

70HF(R) Series

PRV : 100 - 1600 Volts
Io : 70 Ampere

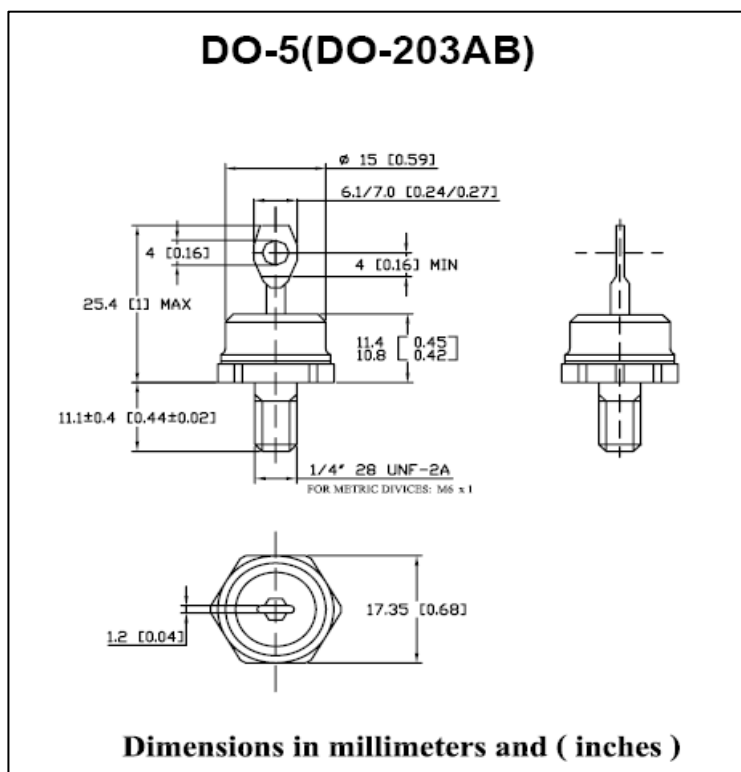
FEATURES :

- * High surge current capability
- * Designed for a wide range of applications
- * Stud cathode and stud anode version
- * Types up to 1600 V V_{RRM}
- * Pb / RoHS Free

APPLICATION :

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

STANDARD RECOVERY DIODES



MAXIMUM RATINGS AND ELECTRICAL CHARACTERISTICS

Type Number ⁽¹⁾	Max. Repetitive Peak Reverse Voltage V_{RRM} (V)	Max. Non-Repetitive Peak Reverse Voltage V_{RSM} (V)	Min. Avalanche Voltage $V_{R(BR)}$ (V)	I_{RRM} max. @ $T_J = T_{Jmax}$ (mA)
70HF(R)10	100	200	200	15
70HF(R)20	200	300	300	
70HF(R)40	400	500	500	
70HF(R)60	600	720	725	9.0
70HF(R)80	800	960	950	
70HF(R)100	1000	1200	1150	
70HF(R)120	1200	1440	1350	4.5
70HF(R)140	1400	1650	1550	
70HF(R)160	1600	1900	1750	

Note :

(1) Non suffix "R" : Stud Normal Polarity (Cathode to Stud). Suffix "R" : Stud Reverse Polarity (Anode to Stud).

