Bulletin I20205 rev. A 09/98

International
IOR Rectifier

12F(R) SERIES

STANDARD RECOVERY DIODES **Stud Version**

12 A

Features

- High surge current capability
- Avalanche types available
- Stud cathode and stud anode version
- Wide current range
- Types up to 1200V V_{RRM}

TypicalApplications

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

Major Ratings and Characteristics

Parameters		12F(R)	Units
$I_{F(AV)}$		12	A
	@ T_C	144	°C
$I_{F(RMS)}$		19	A
I_{FSM}	@ 50Hz	265	A
	@ 60Hz	280	A
I^2t	@ 50Hz	351	A^2s
	@ 60Hz	320	A^2s
V_{RRM}	range	100 to 1200	V
T_J	range	- 65 to 175	°C



case style
DO-203AA (DO-4)

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	$V_{R(BR)}$, minimum avalanche voltage V **(1)**	I_{RRM} max. @ T_J = 175°C mA
12F(R)	10	100	150	--	12
	20	200	275	--	
	40	400	500	500	
	60	600	725	750	
	80	800	950	950	
	100	1000	1200	1150	
	120	1200	1400	1350	

(1) Avalanche version only available from V_{RRM} 400V to 1200V.

Forward Conduction

	Parameter	12F(R)	Units	Conditions		
$I_{F(AV)}$	Max. average forward current	12	A	180° conduction, half sine wave		
	@ Case temperature	144	°C			
$I_{F(RMS)}$	Max. RMS forward current	19	A			
P_R	Maximum non-repetitive peak reverse power	7	K/W	10µs square pulse, $T_J = T_J$ max. **see note (2)**		
I_{FSM}	Max. peak, one-cycle forward, non-repetitive surge current	265	A	t = 10ms	No voltage reapplied	Sinusoidal half wave, Initial $T_J = T_J$ max.
		280		t = 8.3ms		
		225		t = 10ms	100% V_{RRM} reapplied	
		235		t = 8.3ms		
I^2t	Maximum I^2t for fusing	351	A^2s	t = 10ms	No voltage reapplied	
		320		t = 8.3ms		
		250		t = 10ms	100% V_{RRM} reapplied	
		226		t = 8.3ms		
$I^2\sqrt{t}$	Maximum $I^2\sqrt{t}$ for fusing	3510	$A^2\sqrt{s}$	t = 0.1 to 10ms, no voltage reapplied		
$V_{F(TO)1}$	Low level value of threshold voltage	0.77	V	(16.7% x π x $I_{F(AV)}$ < I < π x $I_{F(AV)}$), $T_J = T_J$ max.		
$V_{F(TO)2}$	High level value of threshold voltage	0.97		(I > π x $I_{F(AV)}$), $T_J = T_J$ max.		
r_{f1}	Low level value of forward slope resistance	10.70	mΩ	(16.7% x π x $I_{F(AV)}$ < I < π x $I_{F(AV)}$), $T_J = T_J$ max.		
r_{f2}	High level value of forward slope resistance	6.20		(I > π x $I_{F(AV)}$), $T_J = T_J$ max.		
V_{FM}	Max. forward voltage drop	1.26	V	I_{pk}= 38A, T_J = 25°C, t_p = 400µs rectangular wave		

(2) Available only for Avalanche version, all other parameters the same as 12F.

Thermal and Mechanical Specifications

	Parameter	12F(R)	Units	Conditions
T_J	Max. junction operating temperature range	-65 to 175	°C	
T_{stg}	Max. storage temperature range	-65 to 200		
R_{thJC}	Max. thermal resistance, junction to case	2	K/W	DC operation
R_{thCS}	Max. thermal resistance, case to heatsink	0.5		Mounting surface, smooth, flat and greased
T	Mounting torque, ± 10%	1.2 (1.5)	Nm	Lubricated threads (Not lubricated threads)
wt	Approximate weight	7 (0.25)	g (oz)	
	Case style	DO-203AA (DO-4)		See Outline Table

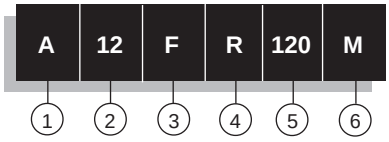
ΔR_{thJC} Conduction

(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°	0.33	0.26	K/W	$T_J = T_J$ max.
120°	0.41	0.44		
90°	0.53	0.58		
60°	0.78	0.81		
30°	1.28	1.29		

