# LIXYS

### DHG100X600NA

### **Sonic Fast Recovery Diode**

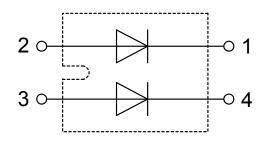
		advanced
$V_{RRM}$	=	600V
l <sub>fav</sub>	= 2x	50 A
t <sub>rr</sub>	=	35 ns

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

### Part number DHG100X600NA



Backside: Isolated



#### Features / Advantages:

- Planar passivated chips
- Very low leakage current
- Very short recovery time
- Improved thermal behaviour
- Very low Irm-values
- Very soft recovery behaviourAvalanche 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
- 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 isolatedAdvanced power cycling

IXYS reserves the right to change limits, conditions and dimensions.

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### DHG100X600NA

#### advanced

Fast Diode					Ratings		
Symbol	Definition	Conditions		min.	typ.	max.	Unit
	max. non-repetitive reverse blocki	ng voltage	$T_{VJ} = 25^{\circ}C$			600	V
V <sub>RRM</sub>	max. repetitive reverse blocking ve	oltage	$T_{VJ} = 25^{\circ}C$			600	V
I <sub>R</sub>	reverse current, drain current	$V_{R} = 600 V$	$T_{VJ} = 25^{\circ}C$			200	μA
		$V_{R} = 600 V$	$T_{VJ} = 125^{\circ}C$			4	mA
V <sub>F</sub>	forward voltage drop	I <sub>F</sub> = 50 A	$T_{VJ} = 25^{\circ}C$			2.20	V
		I <sub>F</sub> = 100 A				2.95	V
		I <sub>F</sub> = 50 A	T <sub>vJ</sub> = 125°C			2.18	V
		I <sub>F</sub> = 100 A				3.10	V
I <sub>FAV</sub>	average forward current	$T_c = 60^{\circ}C$	T <sub>vJ</sub> = 150°C			50	А
		rectangular d = 0.5					     
V <sub>F0</sub>	threshold voltage		T <sub>vJ</sub> = 150°C			1.20	V
r <sub>F</sub>	slope resistance	ss calculation only				19	mΩ
R <sub>thJC</sub>	thermal resistance junction to case	9				0.6	K/W
R <sub>thCH</sub>	thermal resistance case to heatsin	k			0.10		K/W
P <sub>tot</sub>	total power dissipation		$T_c = 25^{\circ}C$			210	W
	max. forward surge current	t = 10 ms; (50 Hz), sine; $V_R = 0 V$	$T_{VJ} = 45^{\circ}C$			430	Α
C	junction capacitance	V <sub>R</sub> = 400 V f= 1 MHz	$T_{VJ} = 25^{\circ}C$		47		pF
I <sub>RM</sub>	max. reverse recovery current		$T_{vJ} = 25 ^{\circ}C$		20		А
		$I_{\rm F} = 50 \text{A};  V_{\rm R} = 400 \text{V}$	T <sub>vJ</sub> = 125°C		tbd		Α
t <sub>rr</sub>	reverse recovery time	I <sub>F</sub> = 50 A; V <sub>R</sub> = 400 V -di <sub>F</sub> /dt = 1200 A/μs	$T_{VJ} = 25 \degree C$		35		ns
		)	T <sub>vJ</sub> = 125°C		tbd		ns

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### DHG100X600NA

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Package	Package SOT-227B (minibloc)				Ratings			
Symbol	Definition	Conditions			min.	typ.	max.	Unit
I <sub>RMS</sub>	RMS current	per terminal					150	Α
T <sub>stg</sub>	storage temperature				-40		150	°C
T <sub>VJ</sub>	virtual junction temperatu	ire			-40		150	°C
Weight						30		g
M <sub>D</sub>	mounting torque				1.1		1.5	Nm
Μ <sub>τ</sub>	terminal torque				1.1		1.5	Nm
d <sub>Spp/App</sub>	croopago distanco on su	face   striking distance through air	terminal to terminal	10.5	3.2			mm
d <sub>Spb/Apb</sub>	creepage distance on sur		terminal to backside	8.6	6.8			mm
	isolation voltage	t = 1 second			3000			V
		t = 1 minute	50/60 Hz, RMS; Iıso∟ ≤ 1 mA		2500			V



