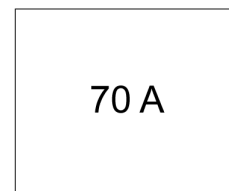


**Features**

- High surge current capability
- Designed for a wide range of applications
- Stud cathode and stud anode version
- Leaded version available
- Types up to 1600V  $V_{RRM}$



**Typical Applications**

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

**Major Ratings and Characteristics**

Parameters	70HF(R)		Units
	10 to 120	140 to 160	
$I_{F(AV)}$	70	70	A
@ $T_c$	140	110	°C
$I_{F(RMS)}$	110		A
$I_{FSM}$	@ 50Hz	1200	A
	@ 60Hz	1250	A
$I^2t$	@ 50Hz	7100	A <sup>2</sup> s
	@ 60Hz	6450	A <sup>2</sup> s
$V_{RRM}$ range	100 to 1200	1400 to 1600	V
$T_j$ range	- 65 to 180	- 65 to 150	°C



**ELECTRICAL SPECIFICATIONS**

Voltage Ratings

Type number	Voltage Code	V <sub>RRM</sub> maximum repetitive peak reverse voltage V	V <sub>RSM</sub> maximum non-repetitive peak reverse voltage V	V <sub>R(BR)</sub> minimum avalanche voltage V	I <sub>RRM</sub> max. @ T <sub>J</sub> = T <sub>J</sub> max. mA
70HF(R)	10	100	200	200	15
	20	200	300	300	
	40	400	500	500	
	60	600	720	725	9
	80	800	960	950	
	100	1000	1200	1150	
	120	1200	1440	1350	
	140	1400	1650	1550	4.5
160	1600	1900	1750		

Forward Conduction

Parameter	70HF(R)		Units	Conditions		
	10 to 120	140 to 160				
I <sub>F(AV)</sub> Max. average forward current @ Case temperature	70	70	A	180° conduction, half sine wave		
	140	110	°C			
I <sub>F(RMS)</sub> Max. RMS forward current	110		A			
I <sub>FSM</sub> Max. peak, one-cycle forward, non-repetitive surge current	1200		A	t = 10ms	Sinusoidal half wave, Initial T <sub>J</sub> = T <sub>J</sub> max.	
	1250			t = 8.3ms		No voltage reapplied
	1000			t = 10ms		100% V <sub>RRM</sub> reapplied
	1050			t = 8.3ms		100% V <sub>RRM</sub> reapplied
I <sup>2</sup> t Maximum I <sup>2</sup> t for fusing	7100		A <sup>2</sup> s	t = 10ms	Initial T <sub>J</sub> = T <sub>J</sub> max.	
	6450			t = 8.3ms		No voltage reapplied
	5000			t = 10ms		100% V <sub>RRM</sub> reapplied
	4550			t = 8.3ms		100% V <sub>RRM</sub> reapplied
I <sup>2</sup> /t Maximum I <sup>2</sup> /t for fusing	71000		A <sup>2</sup> /s	t = 0.1 to 10ms, no voltage reapplied		
V <sub>F(TO)1</sub> Low level value of threshold voltage	0.79		V	(16.7% × π × I <sub>F(AV)</sub> < I < π × I <sub>F(AV)</sub> ), T <sub>J</sub> = T <sub>J</sub> max.		
V <sub>F(TO)2</sub> High level value of threshold voltage	1.00			(I > π × I <sub>F(AV)</sub> ), T <sub>J</sub> = T <sub>J</sub> max.		
r <sub>f1</sub> Low level value of forward slope resistance	2.33		mΩ	(16.7% × π × I <sub>F(AV)</sub> < I < π × I <sub>F(AV)</sub> ), T <sub>J</sub> = T <sub>J</sub> max.		
r <sub>f2</sub> High level value of forward slope resistance	1.53			(I > π × I <sub>F(AV)</sub> ), T <sub>J</sub> = T <sub>J</sub> max.		
V <sub>FM</sub> Max. forward voltage drop	1.35	1.46	V	I <sub>pk</sub> = 220A, T <sub>J</sub> = 25°C, t <sub>p</sub> = 400μs rectangular wave		

Thermal and Mechanical Specifications

Parameter	70HF(R)		Units	Conditions
	10 to 120	140 to 160		
T <sub>J</sub> Max. junction operating temperature range	-65 to 180	-65 to 150	°C	
T <sub>stg</sub> Max. storage temperature range	-65 to 180	-65 to 150		
R <sub>thJC</sub> Max. thermal resistance, junction to case	0.45		K/W	DC operation
R <sub>thCS</sub> Max. thermal resistance, case to heatsink	0.25			Mounting surface, smooth, flat and greased
T Allowable mounting torque	3.4 <sup>+0-10%</sup>		Nm	Not lubricated threads
	30		lbf·in	
	2.3 <sup>+0-10%</sup>		Nm	Lubricated threads
	20		lbf·in	
wt Approximate weight	17 (0.6)		g (oz)	
Case style	DO-203AB (DO5)			See Outline Table

$\Delta R_{thJC}$  Conduction

(The following table shows the increment of thermal resistance R<sub>thJC</sub> when devices operate at different conduction angles than DC)

Conduction angle	Sinusoidal conduction	Rectangular conduction	Units	Conditions
180°	0.08	0.06	K/W	T <sub>J</sub> = T <sub>J</sub> max.
120°	0.10	0.11		
90°	0.13	0.14		
60°	0.19	0.20		
30°	0.30	0.30		

Ordering Information Table

Device Code
<div style="display: flex; justify-content: center; gap: 10px;"> <div style="border: 1px solid black; padding: 2px 5px; background-color: #333; color: white;">70</div> <div style="border: 1px solid black; padding: 2px 5px; background-color: #333; color: white;">HF</div> <div style="border: 1px solid black; padding: 2px 5px; background-color: #333; color: white;">R</div> <div style="border: 1px solid black; padding: 2px 5px; background-color: #333; color: white;">160</div> <div style="border: 1px solid black; padding: 2px 5px; background-color: #333; color: white;">M</div> </div> <div style="display: flex; justify-content: center; gap: 10px; margin-top: 5px;"> <span style="border: 1px solid black; border-radius: 50%; padding: 2px 5px;">1</span> <span style="border: 1px solid black; border-radius: 50%; padding: 2px 5px;">2</span> <span style="border: 1px solid black; border-radius: 50%; padding: 2px 5px;">3</span> <span style="border: 1px solid black; border-radius: 50%; padding: 2px 5px;">4</span> <span style="border: 1px solid black; border-radius: 50%; padding: 2px 5px;">5</span> </div>
<p><b>1</b> - 70 = Standard device 71 = Not isolated lead 72 = Isolated lead with silicone sleeve (Red = Reverse polarity) (Blue = Normal polarity)</p> <p><b>2</b> - HF = Standard diode</p> <p><b>3</b> - None = Stud Normal Polarity (Cathode to Stud) R = Stud Reverse Polarity (Anode to Stud)</p> <p><b>4</b> - Voltage code: Code x 10 = V<sub>RRM</sub> (See Voltage Ratings table)</p> <p><b>5</b> - None = Stud base DO-203AB (DO-5) 1/4" 28UNF-2A M = Stud base DO-203AB (DO-5) M6 X 1</p>

**70HF(R) Series**

Outlines Table

