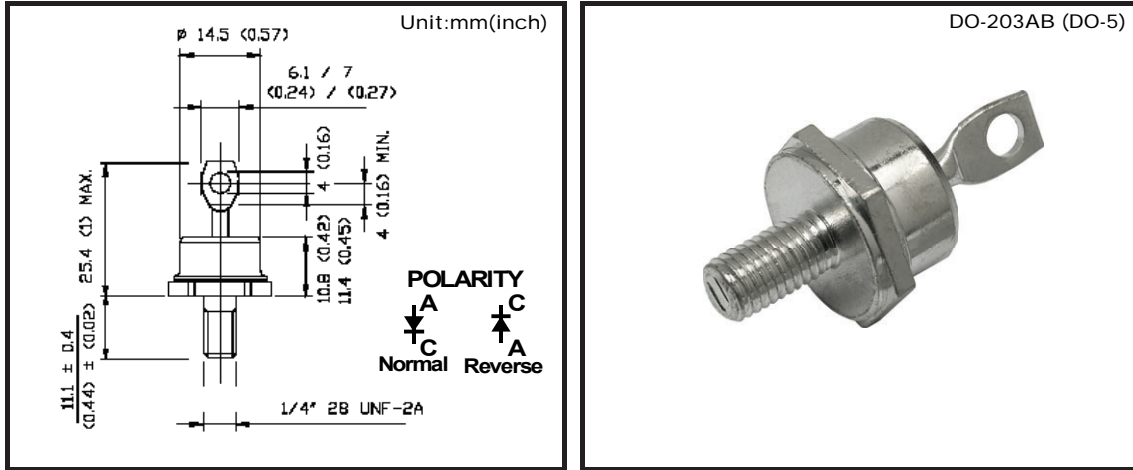


Pb Free Plating Product

70HF120/70HFR120



70A/1200V Metal Stud Type Rectifier Diodes



MAJOR RATINGS AND CHARACTERISTICS				
PARAMETER	TEST CONDITIONS	70HF series/70HFR series		UNITS
		10 TO 120	140/160	
I _{F(AV)}	T _C	70	70	A
		140	110	°C
I _{F(RMS)}		110	110	A
I _{FSM}	50 Hz	1200	1200	A
	60 Hz	1250	1250	
I ² t	50 Hz	7100	7100	A ² s
	60 Hz	6450	6450	
V _{RRM}	Range	100 to 1200	1400/1600	V
T _J		-65 to +180	-65 to +150	°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	V _{R(BR)} , MINIMUM AVALANCHE VOLTAGE V	I _{RRM} MAXIMUM AT T _J = T _J MAXIMUM mA
70HF10/70HFR10	10	100	200	200	15
70HF20/70HFR20	20	200	300	300	
70HF30/70HFR30	30	300	400	400	
70HF40/70HFR40	40	400	500	500	
70HF60/70HFR60	60	600	720	725	9
70HF80/70HFR80	80	800	960	950	
70HF100/70HFR100	100	1000	1200	1150	
70HF120/70HFR120	120	1200	1440	1350	
70HF140/70HFR140	140	1400	1650	1550	4.5
70HF160/70HFR160	160	1600	1900	1750	

