

85HF(R) Series

PRV : 100 - 1600 Volts
I_o : 85 Ampere

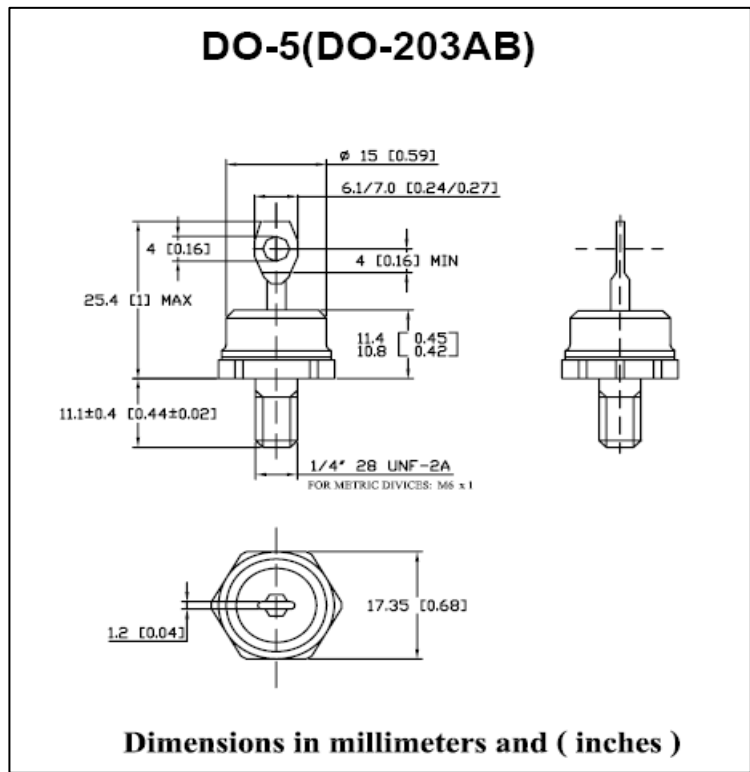
FEATURES :

- * High surge current capability
- * 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
- * Welding

STANDARD RECOVERY DIODES



MAXIMUM RATINGS AND ELECTRICAL CHARACTERISTICS

Type Number ⁽¹⁾	Maximum Repetitive Peak Reverse Voltage V _{RRM} (V)	Maximum Non-Repetitive Peak Reverse Voltage V _{RSM} (V)	I _{RRM} max. @ T _J = T _{Jmax} (mA)
85HF(R)10	100	200	9.0
85HF(R)20	200	300	
85HF(R)40	400	500	
85HF(R)60	600	700	
85HF(R)80	800	900	
85HF(R)100	1000	1100	
85HF(R)120	1200	1300	4.5
85HF(R)140	1400	1500	
85HF(R)160	1600	1700	

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	85HF(R)		UNIT
					10 to 120	140, 160	
Max. Average Forward Current at T_C 85HF(R)10 - 85HF(R)120 at $T_C = 140\text{ }^\circ\text{C}$ 85HF(R)140 - 85HF(R)160 at $T_C = 110\text{ }^\circ\text{C}$	180° conduction, half sine wave			$I_{F(AV)}$	85		A
Max. RMS Forward Current				$I_{F(RMS)}$	133		A
Max. Peak, One-Cycle Forward, Non-repetitive Surge Current	t = 10 ms	No Voltage	Sinusoidal	I_{FSM}	1700		A
	t = 8.3 ms	reapplied	half wave,		1800		
	t = 10 ms	100% V_{RRM}	Initial $T_J =$		1450		
	t = 8.3 ms	reapplied	T_{Jmax}		1500		
Maximum I^2t for fusing	t = 10 ms	No Voltage	Sinusoidal	I^2t	14500		A^2s
	t = 8.3 ms	reapplied	half wave,		13500		
	t = 10 ms	100% V_{RRM}	Initial $T_J =$		10500		
	t = 8.3 ms	reapplied	T_{Jmax}		9400		
Maximum $I^2\sqrt{t}$ for fusing				$I^2\sqrt{t}$	16000		$A^2\sqrt{s}$
Value of threshold Voltage (up to 1200V) (for 1400V, 1600V)	$T_J = T_{Jmax}$			$V_{F(TO)}$	0.68		V
					0.69		
Value of forward slope (up to 1200V) Resistance (for 1400V, 1600V)	$T_J = T_{Jmax}$			r_f	1.62		mΩ
					1.75		
Maximum forward voltage drop	$I_{PK} = 125\text{ A}$, $T_J = 25\text{ }^\circ\text{C}$, $t_p = 400\text{ }\mu\text{s}$ rectangular wave			V_{FM}	1.2	1.4	V
Max. Thermal Resistance, Junction to Case	DC operation			R_{thJC}	0.95		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 (85HF(R) Series)

