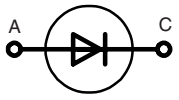
Fast Recovery Diode
SONIC-FRD™ series

I_{FAVM} = 60 A
V_{RRM} = 1400-1800 V
t_{rr} = 150 ns

V_{RSM} V	V_{RRM} V	Type
1400	1400	DH 60-14A
1600	1600	DH 60-16A
1800	1800	DH 60-18A



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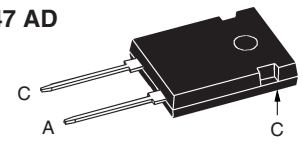


A = Anode, C = Cathode

Symbol	Conditions	Maximum Ratings	
I_{FRMS}	$T_{VJ} = T_{VJM}$	100	A
I_{FAVM}	T_C = 89°C; rectangular, d = 0.5	60	A
I_{FRM}	t_P < 10 µs; rep. rating, pulse width limited by T_{VJM}	900	A
I_{FSM}	T_{VJ} = 45°C; t_p = 10 ms (50 Hz), sine	650	A
E_{AS}	T_{VJ} = 25°C; non-repetitive I_{AS} = tbd A; L = 100 µH	tbd	mJ
I_{AR}	$V_A = 1.5 \cdot V_R$ typ.; f = 10 kHz; repetitive	tbd	A
T_{VJ}		-40...+150	°C
T_{VJM}		150	°C
T_{stg}		-40...+150	°C
P_{tot}	T_C = 25°C	415	W
M_d	Mounting torque	0.8...1.2	Nm
Weight		6	g

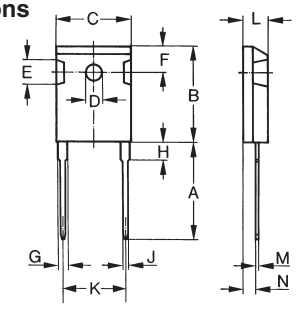
Symbol	Conditions		Characteristic Values typ.	max.	
I_R	T_{VJ} = 25°C	$V_R = V_{RRM}$	100	200	µA
	T_{VJ} = 125°C	$V_R = V_{RRM}$	2		mA
V_F	I_F = 60 A;	T_{VJ} = 125°C		2.7	V
		T_{VJ} = 25°C	2.3	2.7	V
V_{T0}	For power-loss calculations only			1.95	V
r_T	$T_{VJ} = T_{VJM}$			12	mΩ
R_{thJC}				0.3	K/W
R_{thCH}			0.25		K/W
t_{rr}	I_F = 60 A; -di/dt = 600 A/µs; V_R = 1200 V;		150		ns
I_{RM}	T_{VJ} = 25°C		50		A
t_{rr}	I_F = 60 A; -di/dt = 600 A/µs; V_R = 1200 V;		350		ns
I_{RM}	T_{VJ} = 125°C		55		A

Data according to IEC 60747

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

Dimensions



Dim.	Millimeter Min.	Max.	Inches 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