FORWARD CONDUCTION							
PARAMETER	SYMBOL	TEST CONDITIONS		70HF-/70HFR-		UNITS	
				10 to 120	140/160		
Maximum average forward current at case temperature	$I_{F(AV)}$	180° conduction, half sine wave		70		A	
				140	110	°C	
Maximum RMS forward current	$I_{F(RMS)}$			110		A	
Maximum peak, one cycle forward, non-repetitive surge current	I_{FSM}	t = 10 ms	No voltage reapplied	Sinusoidal half wave, initial $T_J = T_J$ maximum		1200	A
		t = 8.3 ms				1250	
		t = 10 ms	100 % V_{RRM} reapplied			1000	
		t = 8.3 ms				1050	
Maximum I^2t for fusing	I^2t	t = 10 ms	No voltage reapplied			7100	A ² s
		t = 8.3 ms				6450	
		t = 10 ms	100 % V_{RRM} reapplied			5000	
		t = 8.3 ms				4550	
Maximum $I^2\sqrt{t}$ for fusing	$I^2\sqrt{t}$	t = 0.1 ms to 10 ms, no voltage reapplied		71 000		A ² √s	
Low level value of threshold voltage	$V_{F(TO)1}$	(16.7 % $\times \pi \times I_{F(AV)} < I < \pi \times I_{F(AV)}$, $T_J = T_J$ maximum)		0.79		V	
High level value of threshold voltage	$V_{F(TO)2}$	(I > $\pi \times I_{F(AV)}$, $T_J = T_J$ maximum)		1.00			
Low level value of forward slope resistance	r_{f1}	(16.7 % $\times \pi \times I_{F(AV)} < I < \pi \times I_{F(AV)}$, $T_J = T_J$ maximum)		2.33		mΩ	
High level value of forward slope resistance	r_{f2}	(I > $\pi \times I_{F(AV)}$, $T_J = T_J$ maximum)		1.53			
Maximum forward voltage drop	V_{FM}	$I_{pk} = 220$ A, $T_J = 25$ °C, $t_p = 400$ μs rectangular wave		1.35	1.46	V	

THERMAL AND MECHANICAL SPECIFICATIONS						
PARAMETER	SYMBOL	TEST CONDITIONS		70HF-/70HFR-		UNITS
				10 to 120	140/160	
Maximum junction and storage temperature range	T_J, T_{Stg}			-65 to +180	-65 to +150	°C
Maximum thermal resistance, junction to case	R_{thJC}	DC operation		0.45		K/W
Thermal resistance, case to heatsink	R_{thCS}	Mounting surface, smooth, flat and greased		0.25		
Maximum allowable mounting torque (+0 %, -10 %)		Not lubricated thread, tightening on nut ⁽¹⁾		3.4 (30)		N · m (lbf · in)
		Lubricated thread, tightening on nut ⁽¹⁾		2.3 (20)		
		Not lubricated thread, tightening on hexagon ⁽²⁾		4.2 (37)		
		Lubricated thread, tightening on hexagon ⁽²⁾		3.2 (28)		
Approximate weight				17		g
Case style		See dimensions - link at the end of datasheet		0.6		oz.
				DO-203AB (DO-5)		

Notes

- (1) Recommended for pass-through holes
(2) Recommended for holed threaded heatsinks

ΔR_{thJC} CONDUCTION					
CONDUCTION ANGLE	SINUSOIDAL CONDUCTION	RECTANGULAR CONDUCTION	TEST CONDITIONS	UNITS	
180°	0.08	0.06	$T_J = T_J$ maximum	K/W	
120°	0.10	0.11			
90°	0.13	0.14			
60°	0.19	0.20			
30°	0.30	0.30			

Note

- The table above shows the increment of thermal resistance R_{thJC} when devices operate at different conduction angles than DC

