Sonic Fast Recovery Diode
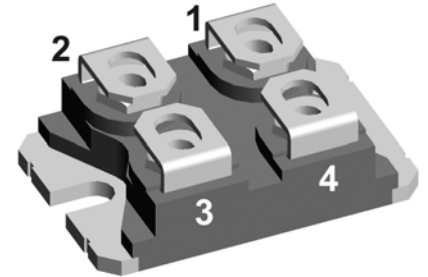
advanced

V_{RRM}	=	600 V
I_{FAV}	= 2x	50 A
t_{rr}	=	35 ns

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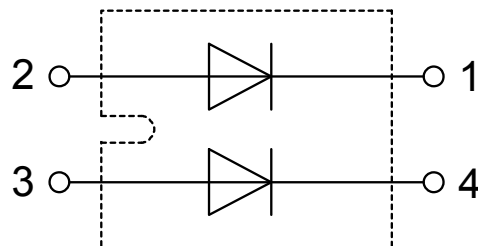Low Loss and Soft Recovery
Parallel legs

Part number

DHG100X600NA

Backside: Isolated

E72873

Features / Advantages:

● Planar passivated chips
● Very low leakage current
● Very short recovery time
● Improved thermal behaviour
● Very low Irm-values
● Very soft recovery behaviour
● Avalanche voltage rated for reliable operation
● Soft reverse recovery for low EMI/RFI
● Low Irm 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)
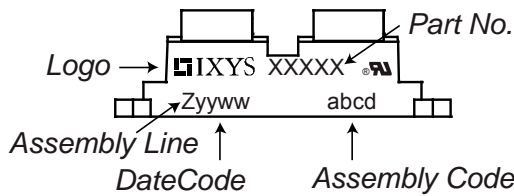● Uninterruptible power supplies (UPS)

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

IXYS reserves the right to change limits, conditions and dimensions.   Data according to IEC 60747 and per semiconductor unless otherwise specified   20130829a

advanced

Fast Diode					Ratings			
Symbol	**Definition**	**Conditions**			**min.**	**typ.**	**max.**	**Unit**
V_{RSM}	max. non-repetitive reverse blocking voltage		$T_{VJ} = 25°C$				600	V
V_{RRM}	max. repetitive reverse blocking voltage		$T_{VJ} = 25°C$				600	V
I_R	reverse current, drain current	$V_R = 600$ V	$T_{VJ} = 25°C$				200	μA
		$V_R = 600$ V	$T_{VJ} = 125°C$				4	mA
V_F	forward voltage drop	$I_F = 50$ A	$T_{VJ} = 25°C$				2.20	V
		$I_F = 100$ A					2.95	V
		$I_F = 50$ A	$T_{VJ} = 125°C$				2.18	V
		$I_F = 100$ A					3.10	V
I_{FAV}	average forward current	$T_C = 60°C$	$T_{VJ} = 150°C$				50	A
		rectangular d = 0.5						
V_{F0}	threshold voltage	⎫ for power loss calculation only	$T_{VJ} = 150°C$				1.20	V
r_F	slope resistance	⎭					19	mΩ
R_{thJC}	thermal resistance junction to case						0.6	K/W
R_{thCH}	thermal resistance case to heatsink					0.10		K/W
P_{tot}	total power dissipation		$T_C = 25°C$				210	W
I_{FSM}	max. forward surge current	t = 10 ms; (50 Hz), sine; $V_R = 0$ V	$T_{VJ} = 45°C$				430	A
C_J	junction capacitance	$V_R = 400$ V f = 1 MHz	$T_{VJ} = 25°C$			47		pF
I_{RM}	max. reverse recovery current	⎫ $I_F = 50$ A; $V_R = 400$ V	$T_{VJ} = 25°C$			20		A
		⎬	$T_{VJ} = 125°C$			tbd		A
t_{rr}	reverse recovery time	⎭ -di$_F$/dt = 1200 A/μs	$T_{VJ} = 25°C$			35		ns
			$T_{VJ} = 125°C$			tbd		ns

