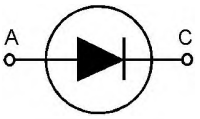
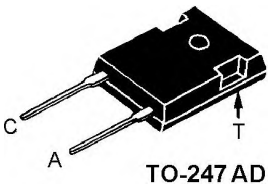
Fast Recovery Exptaxial Diode (FRED)

I_{FRMS} = 75 A
V_{RRM} = 1200 V
t_{rr} = 40 ns

V_{RSM}	V_{RRM}	Type
1200 V	1200 V	DSEI 120-12A



Symbol	Test Conditions		Maximum Ratings	
I_{FRMS}			75	A
I_{FAVM}	T_C = 92°C (Note 1)		53	A
I_{FRM}	t_p < 10µs; rep. rating, pulse width limited by T_{VJM}		TBD	A
I_{FSM}	T_{VJ} = 45°C;	t = 10 ms (50 Hz), sine	600	A
		t = 8.3 ms (60 Hz), sine	660	A
	T_{VJ} = 150°C;	t = 10 ms (50 Hz), sine	540	A
		t = 8.3 ms (60 Hz), sine	600	A
$\int i^2dt$	T_{VJ} = 45°C	t = 10 ms (50 Hz), sine	1800	A^2s
		t = 8.3 ms (60 Hz), sine	1800	A^2s
	T_{VJ} = 150°C;	t = 10 ms (50 Hz), sine	1450	A^2s
		t = 8.3 ms (60 Hz), sine	1500	A^2s
T_{VJ}			-40...+150	°C
T_{VJM}			150	°C
T_{stg}			-40...+150	°C
P_{tot}	T_C = 25°C		357	W
M_d	Mounting torque with screw M3		0.45/4	Nm/lb.in.
	Mounting torque with screw M3.5		0.55/5	Nm/lb.in.
Weight			6	g



TO-247 AD

A = Anode C = Cathode

Symbol	Test Conditions		Characteristic Values Typ.	Max.	
I_R	$V_R = V_{RRM}$	T_{VJ} = 25°C		3	mA
	$V_R = 0.8\ V_{RRM}$	T_{VJ} = 25°C		1.5	mA
	$V_R = 0.8\ V_{RRM}$	T_{VJ} = 125°C		20	mA
V_F	I_F = 70A	T_{VJ} = 150°C		1.55	V
		T_{VJ} = 25°C		1.8	V
V_{TO}	For power-loss calculations only			1.16	V
r_F		$T_{VJ} = T_{VJM}$		4.16	mΩ
R_{thJC}				0.35	K/W
R_{thCK}			0.15		K/W
R_{thJA}				35	K/W
t_{rr}	I_F = 1A; -di/dt = 200 A/µs; V_R = 30 V;	T_{VJ} = 25°C	40	60	ns
I_{RM}	I_F = 350V; I_F = 80 A; -di_F/dt = 200 A/µs		16	21	A
	L ≤ 0.05 µH	T_{VJ} = 100°C			

Features
- Low I_{RM} values
- Planar passivated chips
- Soft recovery behavior
- Very short recovery time
- Extremely low switching losses
- Epoxy meets UL 94V-0
- International standard package JEDEC TO-247 AD

Applications
- Snubber diode
- Anti-saturation 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
- Antiparallel diode for high frequency switching devices

Advantages
- Low losses
- Low noise switching
- Highly reliable circuit operation
- Low voltage peaks for reduced protection circuits
- Lower temperature operation
- Space saving by reduced cooling

IXYS Corporation
3540 Bassett Street, Santa Clara,CA 95054
Tel: 408-982-0700 Fax: 408-496-0670

IXYS Semiconductor
Edisonstr. 15, D-68623 Lampertheim, Germany
Tel: +49-6206-5030 Fax: +49-6206-503629

Fig. 1 Forward current versus voltage drop

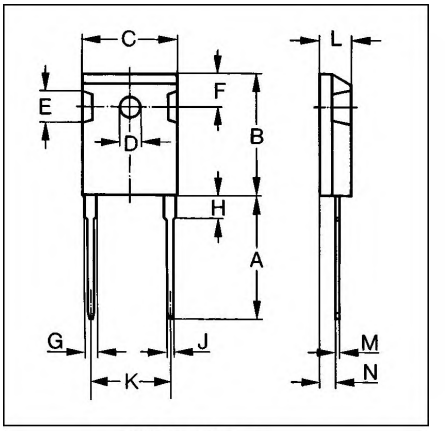
Fig. 2 Reverse recovery charge versus $-di_F/dt$.

Fig. 3 Peak reverse current versus $-di_F/dt$.

Fig. 4 Dynamic parameters versus junction temperature.

Fig. 5 Recovery time versus $-di_F/dt$.

Fig. 6 Peak forward voltage versus $-di_F/dt$.



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

Fig. 7 Transient thermal impedance junction to case.

① I_{FAVM} rating includes reverse blocking losses at T_{VJ} = 125°C, V_R = 0.8 V_{RRM}, duty cycle d = 0.5.
Data according to DIN/IEC 747.
IXYS reserves the right to change limits, test conditions, and dimensions.

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