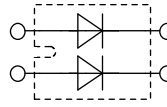


FRED

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:

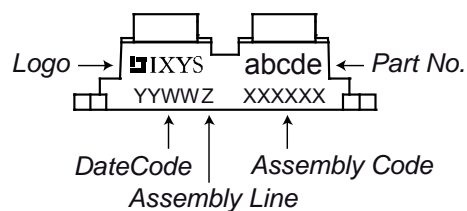
- Housing: SOT-227B (minibloc)
- Industry standard outline
- Cu base plate internal DCB isolated
- Isolation Voltage 3000 V
- Epoxy meets UL 94V-0
- RoHS compliant

Ratings

Symbol	Definition	Conditions	Ratings			Unit	
			min.	typ.	max.		
V _{RRM}	max. repetitive reverse voltage				600	V	
I _R	reverse current	V _R = 600 V			3	mA	
		V _R = 480 V			20	mA	
V _F	forward voltage	I _F = 100 A			1.25	V	
		I _F = 200 A			1.40	V	
		I _F = 100 A	T _{VJ} = 150 °C			1.17	V
			I _F = 200 A			1.70	V
I _{FAV}	average forward current	rectangular d = 0.5	T _C = 70 °C		96	A	
V _{F0}	threshold voltage	} for power loss calculation only	T _{VJ} = 150 °C		0.70	V	
r _F	slope resistance				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 °C		250	W	
I _{FSM}	max. forward surge current	t = 10 ms (50 Hz), sine	T _{VJ} = 45 °C		1200	A	
I _{RM}	max. reverse recovery current		T _{VJ} = 25 °C		27	A	
		I _F = 100 A; V _R = 300 V	T _{VJ} = 100 °C		40	A	
t _{rr}	reverse recovery time	-di _F /dt = 600 A/μs	T _{VJ} = 25 °C		80	ns	
			T _{VJ} = 100 °C		150	ns	
C _J	junction capacitance	V _R = 400 V; f = 1 MHz	T _{VJ} = 25 °C		107	pF	

Symbol	Definition	Conditions	Ratings			Unit
			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		1.5	Nm
M_T	terminal torque		1.1		1.5	Nm
V_{ISOL}	isolation voltage	t = 1 second	3000			V
		t = 1 minute	2500			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

