Chipsmall Limited consists of a professional team with an average of over 10 year of expertise in the distribution of electronic components. Based in Hongkong, we have already established firm and mutual-benefit business relationships with customers from,Europe,America and south Asia,supplying obsolete and hard-to-find components to meet their specific needs.

With the principle of “Quality Parts,Customers Priority,Honest Operation,and Considerate Service”,our business mainly focus on the distribution of electronic components. Line cards we deal with include Microchip,ALPS,ROHM,Xilinx,Pulse,ON,Everlight and Freescale. Main products comprise IC,Modules,Potentiometer,IC Socket,Relay,Connector.Our parts cover such applications as commercial,industrial, and automotives areas.

We are looking forward to setting up business relationship with you and hope to provide you with the best service and solution. Let us make a better world for our industry!

Contact us

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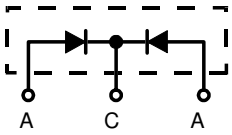
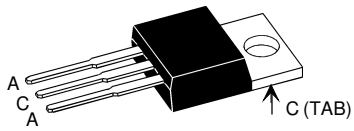
HiPerFRED™ Epitaxial Diode
with common cathode and soft recovery

I_{FAV} = 2x 10 A
V_{RRM} = 1200 V
t_{rr} = 40 ns

V_{RSM} V	V_{RRM} V	Type
1200	1200	DSEC 16-12A



TO-220 AB



A = Anode, C = Cathode, TAB = Cathode

Symbol	Test Conditions	Maximum Ratings	
I_{FRMS}		14	A
I_{FAVM}	T_C = 115°C; rectangular, d = 0.5	10	A
I_{FRM}	t_P < 10 µs; rep. rating, pulse width limited by T_{VJM}	tbd	A
I_{FSM}	T_{VJ} = 45°C; t_p = 10 ms (50 Hz), sine	40	A
E_{AS}	T_{VJ} = 25°C; non-repetitive I_{AS} = 8 A; L = 180 µH	6.9	mJ
I_{AR}	V_A = 1.25·V_R typ.; f = 10 kHz; repetitive	0.8	A
T_{VJ}		-55...+175	°C
T_{VJM}		175	°C
T_{stg}		-55...+150	°C
P_{tot}	T_C = 25°C	60	W
M_d	mounting torque	0.45...0.55 4...5	Nm lb.in.
Weight	typical	2	g

Symbol	Test Conditions	Characteristic Values typ.	max.	
I_R ①	T_{VJ} = 25°C V_R = V_{RRM}		60	µA
	T_{VJ} = 150°C V_R = V_{RRM}		0.25	mA
V_F ②	I_F = 10 A; T_{VJ} = 150°C		1.96	V
	T_{VJ} = 25°C		2.94	V
R_{thJC}			2.5	K/W
R_{thCH}		0.5		K/W
t_{rr}	I_F = 1 A; -di/dt = 50 A/µs; V_R = 30 V; T_{VJ} = 25°C	40		ns
I_{RM}	V_R = 100 V; I_F = 12 A; -di_F/dt = 100 A/µs T_{VJ} = 100°C		8.5	A

Pulse test: ① Pulse Width = 5 ms, Duty Cycle < 2.0 %
② Pulse Width = 300 µs, Duty Cycle < 2.0 %

Data according to IEC 60747 and per diode unless otherwise specified

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

Features

- International standard package
- 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
- Antisaturation diode
- Snubber diode
- Free wheeling diode in converters and motor control circuits
- Rectifiers in switch mode power supplies (SMPS)
- Inductive heating
- Uninterruptible power supplies (UPS)
- Ultrasonic cleaners and welders

Advantages

- Avalanche voltage rated for reliable operation
- Soft reverse recovery for low EMI/RFI
- Low I_{RM} reduces:
  - Power dissipation within the diode
  - Turn-on loss in the commutating switch

Dimensions see IXYS Catalog 2000 (CD)

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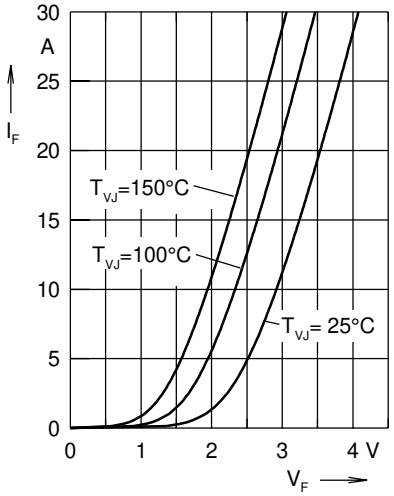

