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70HF(R) Series

High Power Products

Standard Recovery Diodes (Stud Version), 70 A



DO-203AB (DO-5)

FEATURES

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

TYPICAL APPLICATIONS

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

PRODUCT SUMMARY

$I_{F(AV)}$	70 A
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MAJOR RATINGS AND CHARACTERISTICS

PARAMETER	TEST CONDITIONS	70HF(R)		UNITS
		10 TO 120	140/160	
$I_{F(AV)}$		70	70	A
	T_C	140	110	°C
$I_{F(RMS)}$		110		A
I_{FSM}	50 Hz	1200		A
	60 Hz	1250		
I^2t	50 Hz	7100		A ² s
	60 Hz	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
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		

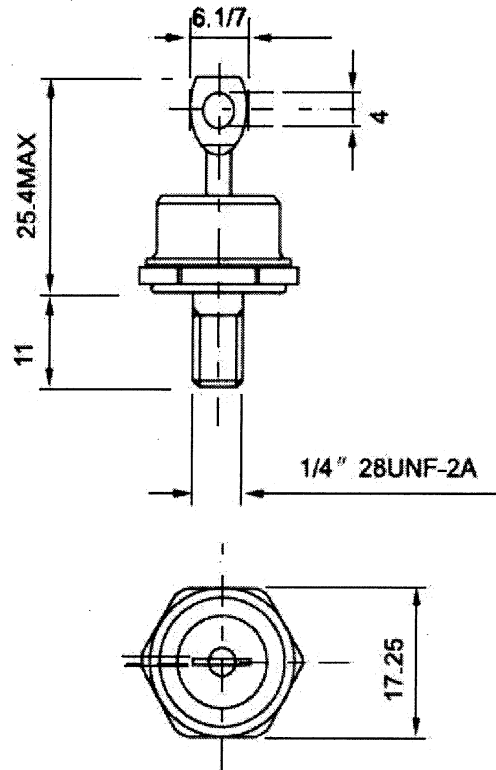
Quality Semi-Conductors

FORWARD CONDUCTION						
PARAMETER	SYMBOL	TEST CONDITIONS		70HF(R)		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 reappplied	Sinusoidal half wave, initial $T_J = T_J$ maximum		1200
		t = 8.3 ms	No voltage reappplied			1250
		t = 10 ms	100 % V_{RRM} reappplied			1000
		t = 8.3 ms	100 % V_{RRM} reappplied			1050
Maximum I^2t for fusing	I^2t	t = 10 ms	No voltage reappplied			7100
		t = 8.3 ms	No voltage reappplied			6450
		t = 10 ms	100 % V_{RRM} reappplied			5000
		t = 8.3 ms	100 % V_{RRM} reappplied			4550
Maximum $I^2\sqrt{t}$ for fusing	$I^2\sqrt{t}$	t = 0.1 ms to 10 ms, no voltage reappplied		71 000		$A^2\sqrt{s}$
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(R)		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
				0.6		oz.
Case style		See dimensions - link at the end of datasheet		DO-203AB (DO-5)		

DO-203AB (DO-5) for 70HF(R)

DIMENSIONS FOR 70HF(R) SERIES in millimeters (inches)



For metric devices: M6 × 1