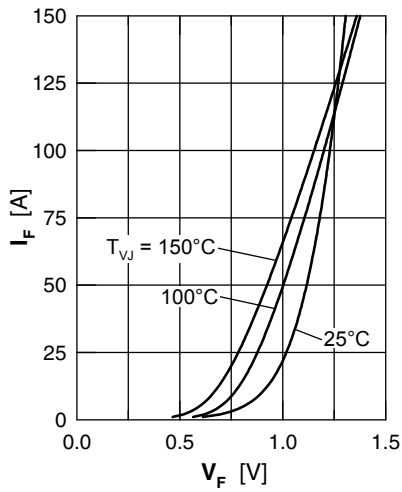


Fig. 1 Forward current I_F versus V_F

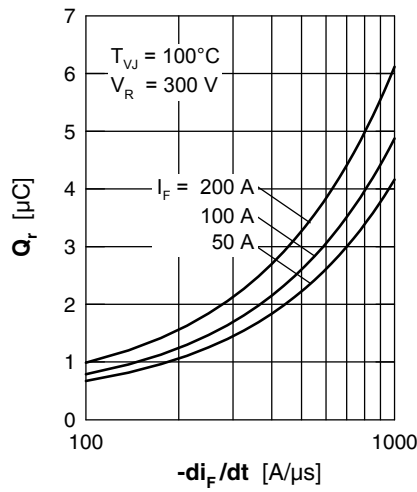


Fig. 2 Typ. reverse recovery charge Q_{rr} versus $-di_F/dt$

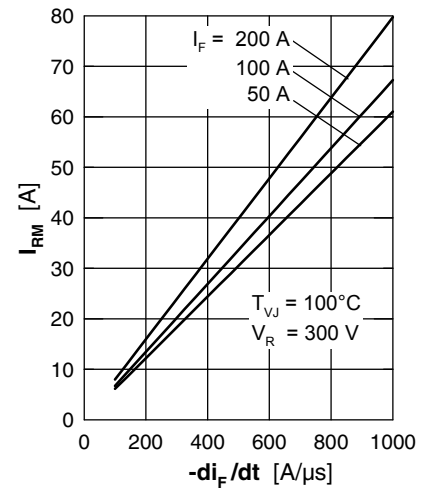


Fig. 3 Typ. peak reverse current I_{RM} versus $-di_F/dt$

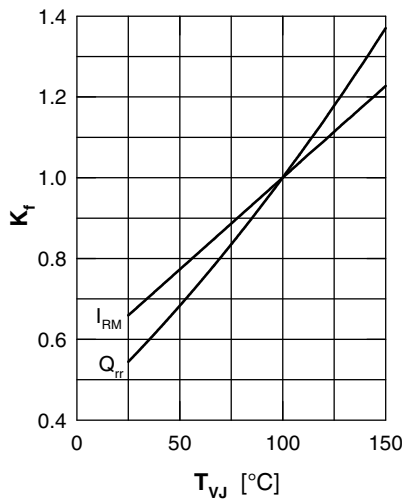


Fig. 4 Dyn. parameters Q_{rr} , I_{RM} versus T_{VJ}

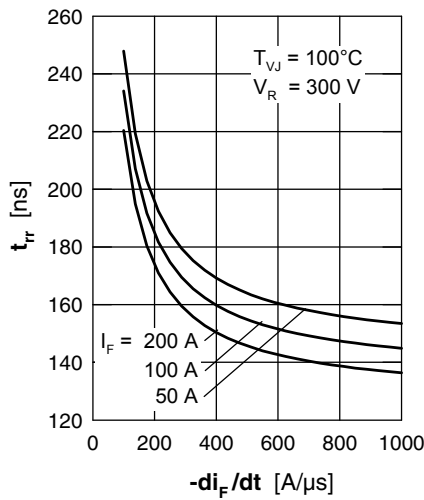


Fig. 5 Typ. recovery time t_{rr} versus $-di_F/dt$

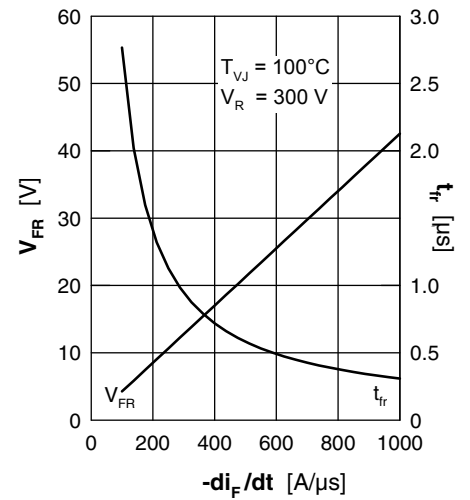


Fig. 6 Typ. peak forward voltage V_{FR} and t_{rr} versus di_F/dt

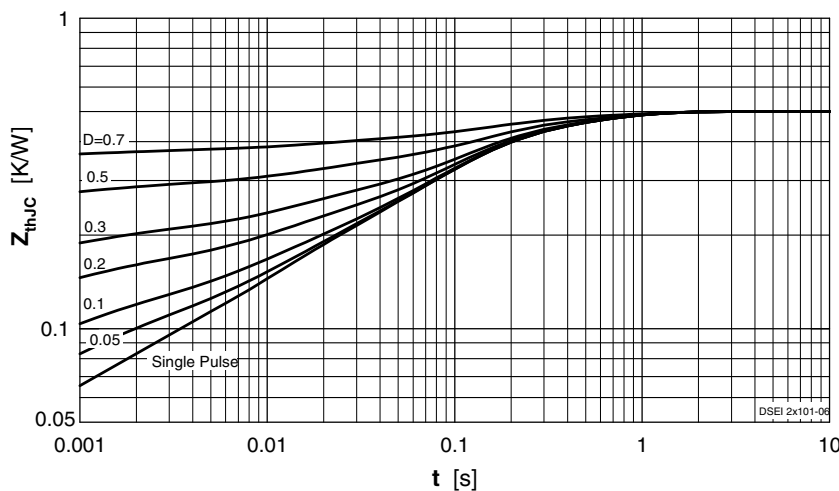


Fig. 7 Transient thermal impedance junction to case

Constants for Z_{thJC} calculation:

i	R_{thi} [K/W]	t_i [s]
1	0.020	0.00002
2	0.020	0.00081
3	0.076	0.01
4	0.240	0.94
5	0.114	0.45