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Fast Recovery
Epitaxial Diode (FRED)

I_{FAVM} = 2x 91 A
V_{RRM} = 1200 V
t_{rr} = 40 ns

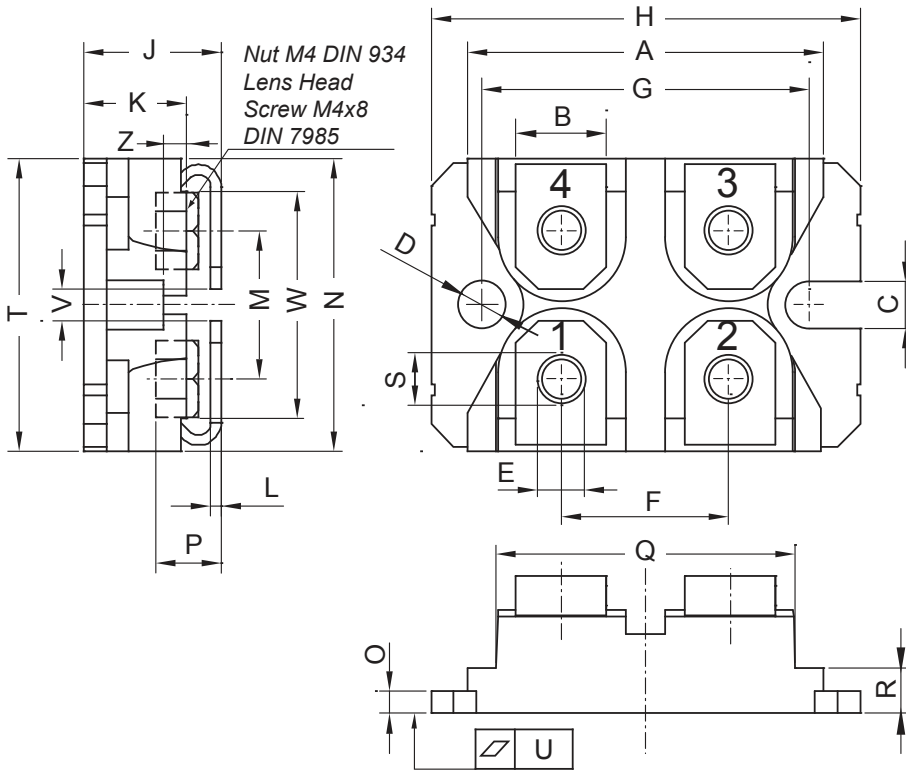| V_{RSM}	V_{RRM}	Type
V	V	
1200	1200	DSEI 2x 101-12A

miniBLOC, SOT-227 B

Features
- International standard package
- miniBLOC (ISOTOP compatible)
- Isolation voltage 2500 V~
- matched diodes f. parallel operation
- Planar passivated chips
- two independent diodes
- Very short recovery time
- Extremely low switching losses
- Low I_{RM}-values
- Soft recovery behaviour

Symbol	Test Conditions	Maximum Ratings (per diode)	
$I_{F(RMS)}$	$T_{VJ} = T_{VJM}$	130	A
$I_{F(AV)M}$ ①	$T_C = 50°C$; rectangular, d = 0.5	91	A
I_{FRM}	$t_P < 10$ µs; rep. rating, pulse width limited by T_{VJM}	TBD	A
I_{FSM}	$T_{VJ} = 45°C$; t = 10 ms (50 Hz), sine	900	A
	t = 8.3 ms (60 Hz), sine	970	A
	$T_{VJ} = 150°C$; t = 10 ms (50 Hz), sine	810	A
	t = 8.3 ms (60 Hz), sine	870	A
I^2t	$T_{VJ} = 45°C$ t = 10 ms (50 Hz), sine	4100	A^2s
	t = 8.3 ms (60 Hz), sine	4000	A^2s
	$T_{VJ} = 150°C$; t = 10 ms (50 Hz), sine	3300	A^2s
	t = 8.3 ms (60 Hz), sine	3200	A^2s
T_{VJ}		-40...+150	°C
T_{VJM}		150	°C
T_{stg}		-40...+150	°C
P_{tot}	$T_C = 25°C$	250	W
V_{ISOL}	50/60 Hz, RMS	2500	V~
	$I_{ISOL} \leq 1$ mA		
M_d	Mounting torque	1.5/13	Nm/lb.in.
	Terminal connection torque (M4)	1.5/13	Nm/lb.in.
Weight		30	g