Ordering Information Table

Device Code



1 - A = Avalanche diode
None = Standard diode

2 - Current rating: Code = $I_{F(AV)}$

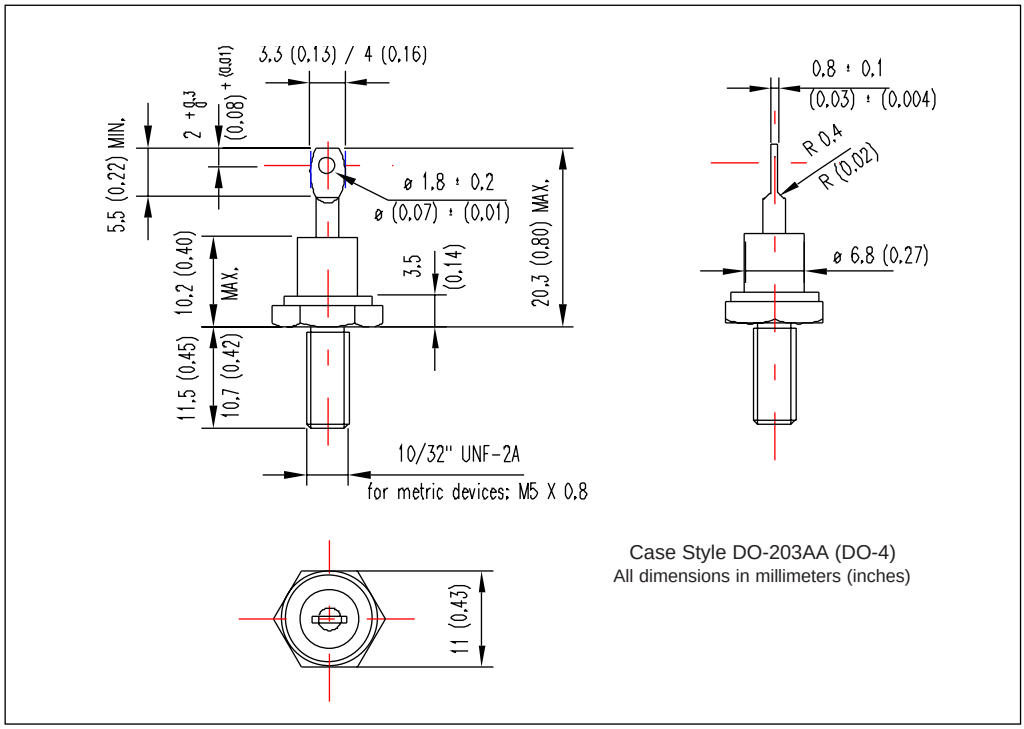
3 - F = Standard device

4 - None = Stud Normal Polarity (Cathode to Stud)
R = Stud Reverse Polarity (Anode to Stud)

5 - Voltage code: Code x 10 = V_{RRM} (See Voltage Ratings table)

6 - None = Stud base DO-203AA (DO-4) 10-32UNF-2A
M = Stud base DO-203AA (DO-4) M5 X 0.8 - (Not available for Avalanche diodes)

Outlines Table



Case Style DO-203AA (DO-4)
All dimensions in millimeters (inches)