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

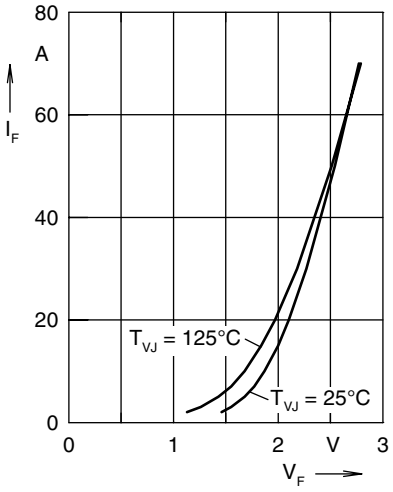

Fig. 1 Typ. forward current I_F versus V_F

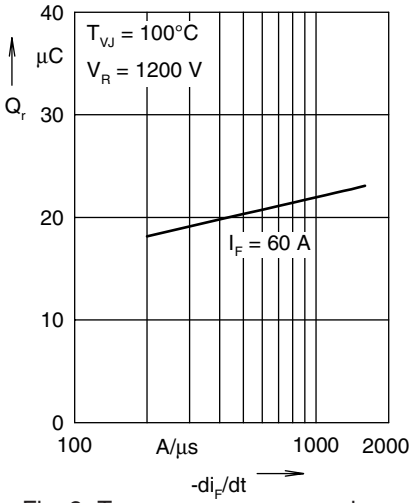

Fig. 2 Typ. reverse recovery charge Q_r versus $-di_F/dt$

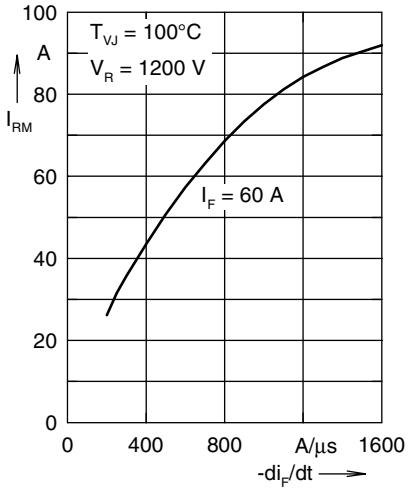

Fig. 3 Typ. peak reverse current I_{RM} versus $-di_F/dt$

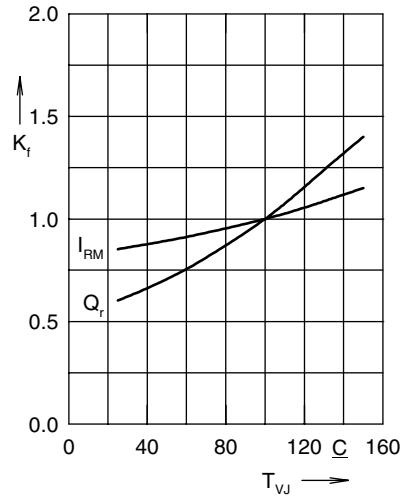

Fig. 4 Dynamic parameters Q_r, I_{RM} versus T_{VJ}

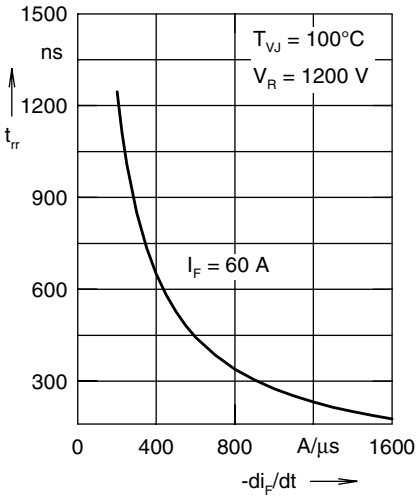

Fig. 5 Typ. recovery time t_{rr} versus $-di_F/dt$

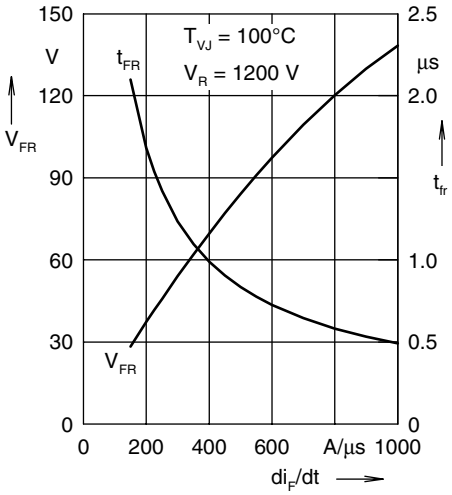

Fig. 6 Typ. peak forward voltage V_{FR} and t_{fr} versus di_F/dt

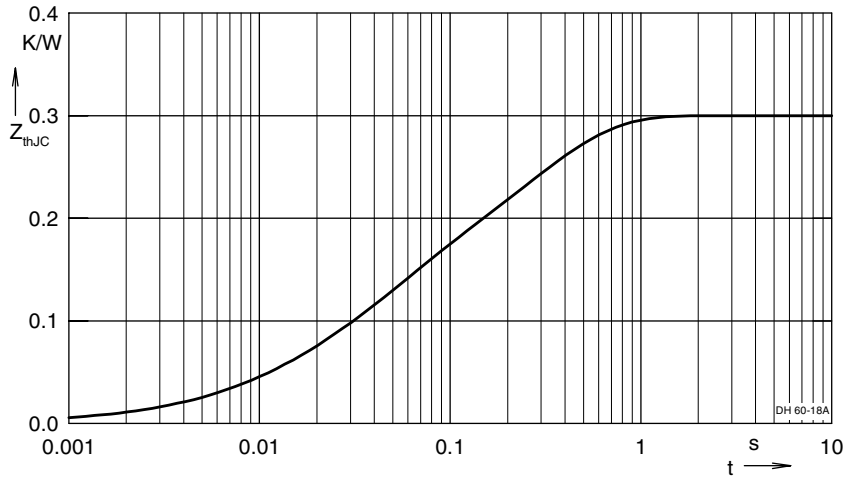

Fig. 7 Transient thermal resistance junction to case

NOTE: Fig. 2 to Fig. 6 shows typical values