Fig. 1 - Current Ratings Characteristics

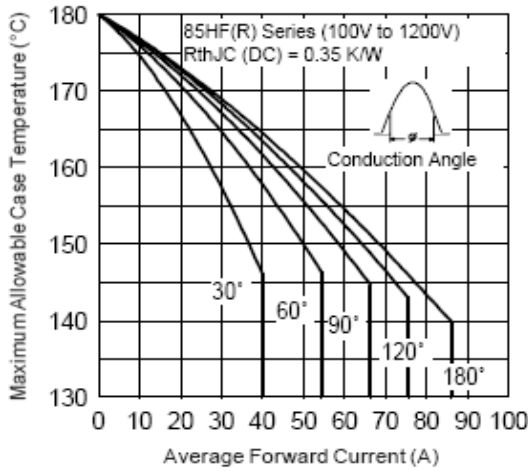


Fig. 2 - Current Ratings Characteristics

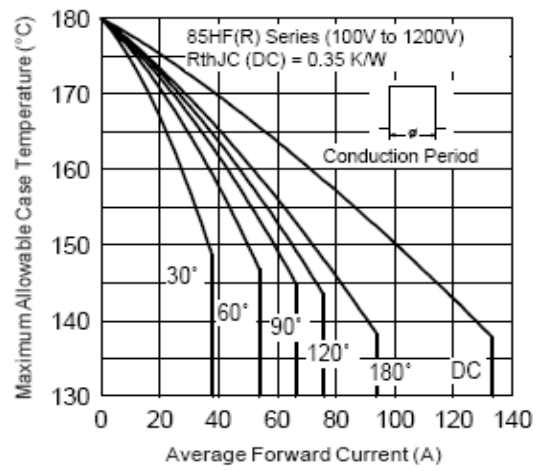


Fig. 3 - Current Ratings Characteristics

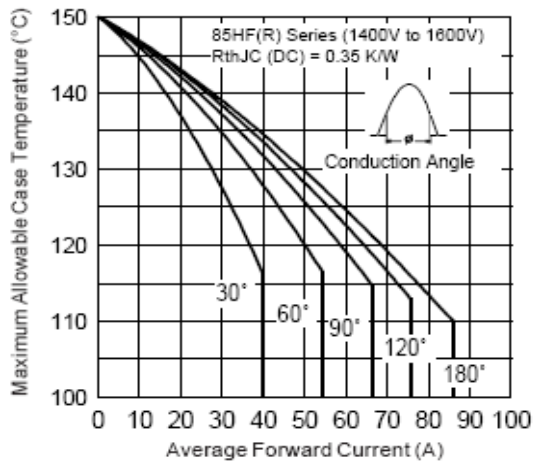


Fig. 4 - Current Ratings Characteristics

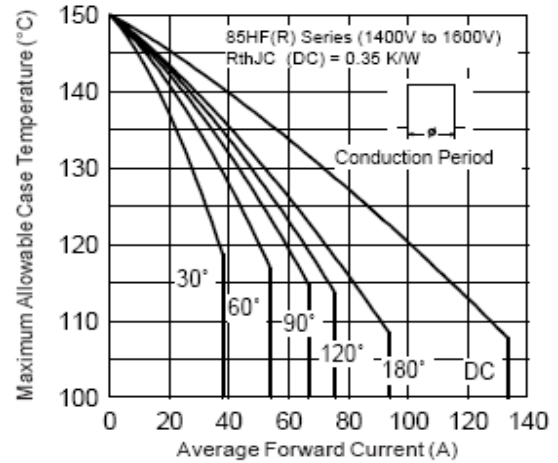
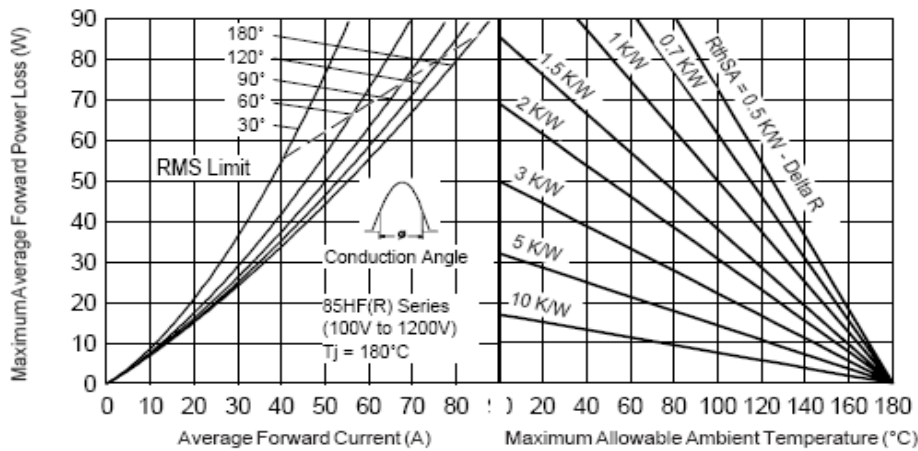


