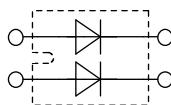


FRED

Fast Recovery Epitaxial Diode
Low Loss and Soft Recovery
Parallel legs

Part number

DSEI2x101-06A



Backside: isolated

E72873

Features / Advantages:

- Planar passivated chips
- Low leakage current
- Short recovery time
- Improved thermal behaviour
- Low I_{rm} -values
- Very soft recovery behaviour
- 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

Applications:

- Antiparallel diode for high frequency switching devices
- Antisaturation diode
- Snubber diode
- Free wheeling diode
- Rectifiers in switch mode power supplies (SMPS)
- Uninterruptible power supplies (UPS)

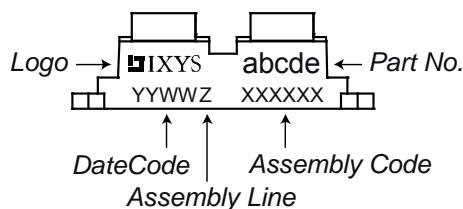
Package:

- Housing: SOT-227B (minibloc)
- Industry standard outline
- Cu base plate internal DCB isolated
- Isolation Voltage 3000 V
- Epoxy meets UL 94V-0
- RoHS compliant

Symbol	Definition	Conditions		Ratings		
				min.	typ.	max.
V_{RRM}	max. repetitive reverse voltage		$T_{VJ} = 25^\circ\text{C}$			600 V
I_R	reverse current	$V_R = 600\text{ V}$ $V_R = 480\text{ V}$	$T_{VJ} = 25^\circ\text{C}$ $T_{VJ} = 125^\circ\text{C}$			3 mA 20 mA
V_F	forward voltage	$I_F = 100\text{ A}$ $I_F = 200\text{ A}$ $I_F = 100\text{ A}$ $I_F = 200\text{ A}$	$T_{VJ} = 25^\circ\text{C}$ $T_{VJ} = 150^\circ\text{C}$			1.25 V 1.40 V 1.17 V 1.70 V
I_{FAV}	average forward current	rectangular	$d = 0.5$	$T_c = 70^\circ\text{C}$		96 A
V_{FO} r_F	threshold voltage slope resistance	} for power loss calculation only		$T_{VJ} = 150^\circ\text{C}$		0.70 V 4.7 mΩ
R_{thJC}	thermal resistance junction to case					0.50 K/W
T_{VJ}	virtual junction temperature			-40	150	°C
P_{tot}	total power dissipation		$T_c = 25^\circ\text{C}$			250 W
I_{FSM}	max. forward surge current	$t = 10\text{ ms}$ (50 Hz), sine	$T_{VJ} = 45^\circ\text{C}$			1200 A
I_{RM}	max. reverse recovery current		$T_{VJ} = 25^\circ\text{C}$		27	A
		$I_F = 100\text{ A}; V_R = 300\text{ V}$	$T_{VJ} = 100^\circ\text{C}$		40	A
t_{rr}	reverse recovery time	$-di_F/dt = 600\text{ A}/\mu\text{s}$	$T_{VJ} = 25^\circ\text{C}$ $T_{VJ} = 100^\circ\text{C}$		80 ns 150 ns	
C_J	junction capacitance	$V_R = 400\text{ V}; f = 1\text{ MHz}$	$T_{VJ} = 25^\circ\text{C}$		107 pF	

