

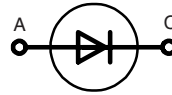
Fast Recovery Diode

SONIC-FRD™ series

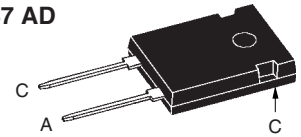
$$I_{FAVM} = 20 \text{ A}$$

$$V_{RRM} = 1800 \text{ V}$$

V_{RSM}	V_{RRM}	Type
V	V	
1800	1800	DH 20-18A



TO-247 AD



A = Anode, C = Cathode

Symbol	Conditions	Maximum Ratings	
I_{FRMS}	$T_{VJ} = T_{VJM}$	70	A
I_{FAVM}	$T_C = 80^\circ\text{C}$; rectangular, $d = 0.5$	20	A
I_{FRM}	$t_p < 10 \mu\text{s}$; rep. rating, pulse width limited by T_{VJM}	200	A
I_{FSM}	$T_{VJ} = 45^\circ\text{C}$; $t_p = 10 \text{ ms}$ (50 Hz), sine	150	A
E_{AS}	$T_{VJ} = 25^\circ\text{C}$; non-repetitive $I_{AS} = \text{tbd A}$; $L = 100 \mu\text{H}$	tbd	mJ
I_{AR}	$V_A = 1.5 \cdot V_R$ typ.; $f = 10 \text{ kHz}$; repetitive	tbd	A
T_{VJ}		-40...+150	$^\circ\text{C}$
T_{VJM}		150	$^\circ\text{C}$
T_{stg}		-40...+150	$^\circ\text{C}$
P_{tot}	$T_C = 25^\circ\text{C}$	140	W
M_d	Mounting torque	0.8...1.2	Nm
Weight		6	g

Features

- Small temperature dependence for
 - forward voltage drop
 - reverse recovery current
- Optimized for
 - dynamic avalanche ruggedness
 - low loss performance
- Exceptionally soft recovery
- Low reverse recovery current characteristic
- Soft recovery current without tail
- Optimized for high frequency hard switching

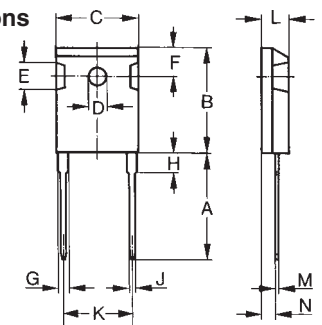
Applications

- Antiparallel diode for high frequency switching devices
- Anti saturation diode
- Snubber diode
- Free wheeling diode in converters and motor control circuits
- Rectifiers in switch mode power supplies (SMPS)
- Induction heating and melting
- Uninterruptible power supplies (UPS)
- Ultrasonic cleaners and welders

Symbol	Conditions	Characteristic Values		
		typ.	max.	
I_R	$T_{VJ} = 25^\circ\text{C}$ $V_R = V_{RRM}$ $T_{VJ} = 125^\circ\text{C}$ $V_R = V_{RRM}$	20	50	μA mA
V_F	$I_F = 20 \text{ A}$; $T_{VJ} = 125^\circ\text{C}$ $T_{VJ} = 25^\circ\text{C}$	2.5	2.9	V V
V_{T0}	For power-loss calculations only		2.1	V
r_T	$T_{VJ} = T_{VJM}$		44	m Ω
R_{thJC}			0.9	K/W
R_{thCH}		0.25		K/W
t_{rr}	$I_F = 20 \text{ A}$; $-di/dt = 450 \text{ A}/\mu\text{s}$; $V_R = 1200 \text{ V}$;	230		ns
I_{RM}	$T_{VJ} = 25^\circ\text{C}$	23		A
S	t_b/t_a	3.6		
RSF	$di_F/dt / di_R/dt$	tbd		
t_{rr}	$I_F = 20 \text{ A}$; $-di/dt = 450 \text{ A}/\mu\text{s}$; $V_R = 1200 \text{ V}$;	400		ns
I_{RM}	$T_{VJ} = 125^\circ\text{C}$	27		A
S	t_b/t_a	7		
RSF	$di_F/dt / di_R/dt$	tbd		

Data according to IEC 60747

Dimensions



Dim.	Millimeter		Inches	
	Min.	Max.	Min.	Max.
A	19.81	20.32	0.780	0.800
B	20.80	21.46	0.819	0.845
C	15.75	16.26	0.610	0.640
D	3.55	3.65	0.140	0.144
E	4.32	5.49	0.170	0.216
F	5.4	6.2	0.212	0.244
G	1.65	2.13	0.065	0.084
H	-	4.5	-	0.177
J	1.0	1.4	0.040	0.055
K	10.8	11.0	0.426	0.433
L	4.7	5.3	0.185	0.209
M	0.4	0.8	0.016	0.031
N	1.5	2.49	0.087	0.102

IXYS reserves the right to change limits, test conditions and dimensions