MAXIMUM RATINGS AND ELECTRICAL CHARACTERISTICS

PARAMETER	CONDITIONS			SYMBOL	70HF(R)		UNIT
					10 to 120	140, 160	
Max. Average Forward Current at T_C 70HF(R)10 - 70HF(R)120 at $T_C = 140\text{ }^\circ\text{C}$ 70HF(R)140 - 70HF(R)160 at $T_C = 110\text{ }^\circ\text{C}$	180° conduction, half sine wave			$I_{F(AV)}$	70		A
Max. RMS Forward Current				$I_{F(RMS)}$	110		A
Max. Peak, One-Cycle Forward, Non-repetitive Surge Current	t = 10 ms	No Voltage	Sinusoidal	I_{FSM}	1200		A
	t = 8.3 ms	reapplied	half wave,		1250		
	t = 10 ms	100% V_{RRM}	Initial $T_J =$		1000		
	t = 8.3 ms	reapplied	T_{Jmax}		1050		
Maximum I^2t for fusing	t = 10 ms	No Voltage	Sinusoidal	I^2t	7100		A^2s
	t = 8.3 ms	reapplied	half wave,		6450		
	t = 10 ms	100% V_{RRM}	Initial $T_J =$		5000		
	t = 8.3 ms	reapplied	T_{Jmax}		4550		
Maximum $I^2\sqrt{t}$ for fusing				$I^2\sqrt{t}$	71000		$A^2\sqrt{s}$
Low level value of threshold voltage	$(16.7\% \times \pi \times I_{F(AV)} < I < \pi \times I_{F(AV)})$, $T_J = T_{Jmax}$			$V_{F(TO)1}$	0.79		V
High level value of threshold voltage	$(I > \pi \times I_{F(AV)})$, $T_J = T_{Jmax}$			$V_{F(TO)2}$	1.00		V
Low level value of forward slope resistance	$(16.7\% \times \pi \times I_{F(AV)} < I < \pi \times I_{F(AV)})$, $T_J = T_{Jmax}$			r_{f1}	2.33		mΩ
High level value of forward slope resistance	$(I > \pi \times I_{F(AV)})$, $T_J = T_{Jmax}$			r_{f2}	1.53		mΩ
Maximum forward voltage drop	$I_{PK} = 220\text{ A}$, $T_J = 25\text{ }^\circ\text{C}$, $t_p = 400\text{ }\mu\text{s}$ rectangular wave			V_{FM}	1.35	1.46	V
Max. Thermal Resistance, Junction to Case	DC operation			R_{thJC}	0.45		K/W
Max. Thermal Resistance, Case to heatsink	Mounting surface, smooth, flat and greased			R_{thCS}	0.25		K/W
Max. Operating junction temperature range				T_J	-65 to +180	-65 to +150	$^\circ\text{C}$
Max. Storage temperature range				T_{STG}	-65 to +180	-65 to +150	$^\circ\text{C}$

RATING AND CHARACTERISTIC CURVES (70HF(R) Series)