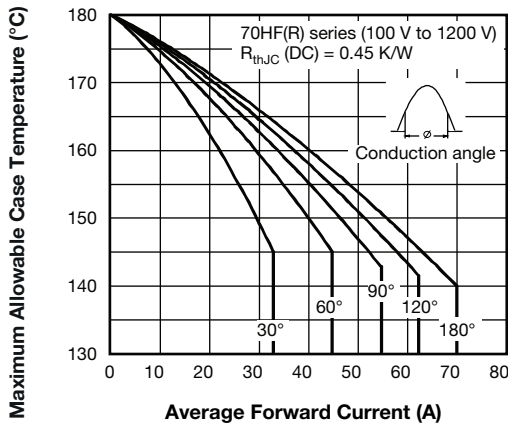


Fig. 1 - Current Ratings Characteristics

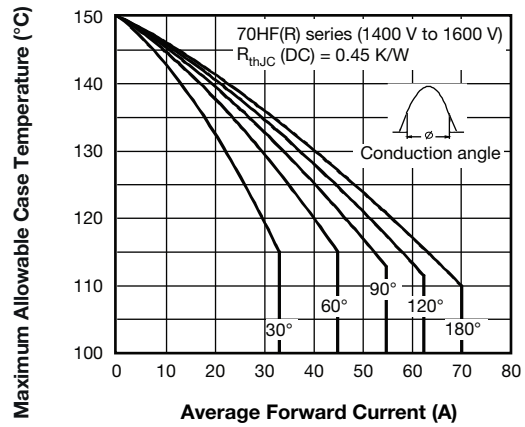


Fig. 3 - Current Ratings Characteristics

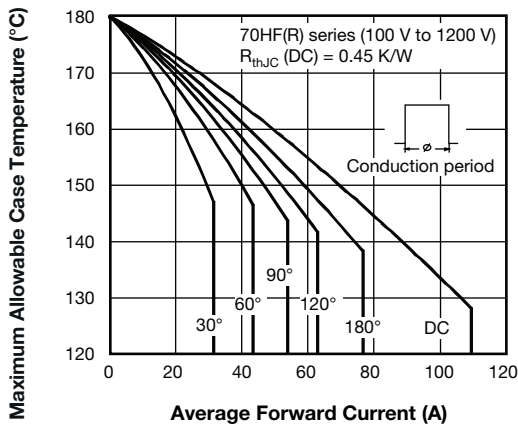


Fig. 2 - Current Ratings Characteristics

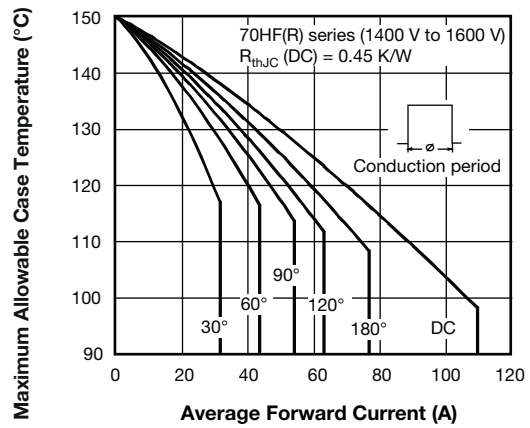


Fig. 4 - Current Ratings Characteristics

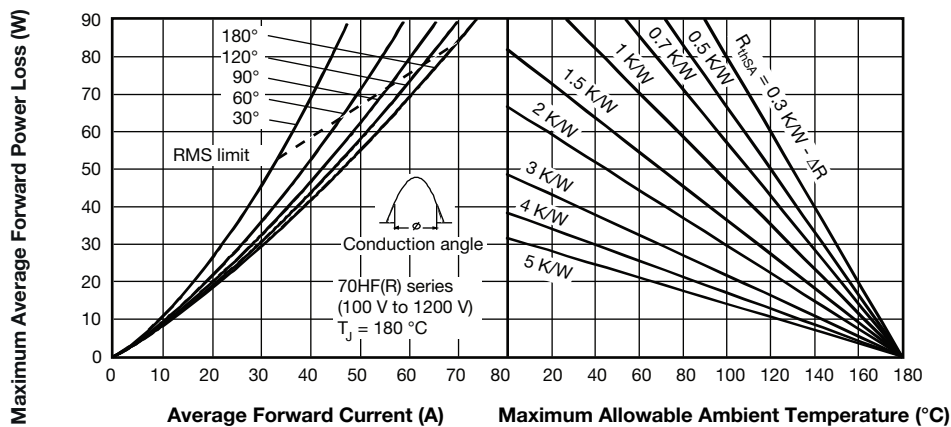