Logo → ∎IXYS	XXXXX ®R
Zyyww	abcd
Assembly Line 🕇	<b>↑</b>
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

Equiv	alent Circuits for	Simulation	* on die level	T <sub>vJ</sub> = 150 °C
	$-R_{o}-$	Fast Diode		
V <sub>0 max</sub>	threshold voltage	1.2		V
$R_{0 max}$	slope resistance *	17		mΩ

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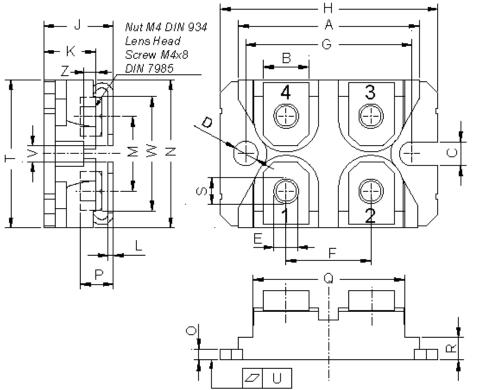
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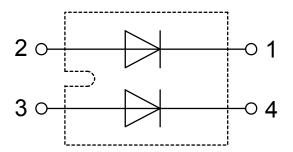
## DHG100X600NA

advanced

#### Outlines SOT-227B (minibloc)



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.		hdillir	notor	Inc	hoe
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           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         26.42         0.990         1.001           O         1.95         2.13         0.077         0.084           P         4.95         6.20         0.195         0.2	Dim.				
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         4.96         6.20         0.195         0.244           Q         26.54         26.90         1.045         1.059           R         3.94         4.42         0.155         0.					
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           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         0.1					
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	_				
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 <th< td=""><td>С</td><td>4.09</td><td>4.29</td><td>0.161</td><td>0.169</td></th<>	С	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 <th< td=""><td>D</td><td>4.09</td><td>4.29</td><td>0.161</td><td>0.169</td></th<>	D	4.09	4.29	0.161	0.169
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 <td< td=""><td>E</td><td>4.09</td><td>4.29</td><td>0.161</td><td>0.169</td></td<>	E	4.09	4.29	0.161	0.169
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	F	14.91	15.11	0.587	0.595
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	G	30.12	30.30	1.186	1.193
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	Н	37.80	38.23	1.488	1.505
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	J	11.68	12.22	0.460	0.481
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	К	8.92	9.60	0.351	0.378
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	L	0.74	0.84	0.029	0.033
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	M	12.50	13.10	0.492	0.516
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           WV         19.81         21.08         0.780         0.830	N	25.15	25.42	0.990	1.001
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           WV         19.81         21.08         0.780         0.830	0	1.95	2.13	0.077	0.084
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           WV         19.81         21.08         0.780         0.830	Р	4.95	6.20	0.195	0.244
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	Q	26.54	26.90	1.045	1.059
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	R	3.94	4.42	0.155	0.167
U         -0.05         0.10         -0.002         0.004           ∨         3.20         5.50         0.126         0.217           W         19.81         21.08         0.780         0.830	S	4.55	4.85	0.179	0.191
V         3.20         5.50         0.126         0.217           W         19.81         21.08         0.780         0.830	Т	24.59	25.25	0.968	0.994
W 19.81 21.08 0.780 0.830	U	-0.05	0.10		0.004
11 10:01 21:00 0.000 0.000	V	3.20	5.50	0.126	0.217
Z 2.50 2.70 0.098 0.106	W	19.81	21.08	0.780	0.830
	Ζ	2.50	2.70	0.098	0.106



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IXYS: DHG100X600NA