Fig. 1 - Current Ratings Characteristics

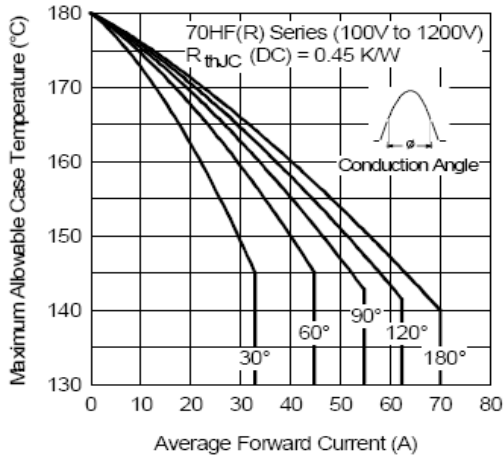


Fig. 2 - Current Ratings Characteristics

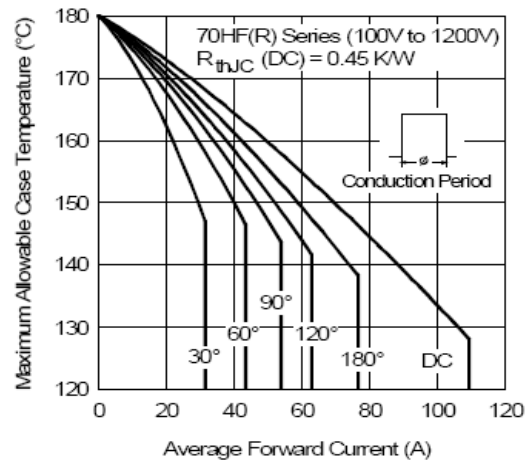


Fig. 3 - Current Ratings Characteristics

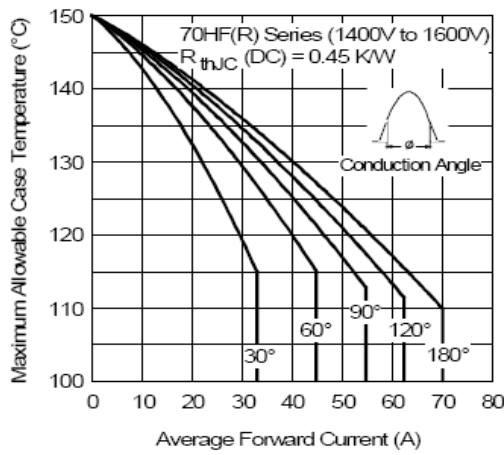


Fig. 4 - Current Ratings Characteristics

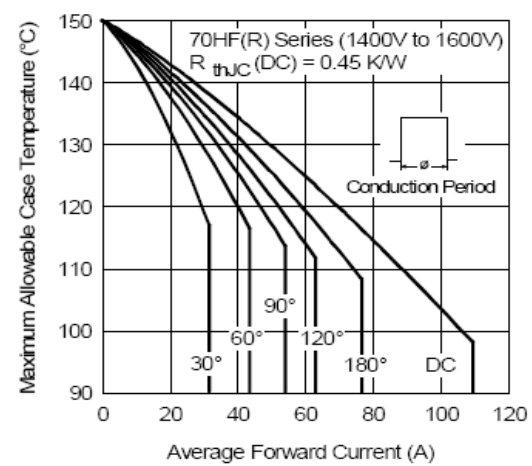
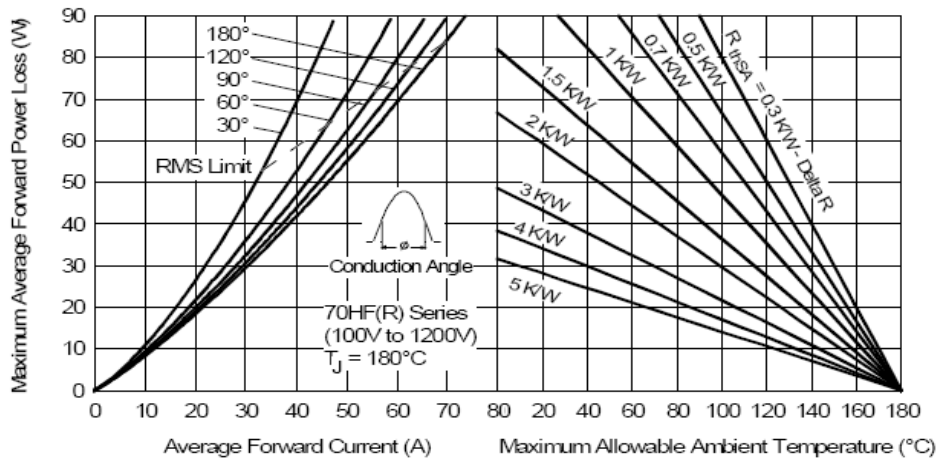


Fig. 5 - Forward Power Loss Characteristics



RATING AND CHARACTERISTIC CURVES (70HF(R) Series)

