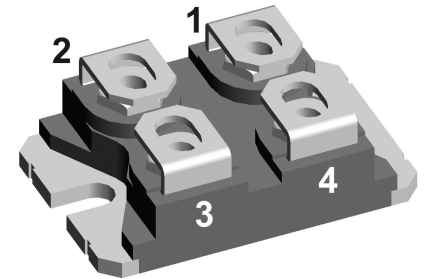


preliminary

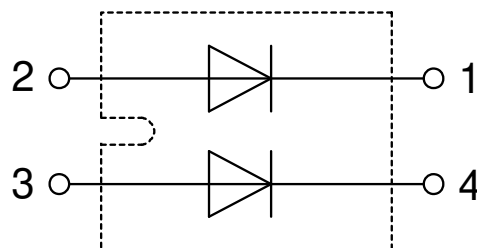
Sonic Fast Recovery Diode

 $V_{RRM} = 1200\text{ V}$
 $I_{FAV} = 2 \times 50\text{ A}$
 $t_{rr} = 200\text{ ns}$

High Performance Fast Recovery Diode
 Low Loss and Soft Recovery
 Parallel legs

Part number
DHG100X1200NA


Backside: Isolated



Features / Advantages:

- Planar passivated chips
- Very low leakage current
- Very short recovery time
- Improved thermal behaviour
- Very 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: SOT-227B (minibloc)

- Isolation Voltage: 3000 V~
- Industry standard outline
- RoHS compliant
- Epoxy meets UL 94V-0
- Base plate: Copper internally DCB isolated
- Advanced power cycling

Disclaimer Notice

Information furnished is believed to be accurate and reliable. However, users should independently evaluate the suitability of and test each product selected for their own applications. Littelfuse products are not designed for, and may not be used in, all applications. Read complete Disclaimer Notice at www.littelfuse.com/disclaimer-electronics.

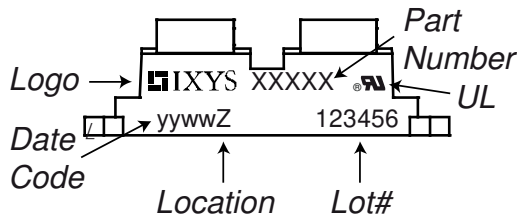


Fast Diode				Ratings			
Symbol	Definition	Conditions	min.	typ.	max.	Unit	
V_{RSM}	max. non-repetitive reverse blocking voltage	$T_{VJ} = 25^{\circ}C$			1200	V	
V_{RRM}	max. repetitive reverse blocking voltage	$T_{VJ} = 25^{\circ}C$			1200	V	
I_R	reverse current, drain current	$V_R = 1200 V$	$T_{VJ} = 25^{\circ}C$		100	μA	
		$V_R = 1200 V$	$T_{VJ} = 125^{\circ}C$		1.2	mA	
V_F	forward voltage drop	$I_F = 50 A$	$T_{VJ} = 25^{\circ}C$		2.16	V	
		$I_F = 100 A$			2.78	V	
		$I_F = 50 A$	$T_{VJ} = 125^{\circ}C$		2.13	V	
		$I_F = 100 A$			2.97	V	
I_{FAV}	average forward current	$T_C = 65^{\circ}C$ rectangular $d = 0.5$	$T_{VJ} = 150^{\circ}C$		50	A	
V_{FO}	threshold voltage	} for power loss calculation only	$T_{VJ} = 150^{\circ}C$		1.26	V	
r_F	slope resistance				15.3	m Ω	
R_{thJC}	thermal resistance junction to case				0.6	K/W	
R_{thCH}	thermal resistance case to heatsink			0.1		K/W	
P_{tot}	total power dissipation		$T_C = 25^{\circ}C$		200	W	
I_{FSM}	max. forward surge current	$t = 10 ms; (50 Hz), sine; V_R = 0 V$	$T_{VJ} = 45^{\circ}C$		500	A	
C_J	junction capacitance	$V_R = 600 V \quad f = 1 MHz$	$T_{VJ} = 25^{\circ}C$		27	pF	
I_{RM}	max. reverse recovery current	} $I_F = 60 A; V_R = 600 V$ $-di_F / dt = 1200 A/\mu s$	$T_{VJ} = 25^{\circ}C$		45	A	
			$T_{VJ} = 125^{\circ}C$		60	A	
t_{rr}	reverse recovery time		$T_{VJ} = 25^{\circ}C$		200	ns	
			$T_{VJ} = 125^{\circ}C$		350	ns	