Fig. 5 - Forward Power Loss Characteristics

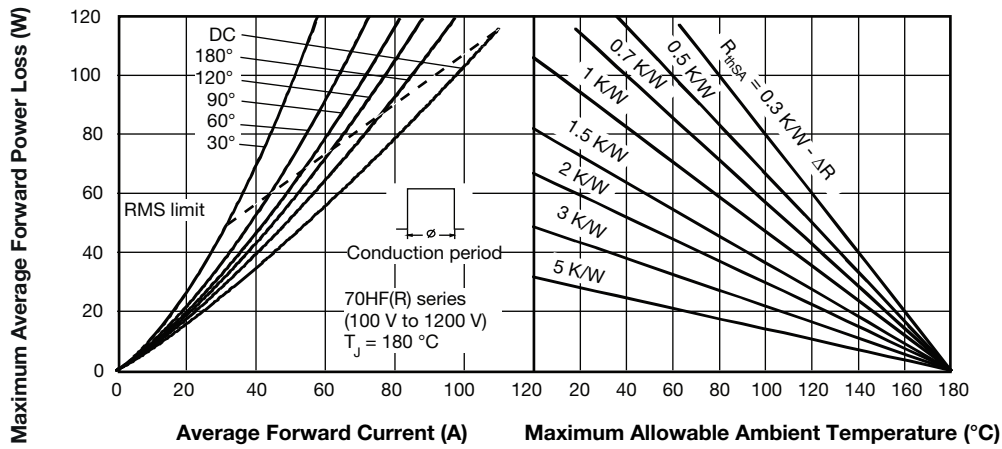


Fig. 6 - Forward Power Loss Characteristics

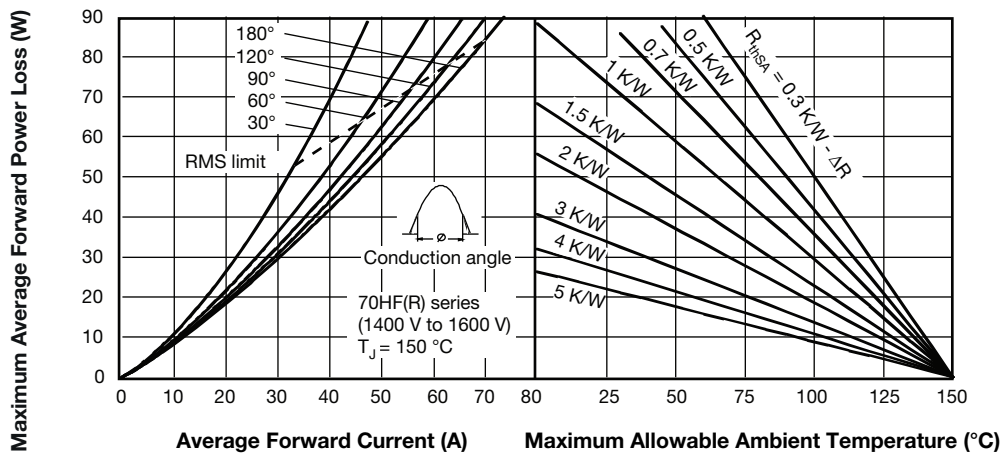


Fig. 7 - Forward Power Loss Characteristics

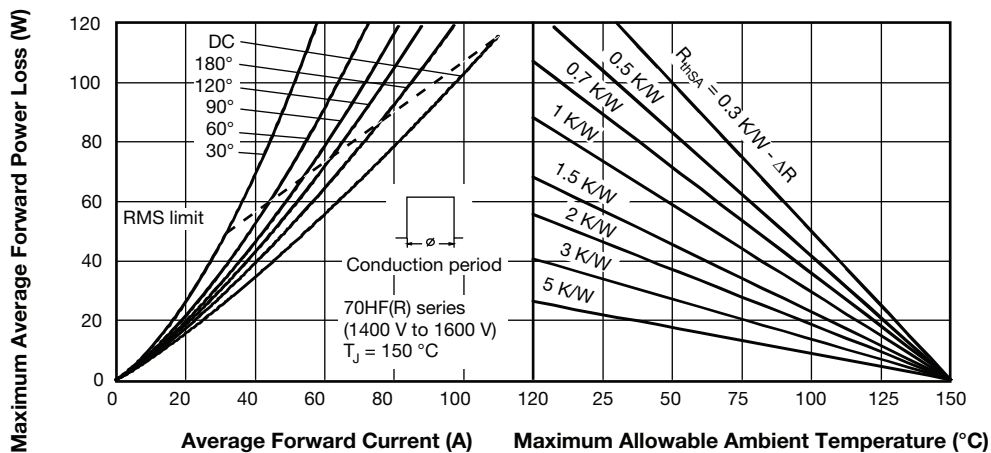


Fig. 8 - Forward Power Loss Characteristics

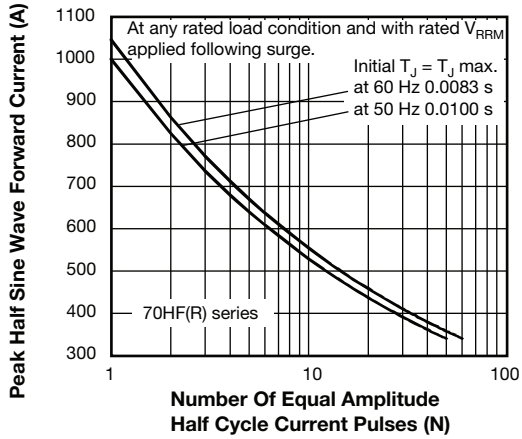


Fig. 9 - Maximum Non-Repetitive Surge Current