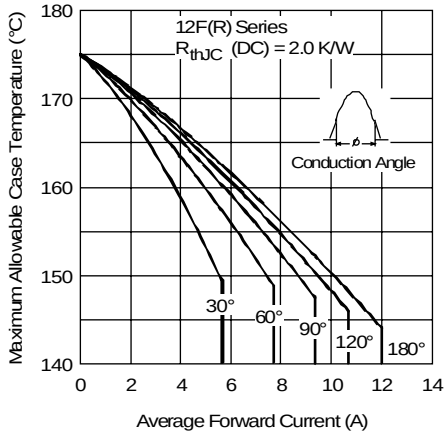


Fig. 1 - Current Ratings Characteristics

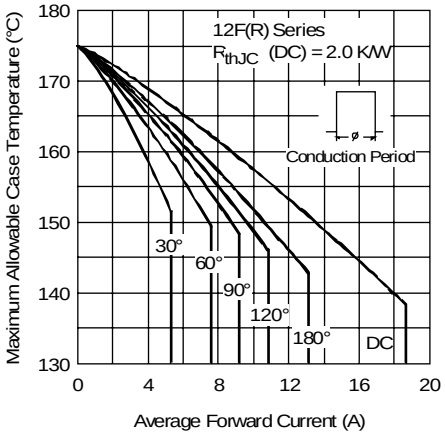


Fig. 2 - Current Ratings Characteristics

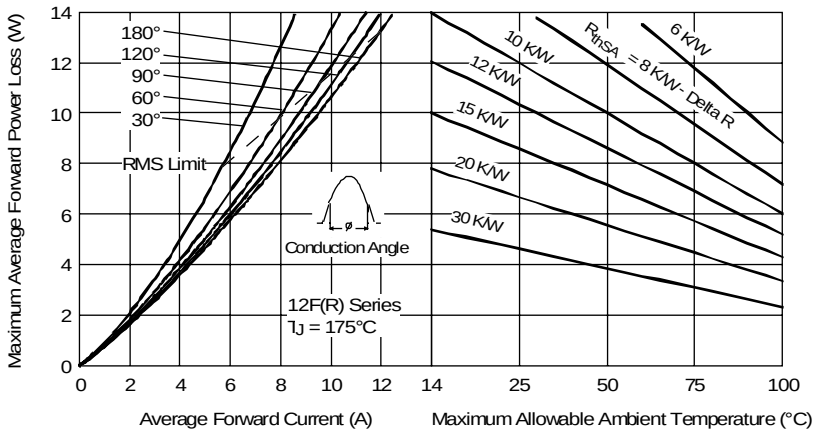


Fig. 3 - Forward Power Loss Characteristics

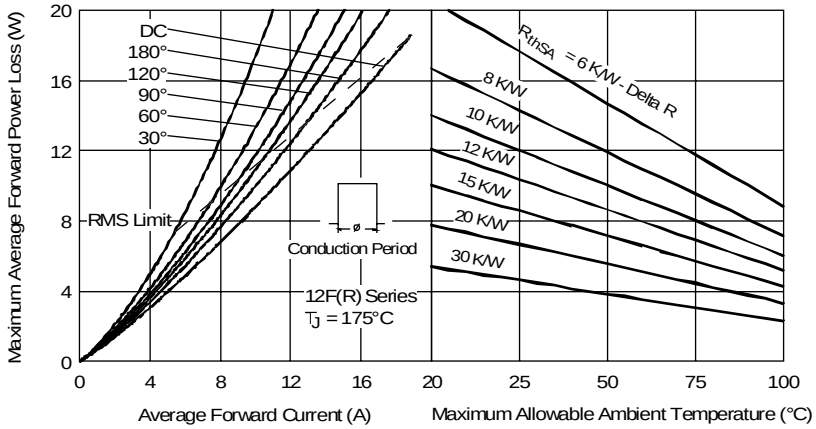


Fig. 4 - Forward Power Loss Characteristics

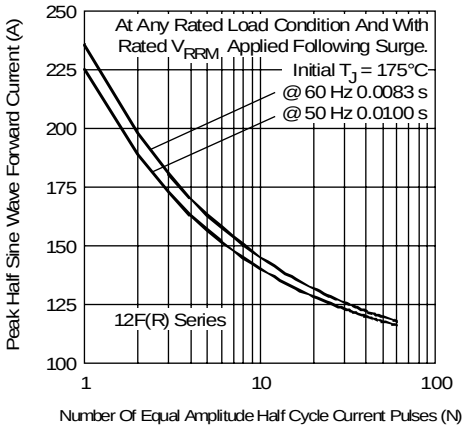


Fig. 5 - Maximum Non-Repetitive Surge Current

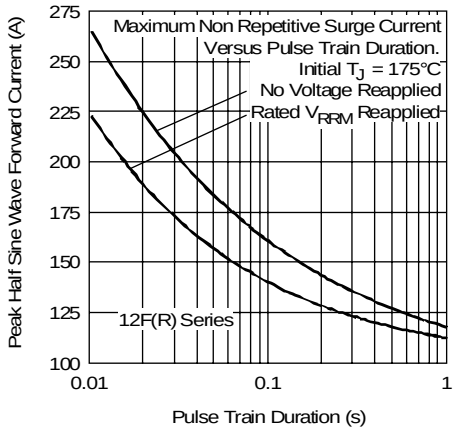


Fig. 6 - Maximum Non-Repetitive Surge Current

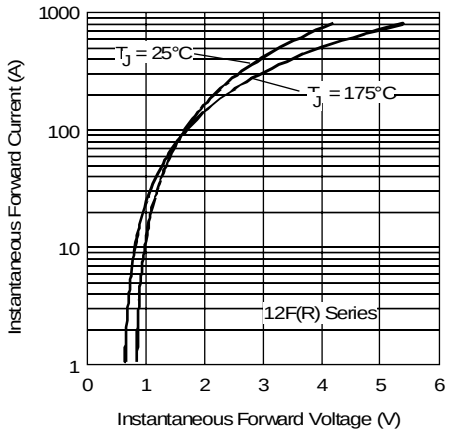


Fig. 7 - Forward Voltage Drop Characteristics

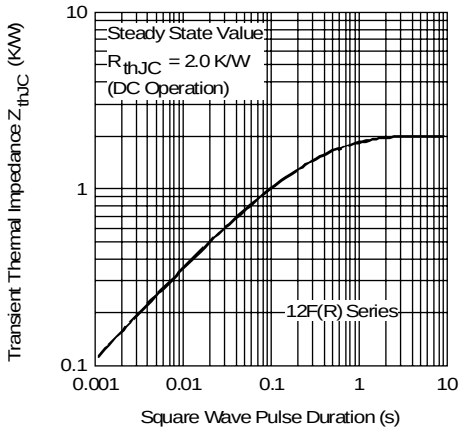


Fig. 8 - Thermal Impedance Z_{thJC} Characteristics

International
IOR Rectifier

WORLD HEADQUARTERS: 233 Kansas St., El Segundo, California 90245 U.S.A. Tel: (310) 322 3331. Fax: (310) 322 3332.
EUROPEAN HEADQUARTERS: Hurst Green, Oxted, Surrey RH8 9BB, U.K. Tel: ++ 44 1883 732020. Fax: ++ 44 1883 733408.
IR CANADA: 15 Lincoln Court, Brampton, Markham, Ontario L6T3Z2. Tel: (905) 453 2200. Fax: (905) 475 8801.
IR GERMANY: Saalburgstrasse 157, 61350 Bad Homburg. Tel: ++ 49 6172 96590. Fax: ++ 49 6172 965933.
IR ITALY: Via Liguria 49, 10071 Borgaro, Torino. Tel: ++ 39 11 4510111. Fax: ++ 39 11 4510220.
IR FAR EAST: K&H Bldg., 2F, 30-4 Nishi-Ikebukuro 3-Chome, Toshima-Ku, Tokyo, Japan 171. Tel: 81 3 3983 0086.
