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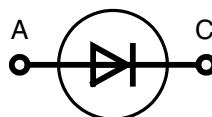
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IXYS **DSEI 12-10A**

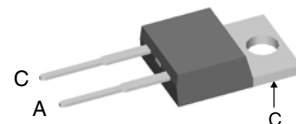
Fast Recovery Epitaxial Diode (FRED)

I_{FAV} = 12 A
V_{RRM} = 1000 V
t_{rr} = 50 ns

V _{RSM}	V _{RRM}	Type
V	V	
1000	1000	DSEI 12-10A



TO-220 AC



A = Anode, C = Cathode

Symbol	Conditions	Maximum Ratings	
I _{FRMS}	T _{VJ} = T _{VJM}	25	A
I _{FAVM} ①	T _C = 100°C; rectangular, d = 0.5	12	A
I _{FRM}	t _p < 10 µs; rep. rating, pulse width limited by T _{VJM}	150	A
I _{FSM}	T _{VJ} = 45°C; t = 10 ms (50 Hz), sine t = 8.3 ms (60 Hz), sine	75	A
		80	
	T _{VJ} = 150°C; t = 10 ms (50 Hz), sine t = 8.3 ms (60 Hz), sine	65	A
		70	
I ² t	T _{VJ} = 45°C; t = 10 ms (50 Hz), sine t = 8.3 ms (60 Hz), sine	28	A ² s
		27	
	T _{VJ} = 150°C; t = 10 ms (50 Hz), sine t = 8.3 ms (60 Hz), sine	21	A ² s
		20	
T _{VJ}		-40...+150	°C
T _{VJM}		150	°C
T _{stg}		-40...+150	°C
P _{tot}	T _C = 25°C	78	W
M _d	mounting torque	0.4...0.6	Nm
Weight	typical	2	g

Features

- International standard package JEDEC TO-220 AC
- Planar passivated chips
- Very short recovery time
- Extremely low switching losses
- Low I_{RM}-values
- Soft recovery behaviour
- Epoxy meets UL 94V-0

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)
- Inductive heating and melting
- Uninterruptible power supplies (UPS)
- Ultrasonic cleaners and welders

Advantages

- High reliability circuit operation
- Low voltage peaks for reduced protection circuits
- Low noise switching
- Low losses
- Operating at lower temperature or space saving by reduced cooling

Symbol	Conditions	Characteristic Values		
		typ.	max.	
I _R	V _R = V _{RRM}		250	µA
	V _R = 0.8·V _{RRM}	T _{VJ} = 25°C	150	µA
	V _R = 0.8·V _{RRM}	T _{VJ} = 125°C	4	mA
V _F	I _F = 12 A	T _{VJ} = 150°C	2.1	V
		T _{VJ} = 25°C	2.7	V
V _{To}	For power-loss calculations only		1.67	V
r _T	T _{VJ} = T _{VJM}		33.6	mΩ
R _{thJC}			1.6	K/W
R _{thCH}		0.5		K/W
R _{thJA}			60	K/W
t _{rr}	I _F = 1 A; -di/dt = 50 A/µs; V _R = 30 V; T _{VJ} = 25°C	50	60	ns
I _{RM}	V _R = 540 V; I _F = 12 A; -di _F /dt = 100 A/µs L ≤ 0.05 µH; T _{VJ} = 100°C	6.5	7.2	A

① I_{FAVM} rating includes reverse blocking losses at T_{VJM}. V_R = 0.8·V_{RRM}, duty cycle d = 0.5
 Data according to IEC 60747

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

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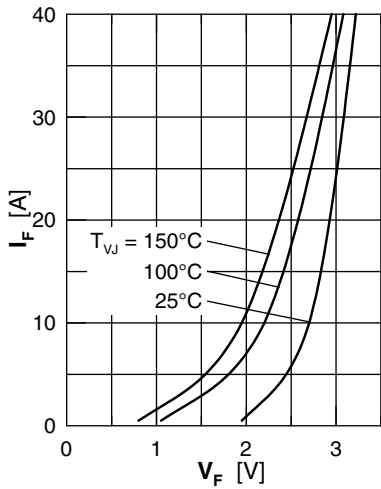