Fig. 5 - Forward Power Loss Characteristics



RATING AND CHARACTERISTIC CURVES (85HF(R) Series)

Fig. 6 - Forward Power Loss Characteristics

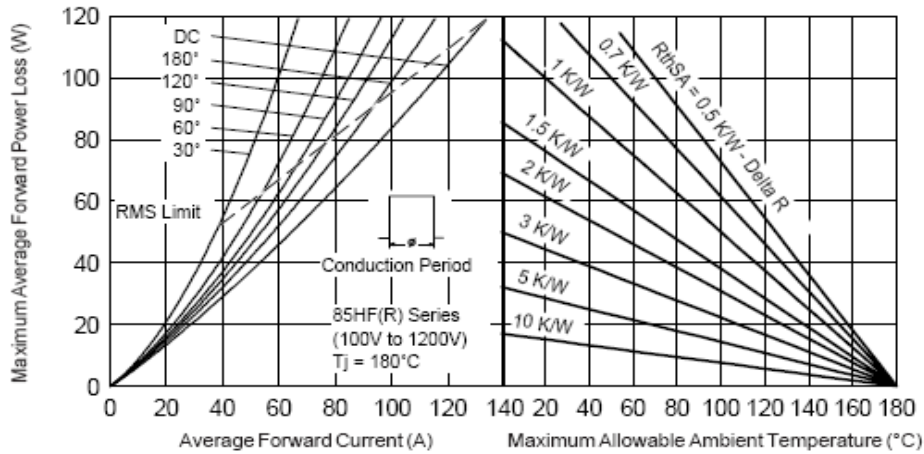


Fig. 7 - Forward Power Loss Characteristics

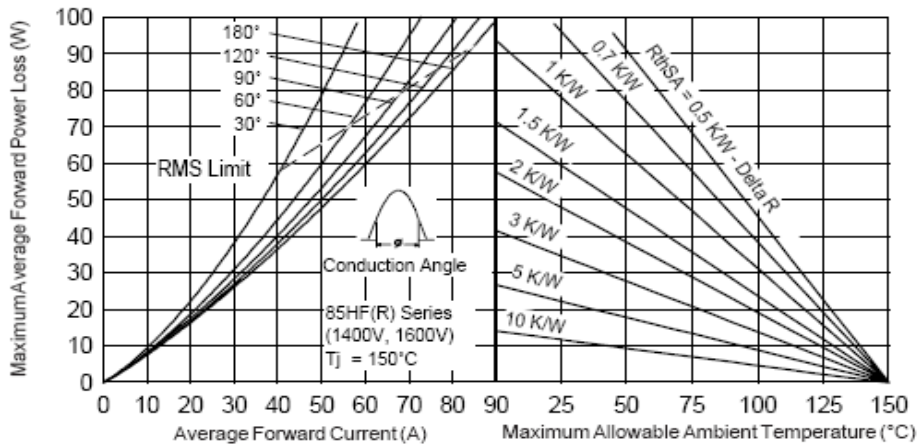
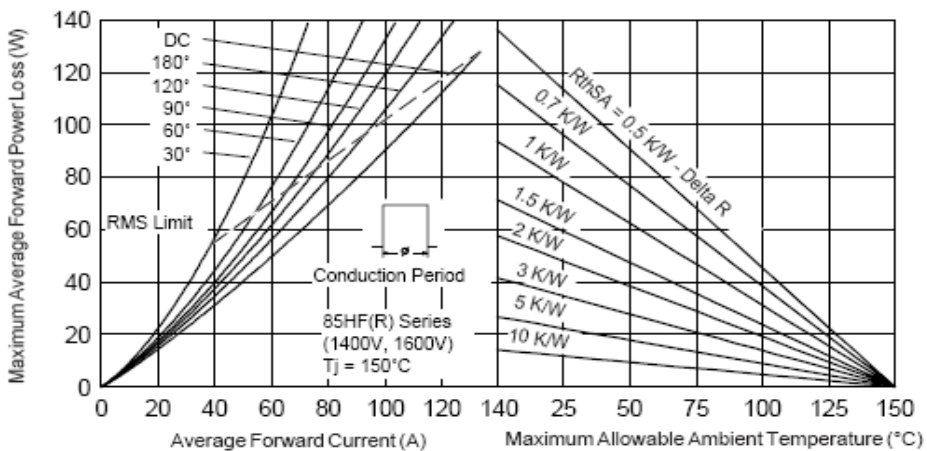