Fig. 1 Forward current I_F versus V_F

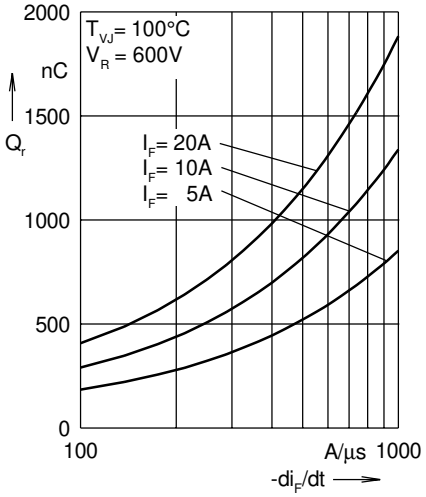

Fig. 2 Reverse recovery charge Q_r versus $-di_F/dt$

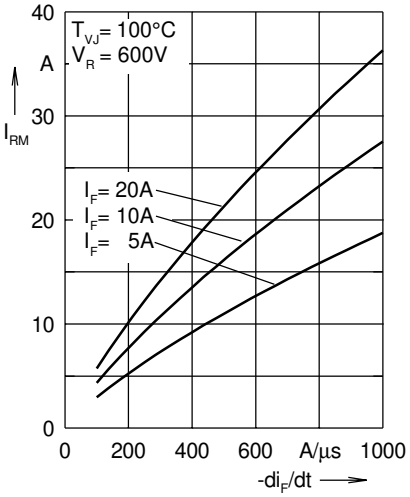

Fig. 3 Peak reverse current I_{RM} versus $-di_F/dt$

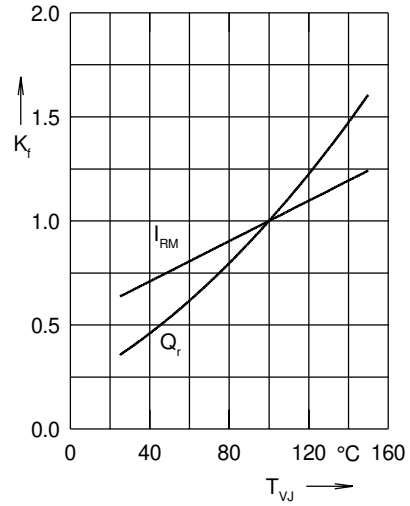

Fig. 4 Dynamic parameters Q_r, I_{RM} versus T_{VJ}

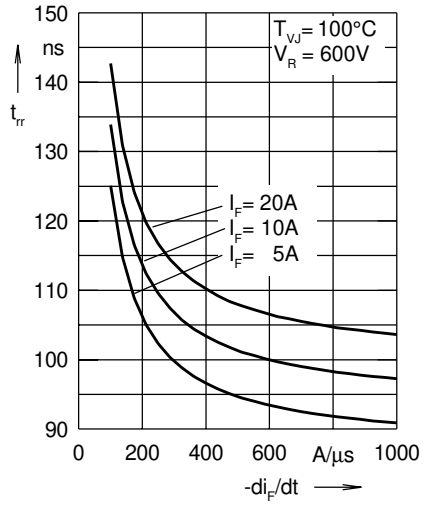

Fig. 5 Recovery time t_{rr} versus $-di_F/dt$

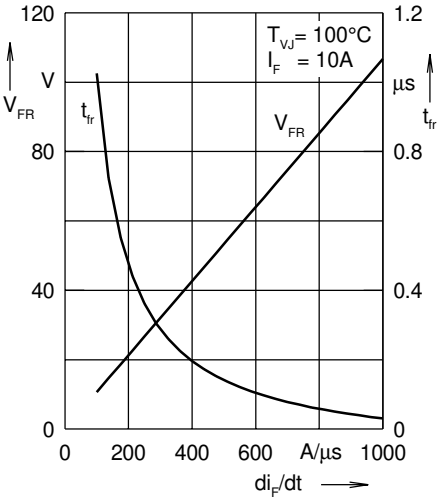

Fig. 6 Peak forward voltage V_{FR} and t_{fr} versus di_F/dt

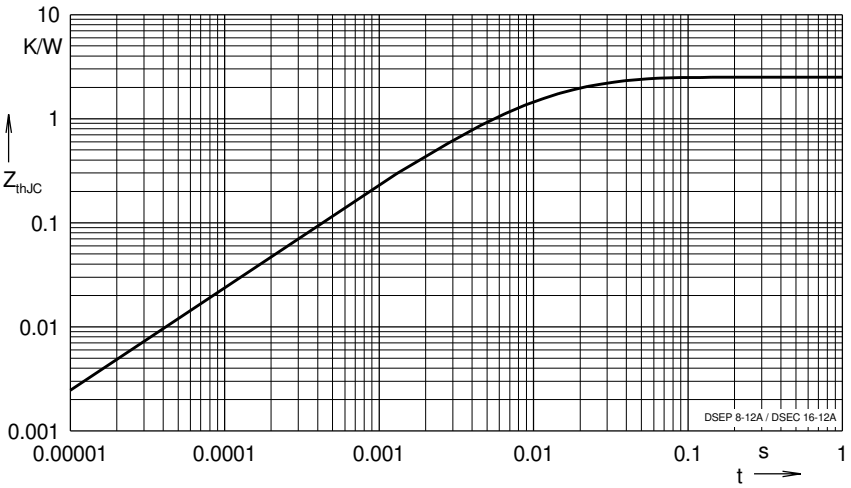

Fig. 7 Transient thermal resistance junction to case

Constants for Z_{thJC} calculation:

i	R_{thi} (K/W)	t_i (s)
1	1.449	0.0052
2	0.558	0.0003
3	0.493	0.017