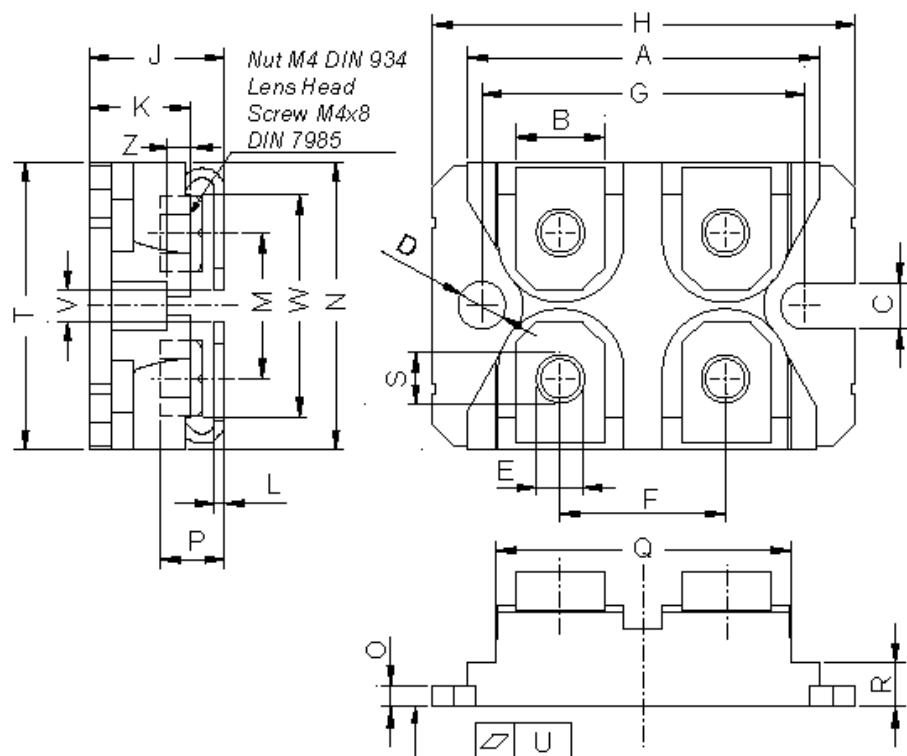
Symbol	Definition	Conditions	Ratings			
			min.	typ.	max.	
I_{RMS}	RMS current	per terminal			150	A
R_{thCH}	thermal resistance case to heatsink			0.10		K/W
T_{stg}	storage temperature		-40		150	°C
Weight				30		g
M_D	mounting torque			1.1		Nm
M_T	terminal torque			1.1		Nm
V_{ISOL}	isolation voltage	t = 1 second t = 1 minute	3000			V
$d_{Spp/App}$	creepage striking distance on surface through air	terminal to terminal	10.5	3.2		mm
$d_{Spb/Apb}$	creepage striking distance on surface through air	terminal to backside	8.6	6.8		mm

Product Marking



Ordering	Part Name	Marking on Product	Delivering Mode	Base Qty	Code Key
Standard	DSEI2x101-06A	DSEI2x101-06A	Tube	10	468029

Outlines SOT-227B (minibloc)