Fig. 6 - Forward Power Loss Characteristics

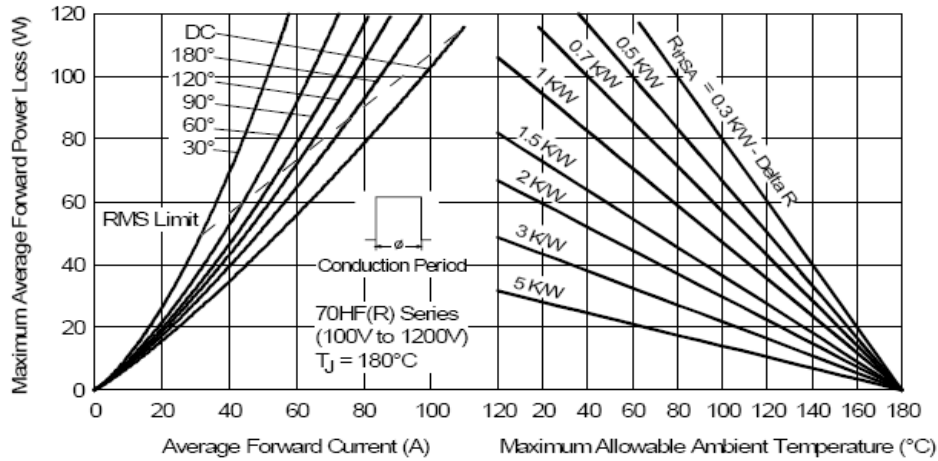


Fig. 7 - Forward Power Loss Characteristics

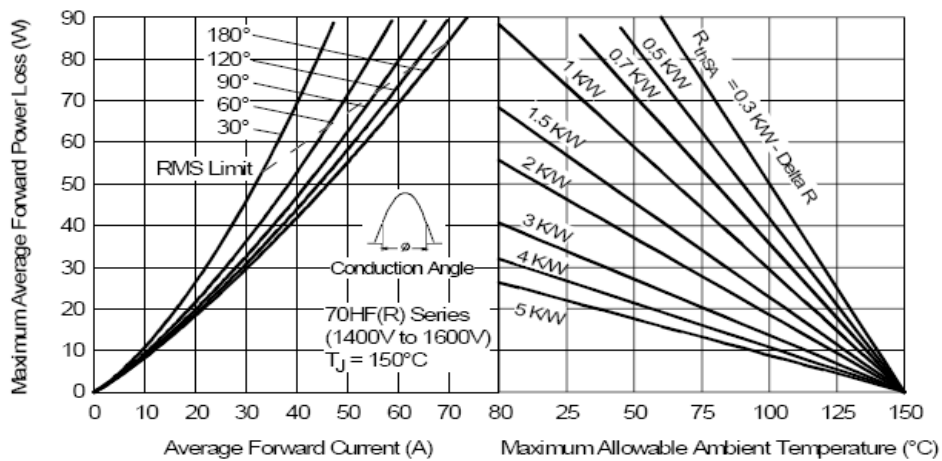
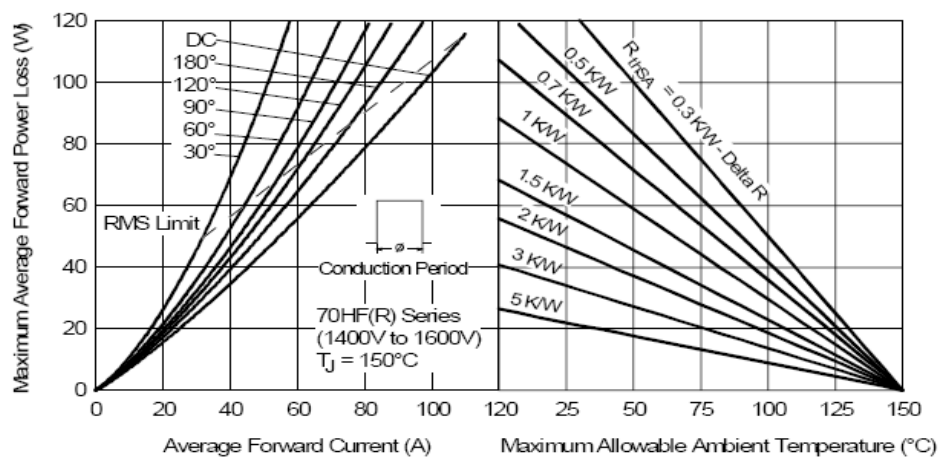