IR SOUTHEAST ASIA: 1 Kim Seng Promenade, Great World City West Tower,13-11, Singapore 237994. Tel: ++ 65 838 4630.
IR TAIWAN: 16 Fl. Suite D.207, Sec. 2, Tun Haw South Road, Taipei, 10673, Taiwan. Tel: 886 2 2377 9936.

http://www.irf.com *Fax-On-Demand: +44 1883 733420*
Data and specifications subject to change without notice.

ООО «НИОКРсистемс» - это оперативные поставки широкого спектра электронных компонентов отечественного и импортного производства напрямую от производителей и с крупнейших мировых складов. Реализуемая нашей компанией продукция насчитывает более полумиллиона наименований.

Благодаря этому наша компания предлагает к поставке практически не ограниченный ассортимент компонентов как оптовыми, мелкооптовыми партиями, так и в розницу.

Благодаря развитой сети поставщиков, помогаем в поиске и приобретении экзотичных или снятых с производства компонентов.

Наша компания это:

- Гарантия качества поставляемой продукции
- Широкий ассортимент
- Минимальные сроки поставок
- Техническая поддержка
- Подбор комплектации
- Индивидуальный подход
- Гибкое ценообразование
- Работаем по 275 ФЗ

ООО «НИОКР СИТЕМС»
Москва, 125362, Россия, ул. Вишневая, д. 9, к. 1, Блок 104 а и 104 в

Телефон: 8 (495) 268-14-82
Email: n@nsistems.ru

ИНН: 7735154786
ОГРН: 1167746717709