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

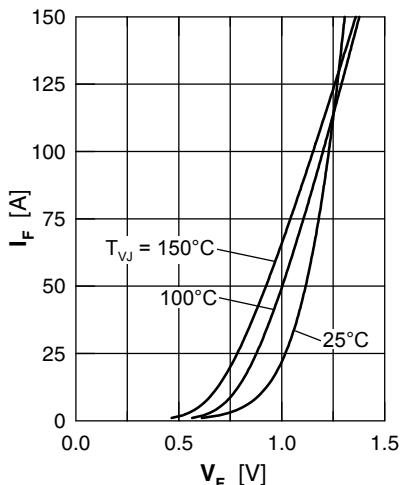
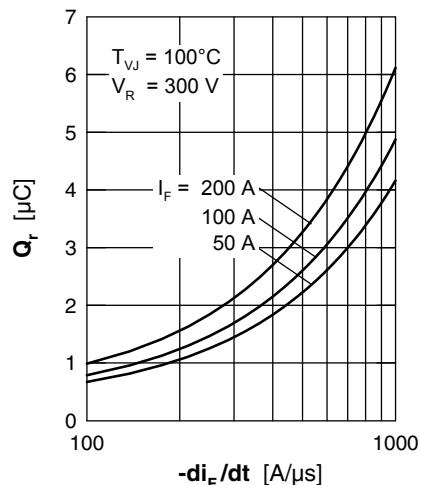
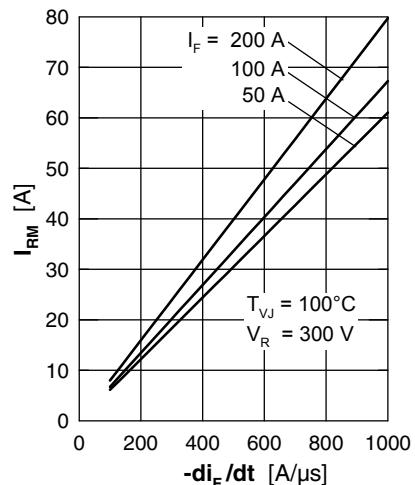
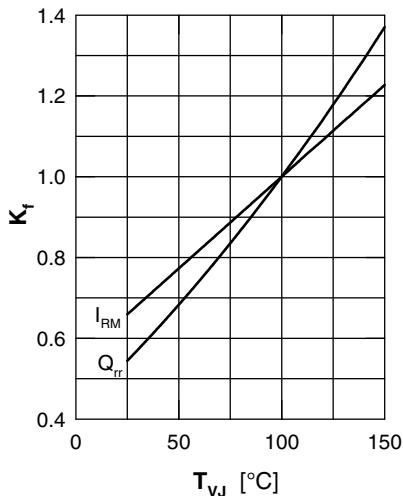
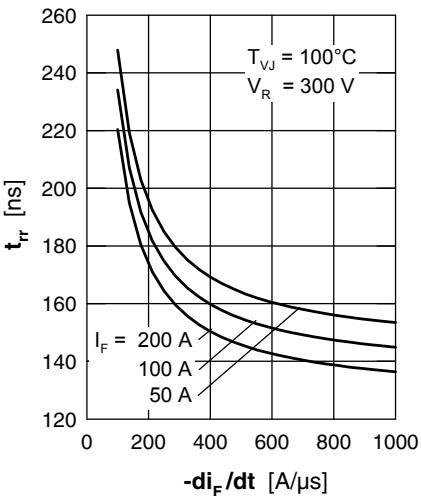
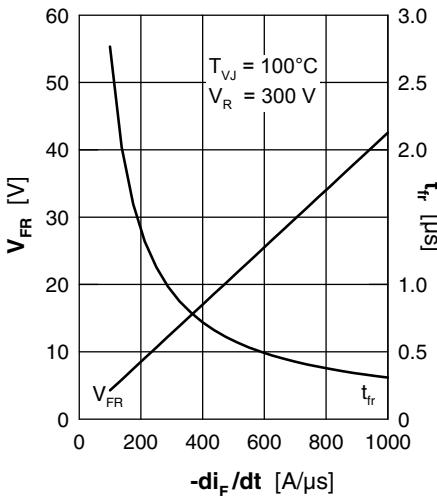
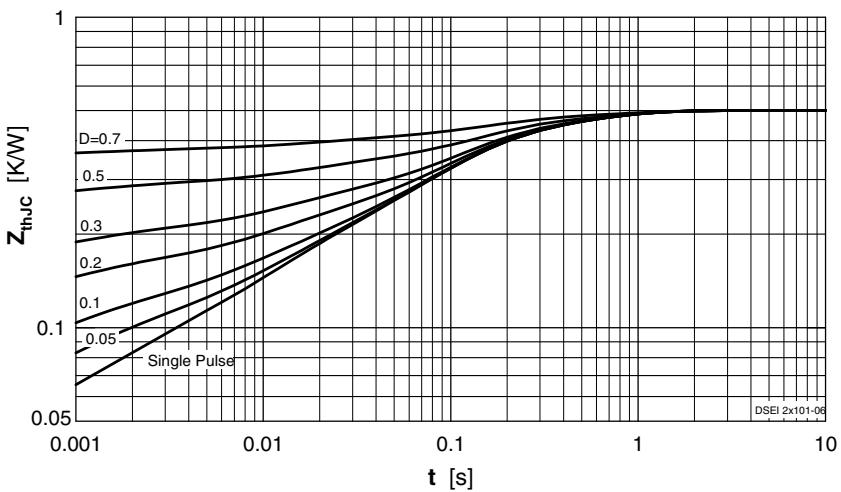
Fig. 1 Forward current I_F versus V_F Fig. 2 Typ. reverse recovery charge Q_{rr} versus $-di_F/dt$ Fig. 3 Typ. peak reverse current I_{rr} versus $-di_F/dt$ Fig. 4 Dyn. parameters Q_{rr} , I_{RM} versus T_{VJ} Fig. 5 Typ. recovery time t_{rr} versus $-di_F/dt$ Fig. 6 Typ. peak forward voltage V_{FR} and t_{rr} 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	0.020	0.000002
2	0.020	0.00081
3	0.076	0.01
4	0.240	0.94
5	0.114	0.45