Fig. 1 Forward current versus voltage drop

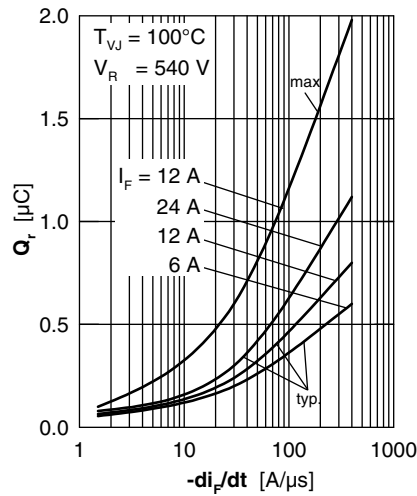


Fig. 2 Recovery charge versus $-di_F/dt$

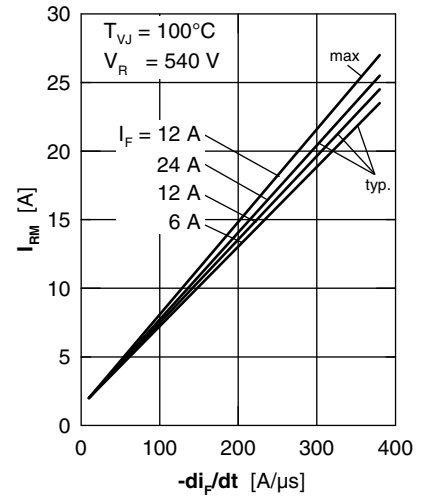


Fig. 3 Peak reverse current versus $-di_F/dt$

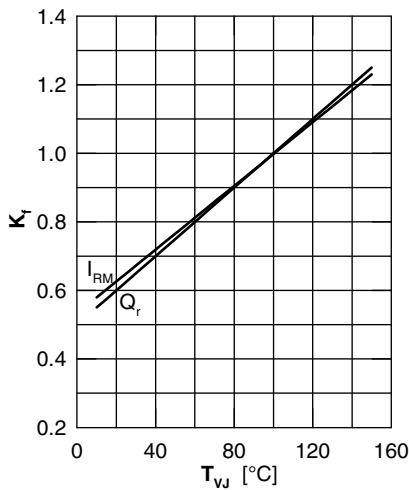


Fig. 4 Dynamic parameters versus junction temperature

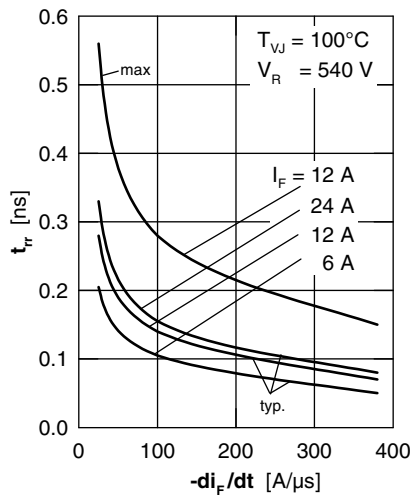


Fig. 5 Recovery time versus $-di_F/dt$

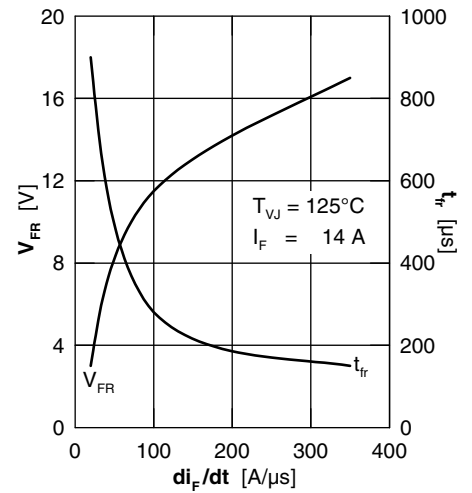


Fig. 6 Peak forward voltage versus di_F/dt

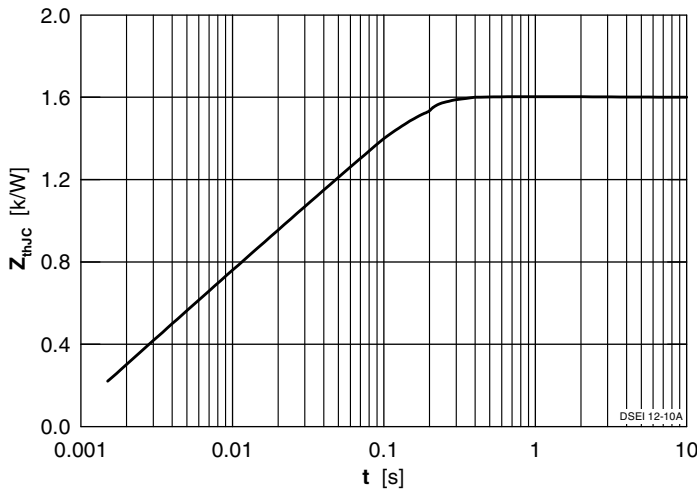
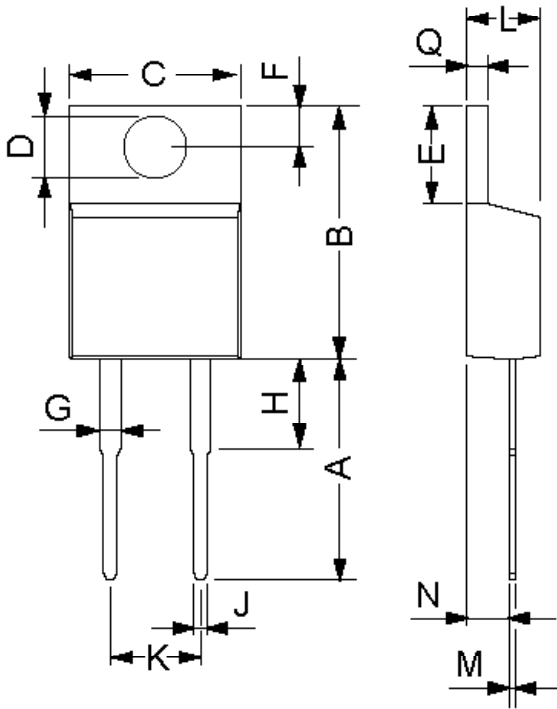


Fig. 7 Transient thermal resistance junction to case

Dimensions TO-220 AC



Dim.	Millimeter		Inches	
	Min.	Max.	Min.	Max.
A	12.7	14.73	0.5	0.58
B	14.23	16.51	0.56	0.65
C	9.66	10.66	0.38	0.42
D	3.54	4.08	0.139	0.161
E	5.85	6.85	2.3	0.42
F	2.54	3.42	0.1	0.135
G	1.15	1.77	0.045	0.07
H	-	6.35	-	0.25
J	0.64	0.89	0.025	0.035
K	4.83	5.33	0.19	0.21
L	3.56	4.82	0.14	0.19
M	0.51	0.76	0.02	0.03
N	2.04	2.49	0.08	0.115
Q	0.64	1.39	0.025	0.055