Fig. 8 - Forward Power Loss Characteristics



RATING AND CHARACTERISTIC CURVES (85HF(R) Series)

Fig. 9 - Maximum Non-Repetitive Surge Current

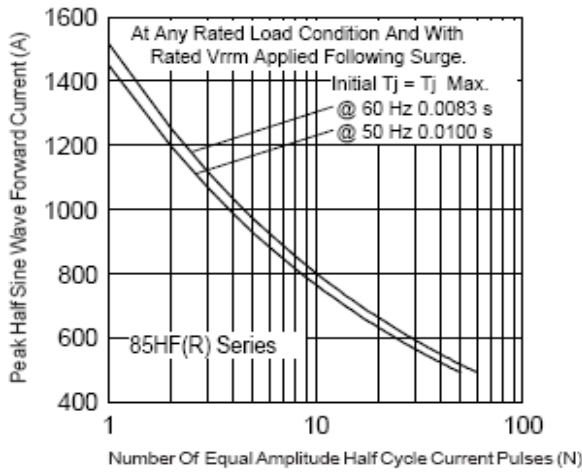


Fig. 10 - Maximum Non-Repetitive Surge Current

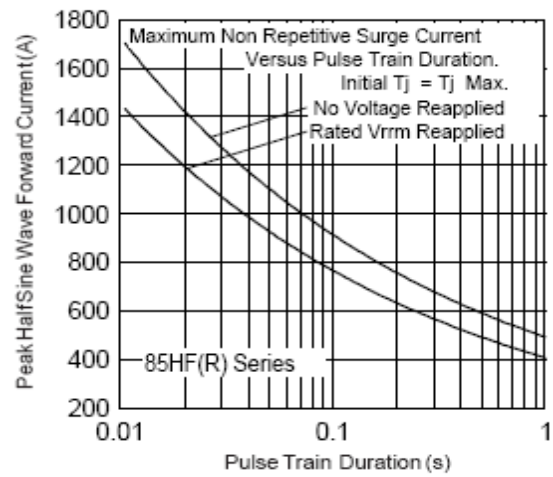


Fig. 11 - Forward Voltage Drop Characteristics (up to 1200V)

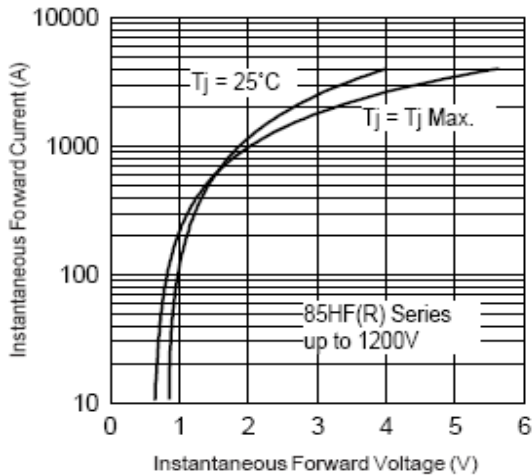


Fig. 12 - Forward Voltage Drop Characteristics (for 1400V, 1600V)

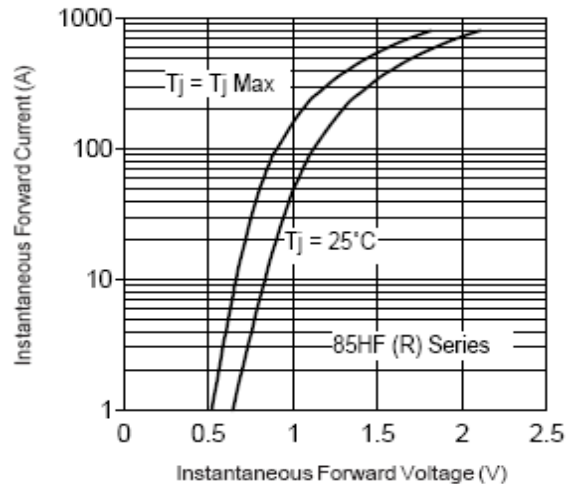


Fig. 13 - Thermal Impedance Z_{thJC} Characteristics