Package	SOT-227B (minibloc)		Ratings			
Symbol	Definition	Conditions	min.	typ.	max.	Unit
I_{RMS}	RMS current	per terminal			150	A
T_{stg}	storage temperature		-40		150	°C
T_{VJ}	virtual junction 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

Logo → IXYS XXXXX ®RU Part No.
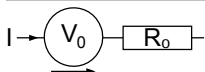
Zyyww abcd

Assembly Line ↑
DateCode   Assembly Code

Part number

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

Ordering	Part Number	Marking on Product	Delivery Mode	Quantity	Code No.
Standard	DHG100X600NA	DHG100X600NA	Tube	10	510840

Equivalent Circuits for Simulation	* on die level	T_{VJ} = 150 °C	
		Fast Diode	
$V_{0\,max}$	threshold voltage	1.2	V
$R_{0\,max}$	slope resistance *	17	mΩ

Outlines   SOT-227B (minibloc)

Nut M4 DIN 934
Lens Head
Screw M4x8
DIN 7985
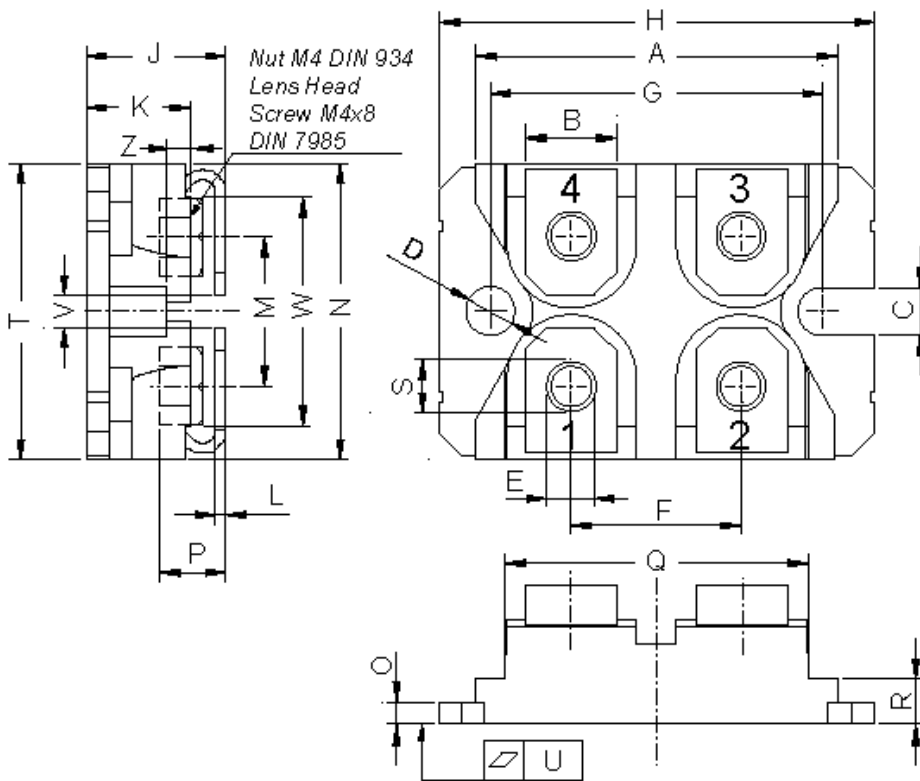
Dim.	Millimeter		Inches	
	min	max	min	max
A	31.50	31.88	1.240	1.255
B	7.80	8.20	0.307	0.323
C	4.09	4.29	0.161	0.169
D	4.09	4.29	0.161	0.169
E	4.09	4.29	0.161	0.169
F	14.91	15.11	0.587	0.595
G	30.12	30.30	1.186	1.193
H	37.80	38.23	1.488	1.505
J	11.68	12.22	0.460	0.481
K	8.92	9.60	0.351	0.378
L	0.74	0.84	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

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