Symbol	Test Conditions	Characteristic Values (per diode)		
		typ.	max.	
I_R	$T_{VJ} = 25°C$ $V_R = V_{RRM}$		3	mA
	$T_{VJ} = 25°C$ $V_R = 0.8 • V_{RRM}$		1.5	mA
	$T_{VJ} = 125°C$ $V_R = 0.8 • V_{RRM}$		15	mA
V_F	$I_F = 100$ A; $T_{VJ} = 150°C$		1.61	V
	$T_{VJ} = 25°C$		1.87	V
V_{T0}	For power-loss calculations only		1.01	V
r_T			6.1	mΩ
R_{thJC}			0.5	K/W
R_{thCH}		0.05		K/W
t_{rr}	$I_F = 1$ A; -di/dt = 400 A/µs; $V_R = 30$ V; $T_{VJ} = 25°C$	40	60	ns
I_{RM}	$V_R = 100$ V; $I_F = 75$ A; -di_F/dt = 200 A/µs	24	30	A
	$L \leq 0.05$ mH; $T_{VJ} = 100°C$			

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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miniBLOC, SOT-227 B

Dim.	Millimeter		Inches	
	min	max	min	max
A	31.50	31.88	1.240	1.255
B	7.80	8.20	0.307	0.323
C	4.09	4.29	0.161	0.169
D	4.09	4.29	0.161	0.169
E	4.09	4.29	0.161	0.169
F	14.91	15.11	0.587	0.595
G	30.12	30.30	1.186	1.193
H	37.80	38.23	1.488	1.505
J	11.68	12.22	0.460	0.481
K	8.92	9.60	0.351	0.378
L	0.74	0.84	0.029	0.033
M	12.50	13.10	0.492	0.516
N	25.15	25.42	0.990	1.001
O	1.95	2.13	0.077	0.084
P	4.95	6.20	0.195	0.244
Q	26.54	26.90	1.045	1.059
R	3.94	4.42	0.155	0.167
S	4.55	4.85	0.179	0.191
T	24.59	25.25	0.968	0.994
U	-0.05	0.10	-0.002	0.004
V	3.20	5.50	0.126	0.217
W	19.81	21.08	0.780	0.830
Z	2.50	2.70	0.098	0.106

Nut M4 DIN 934
Lens Head
Screw M4x8
DIN 7985

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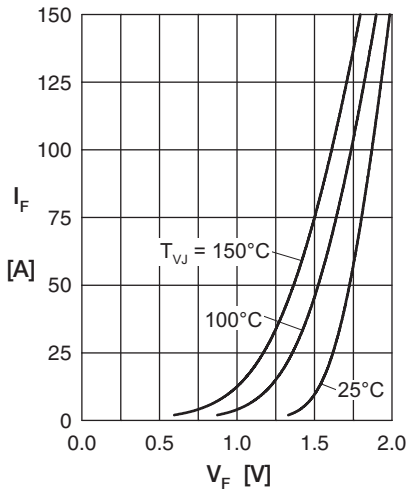
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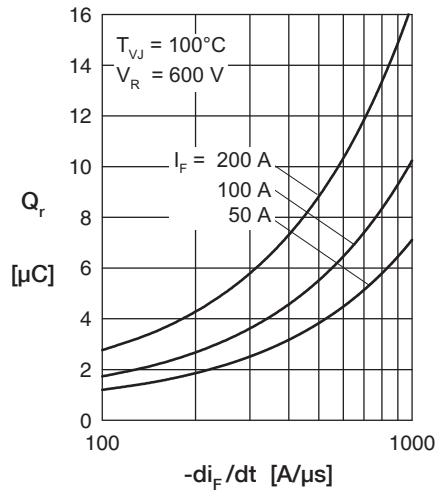Fig. 1   Forward current
I_F versus V_F

Fig. 2   Typ. reverse recov. charge
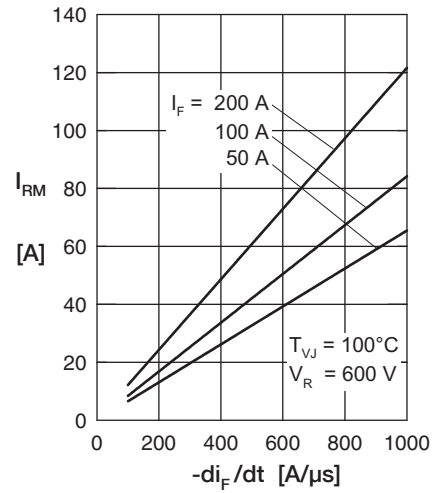Q_{rr} versus $-di_F/dt$

