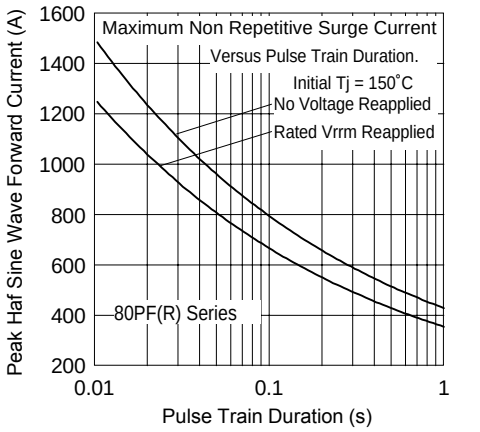


Fig. 6 - Maximum Non -Repetitive Surge Current

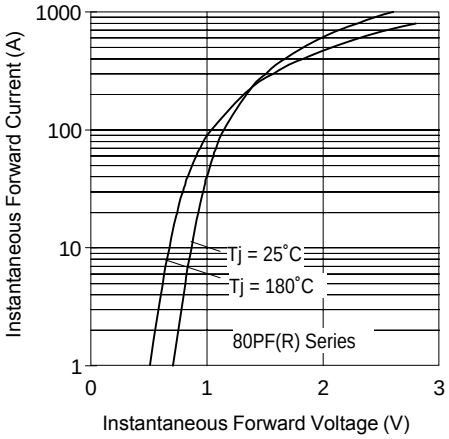


Fig. 7 - Forward Voltage Drop Characteristics

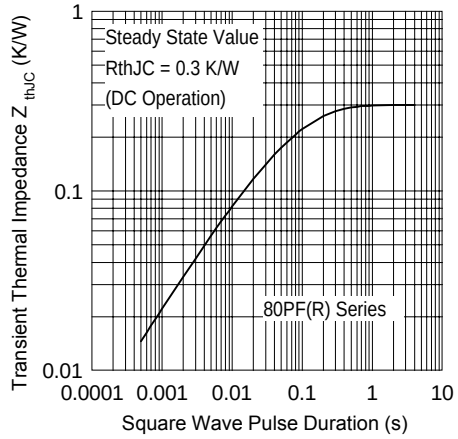


Fig. 8 - Thermal Impedance Z_{thJC} Characteristics

Outline Table

Fig. A - 80PF (R)...
Case Style DO-203AB (DO-5)
Note: For Metric device please contact Factory

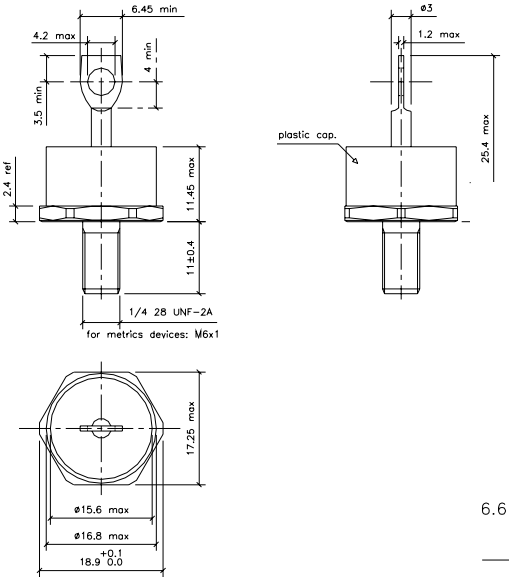


Fig. B - 80PF (R)...(W)
Case Style DO-203AB (DO-5)
Note: For Metric device please contact Factory

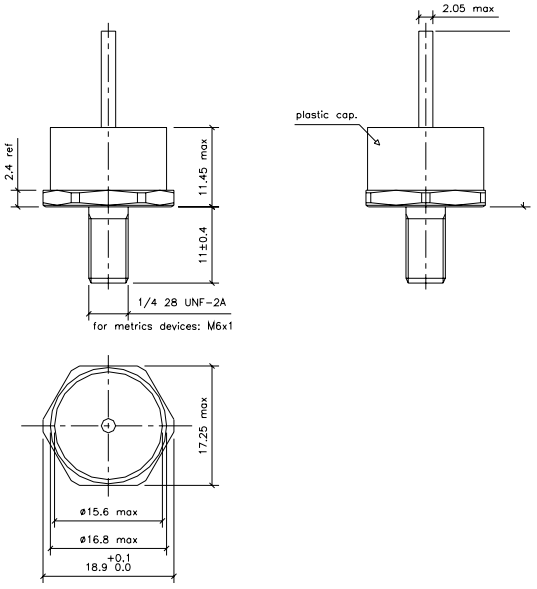
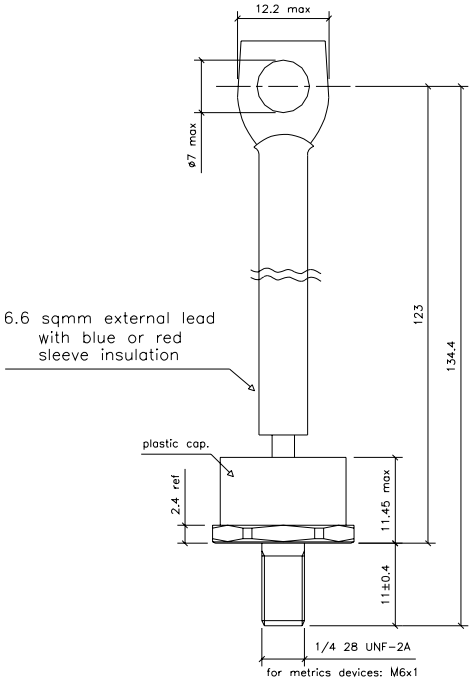
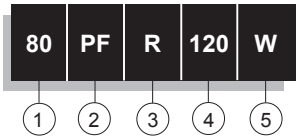


Fig. C - 82PF (R)...
Case Style DO-203AB (DO-5)
Note: For Metric device please contact Factory



Ordering Information Table

Device Code



1 - 80 = Standard device
82 = Isolated lead on standard terminal
with silicone sleeve available for 1200V only
(Red = Reverse Polarity)
(Blue = Normal Polarity)
2 - PF = Plastic Package
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 - None = Standard terminal (see Fig. A)
- W = Wire terminal (see Fig. B)

Data and specifications subject to change without notice.
This product has been designed and qualified for Multiple Level.
Qualification Standards can be found on IR's Web site.

International
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