Package SOT-227B (minibloc)		Ratings				
Symbol	Definition	Conditions	min.	typ.	max.	Unit
I_{RMS}	RMS current	per terminal			100	A
T_{VJ}	virtual junction temperature		-40		150	°C
T_{op}	operation temperature		-40		125	°C
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
$d_{Spp/App}$	creepage distance on surface striking distance through air	terminal to terminal	10.5	3.2		mm
$d_{Spb/Apb}$		terminal to backside	8.6	6.8		mm
V_{ISOL}	isolation voltage	t = 1 second		3000		V
		t = 1 minute	50/60 Hz, RMS; $I_{ISOL} \leq 1$ mA	2500		V

Product Marking



Part description

- D = Diode
- H = Sonic Fast Recovery Diode
- G = extreme fast
- 100 = Current Rating [A]
- X = Parallel legs
- 1200 = Reverse Voltage [V]
- NA = SOT-227B (minibloc)

Ordering	Ordering Number	Marking on Product	Delivery Mode	Quantity	Code No.
Standard	DHG100X1200NA	DHG100X1200NA	Tube	10	507759

Equivalent Circuits for Simulation

* on die level

$T_{VJ} = 150^{\circ}C$



Fast Diode

$V_{0\ max}$ threshold voltage

1.26

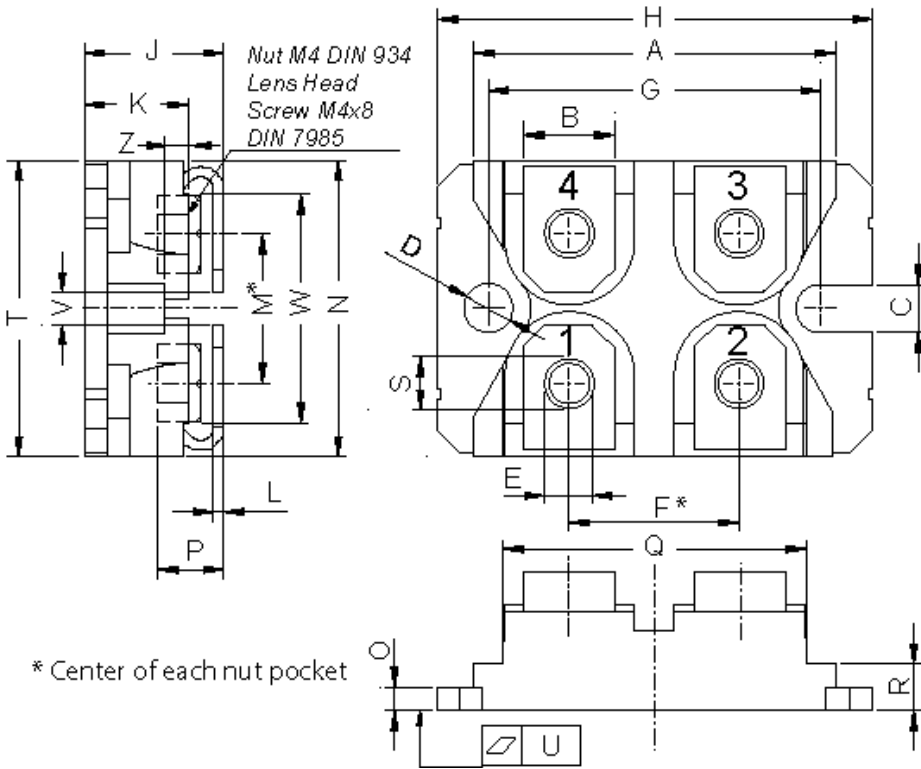
V

$R_{0\ max}$ slope resistance *

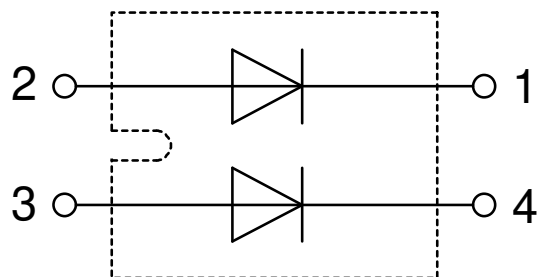
mΩ



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





Fast Diode

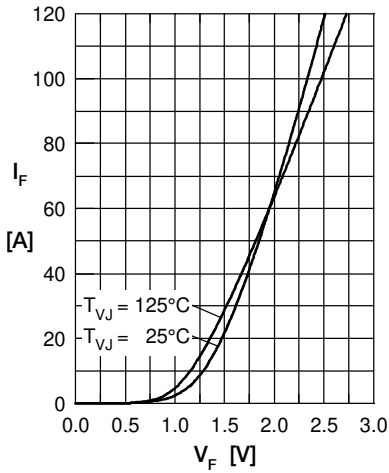


Fig. 1 Typ. Forward current versus V_F

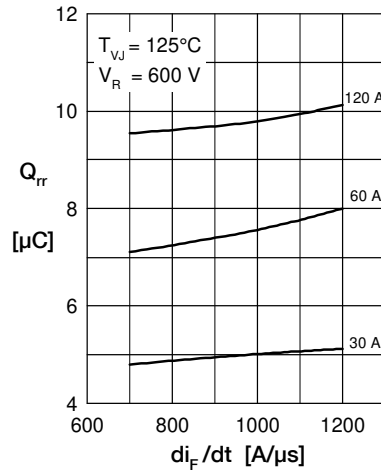


Fig. 2 Typ. reverse recov. charge Q_{rr} versus di/dt

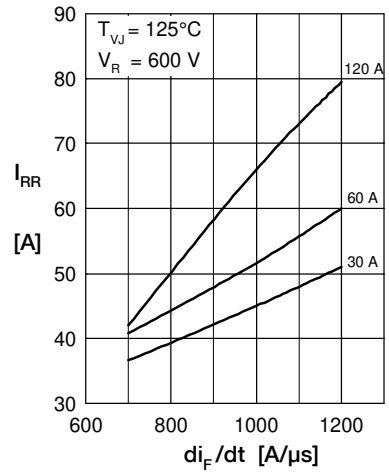


Fig. 3 Typ. peak reverse current I_{RRM} versus di/dt

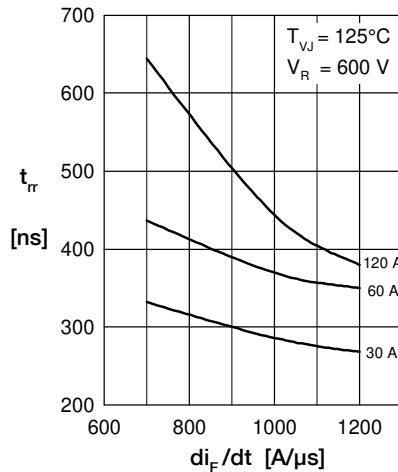


Fig. 4 Dynamic parameters Q_{rr} , I_{RRM} versus T_{VJ}

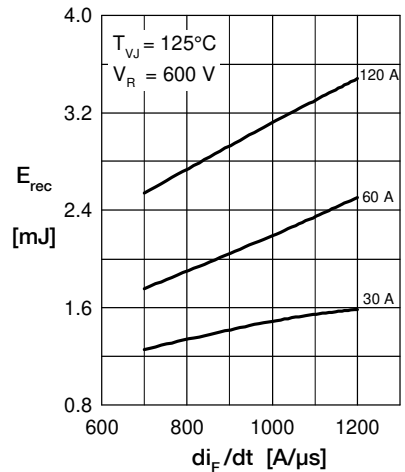


Fig. 5 Typ. recovery time t_{rr} versus di/dt

Fig. 6 Typ. recovery energy E_{rec} versus di/dt

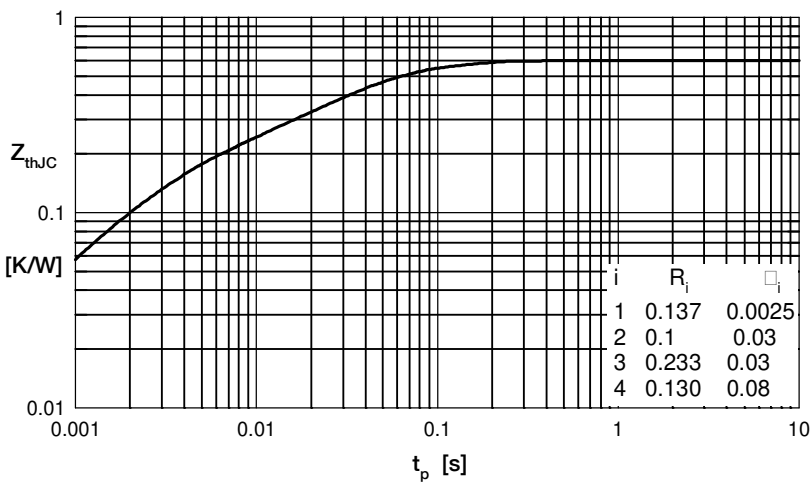


Fig. 7 Typ. transient thermal impedance junction to case