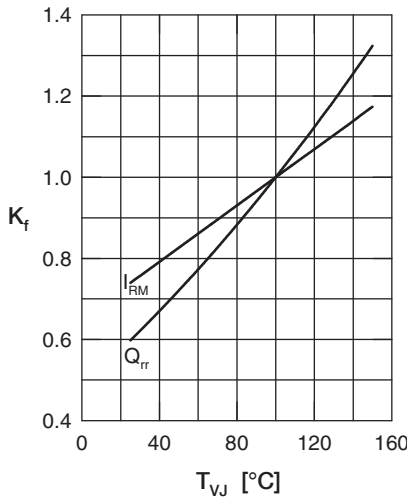Fig. 3   Typ. peak reverse current
I_{rr} versus $-di_F/dt$

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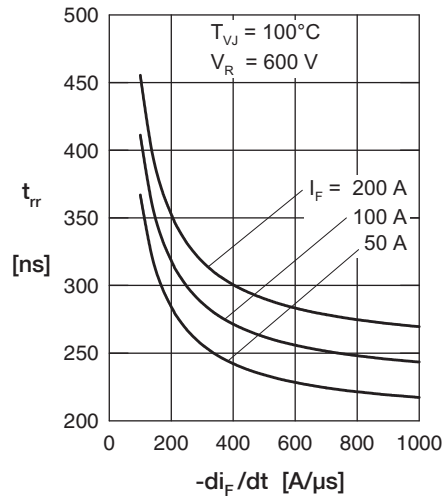Q_r, I_{RM} versus T_{VJ}

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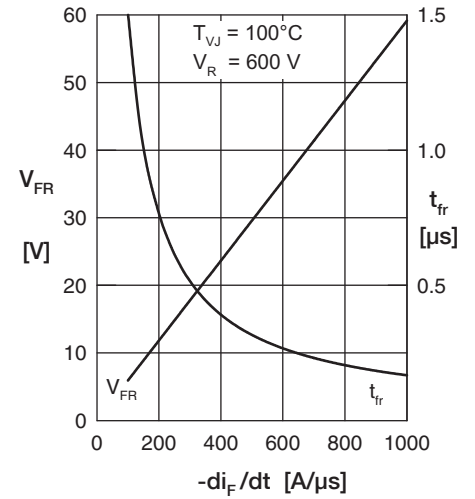t_{rr} versus $-di_F/dt$

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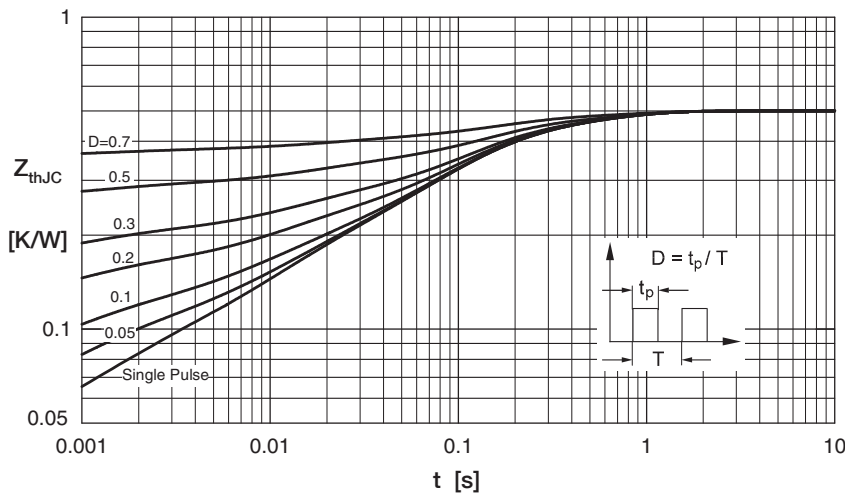V_{FR} and t_{fr} versus di_F/dt

Fig. 7   Transient thermal impedance junction to case

Constants for Z_{thJC} calculation:

i	R_{thi} [K/W]	t_i [s]
1	0.0020	0.00002
2	0.0050	0.00081
3	0.0076	0.01
4	0.0240	0.94
5	0.0114	0.45

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