Fig. 8 - Forward Power Loss Characteristics



RATING AND CHARACTERISTIC CURVES (70HF(R) Series)

Fig. 9 - Maximum Non-Repetitive Surge Current

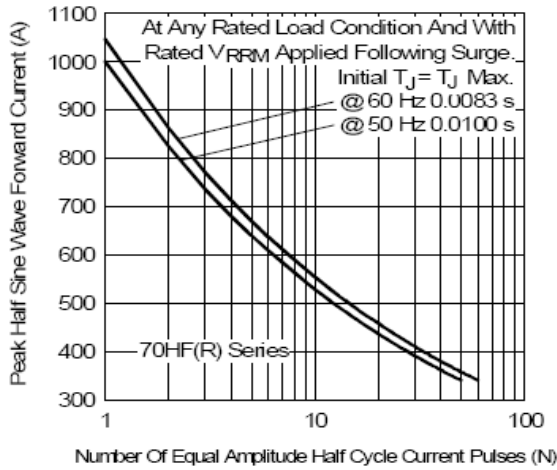


Fig. 10 - Maximum Non-Repetitive Surge Current

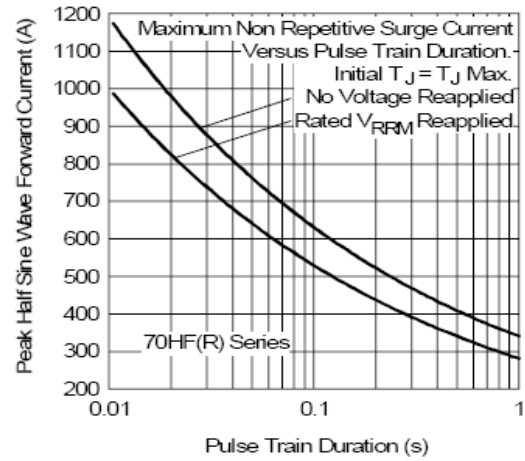


Fig. 11 - Forward Voltage Drop Characteristics

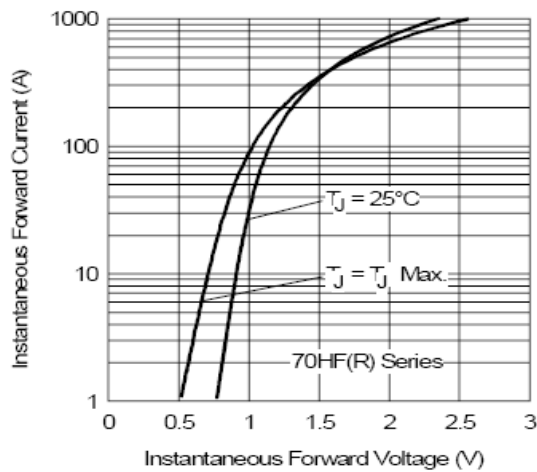


Fig. 12 - Forward Voltage Drop Characteristics

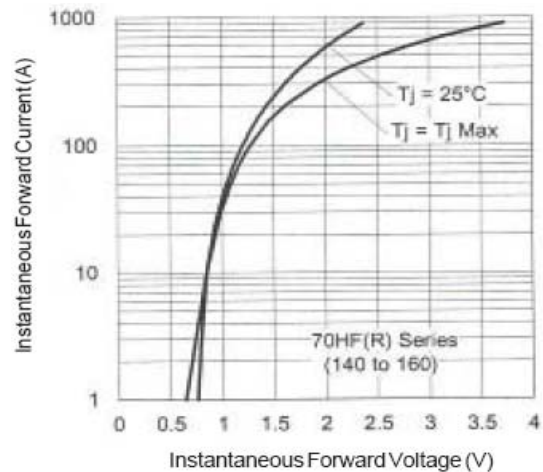


Fig. 13 - Thermal Impedance Z_{thJC} Characteristics