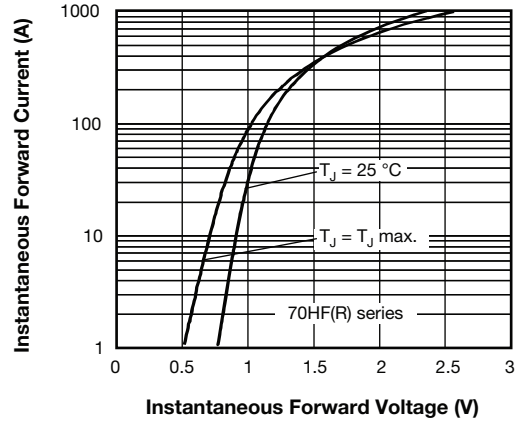


Fig. 11 - Forward Voltage Drop Characteristics

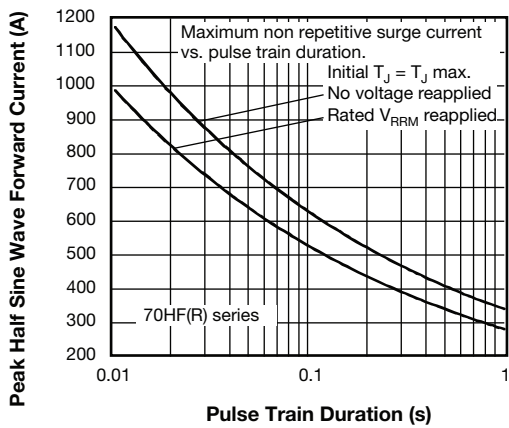


Fig. 10 - Maximum Non-Repetitive Surge Current

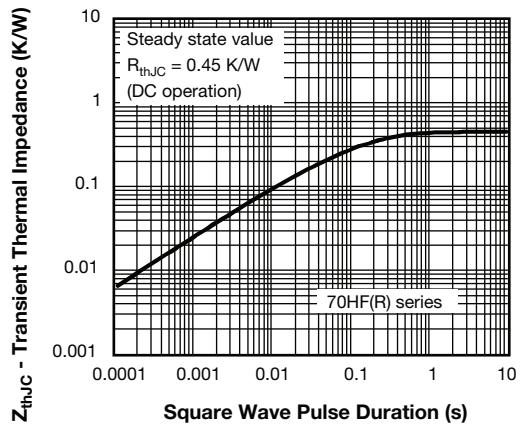


Fig. 12 - Thermal Impedance Z_{thJC} Characteristics

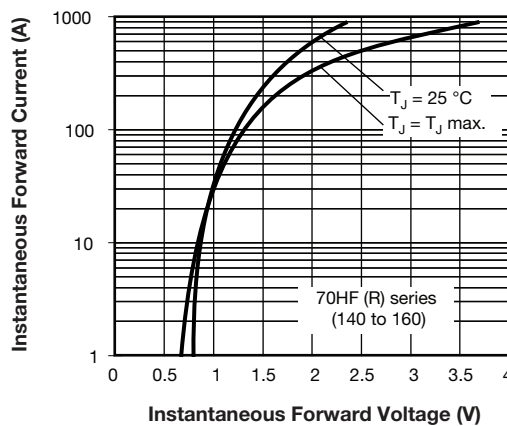


Fig. 13 - Forward Voltage Drop Characteristics