Standard Rectifier

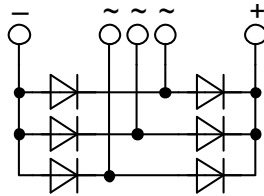| 3 ~ Rectifier		
V_{RRM} =	800	V
I_{DAV} =	40	A
I_{FSM} =	370	A

3~ Rectifier Bridge

Part number

GUO40-08NO1
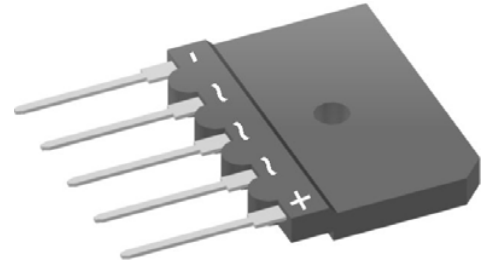
Backside: isolated

E326641

Features / Advantages:
- Low forward voltage drop
- Planar passivated chips
- Easy to mount with one screw
- Space and weight savings

Applications:
- Supplies for DC power equipment
- Input rectifiers for PWM inverter
- Battery DC power supplies
- Field supply for DC motors

Package:
- Housing: GUFP
- Industry standard outline
- Plastic overmolded tab for electrical isolation
- Isolation Voltage 2500 V
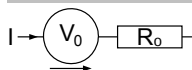- Epoxy meets UL 94V-0
- RoHS compliant

IXYS reserves the right to change limits, conditions and dimensions.   Data according to IEC 60747and per diode unless otherwise specified   20110310a

Rectifier				Ratings			
Symbol	Definition	Conditions		min.	typ.	max.	Unit
V_{RSM}	max. non-repetitive reverse blocking voltage	T_{VJ} = 25°C				900	V
V_{RRM}	max. repetitive reverse blocking voltage	T_{VJ} = 25°C				800	V
I_R	reverse current, drain current	V_R = 800 V	T_{VJ} = 25°C			50	µA
		V_R = 800 V	T_{VJ} = 150°C			1.5	mA
V_F	forward voltage drop	I_F = 12.5 A	T_{VJ} = 25°C			1.15	V
		I_F = 25 A				1.30	V
		I_F = 12.5 A	T_{VJ} = 125°C			1.05	V
		I_F = 25 A				1.20	V
I_{DAV}	bridge output current	T_C = 85°C 120° sine	T_{VJ} = 175°C			40	A
V_{F0}	threshold voltage	for power loss calculation only	T_{VJ} = 175°C			0.86	V
r_F	slope resistance					12.9	mΩ
R_{thJC}	thermal resistance junction to case					4.30	K/W
R_{thCH}	thermal resistance case to heatsink				0.50		K/W
P_{tot}	total power dissipation	T_C = 25°C				35	W
I_{FSM}	max. forward surge current	t = 10 ms; (50 Hz), sine	T_{VJ} = 45°C			370	A
		t = 8,3 ms; (60 Hz), sine	V_R = 0 V			400	A
		t = 10 ms; (50 Hz), sine	T_{VJ} = 175°C			315	A
		t = 8,3 ms; (60 Hz), sine	V_R = 0 V			340	A
I^2t	value for fusing	t = 10 ms; (50 Hz), sine	T_{VJ} = 45°C			685	A²s
		t = 8,3 ms; (60 Hz), sine	V_R = 0 V			665	A²s
		t = 10 ms; (50 Hz), sine	T_{VJ} = 175°C			495	A²s
		t = 8,3 ms; (60 Hz), sine	V_R = 0 V			480	A²s
C_J	junction capacitance	V_R = 400 V f = 1 MHz	T_{VJ} = 25°C		11		pF

IXYS reserves the right to change limits, conditions and dimensions.   Data according to IEC 60747and per diode unless otherwise specified   20110310a

Package   GUFP

Symbol	Definition	Conditions		min.	typ.	max.	Unit
I_{RMS}	RMS current	per terminal				70	A
T_{stg}	storage temperature			-55		150	°C
T_{VJ}	virtual junction temperature			-40		175	°C
Weight					8.5		g
M_D	mounting torque			0.8		1.2	Nm
F_C	mounting force with clip			20		120	N
V_{ISOL}	isolation voltage	t = 1 second		2500			V
		t = 1 minute		2000			V
$d_{Spp/App}$	creepage distance on surface | striking distance through air	terminal to terminal	6.7	5.4			mm
$d_{Spb/Apb}$		terminal to backside	10.0	8.0			mm

Ratings

GUO xx-xxNO1

⊡IXYS   ◯   Sxx
xxx   Assembly
             Lot #

− ~ ~ ~ +
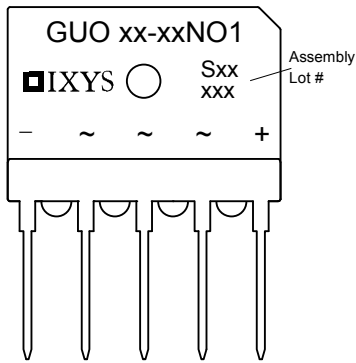
Ordering	Part Number	Marking on Product	Delivery Mode	Quantity	Code No.
Standard	GUO40-08NO1	GUO40-08NO1	Tube	15	509523

Similar Part	Package	Voltage class
GUO40-16NO1	GUFP	1600
GUO40-12NO1	GUFP	1200

Equivalent Circuits for Simulation T_{VJ} = 175°C

I → V_0 — R_0 —   **Rectifier**

$V_{0\,max}$	threshold voltage	0.86	V
$R_{0\,max}$	slope resistance	10.3	mΩ

IXYS reserves the right to change limits, conditions and dimensions.   Data according to IEC 60747and per diode unless otherwise specified   20110310a

Outlines   GUFP
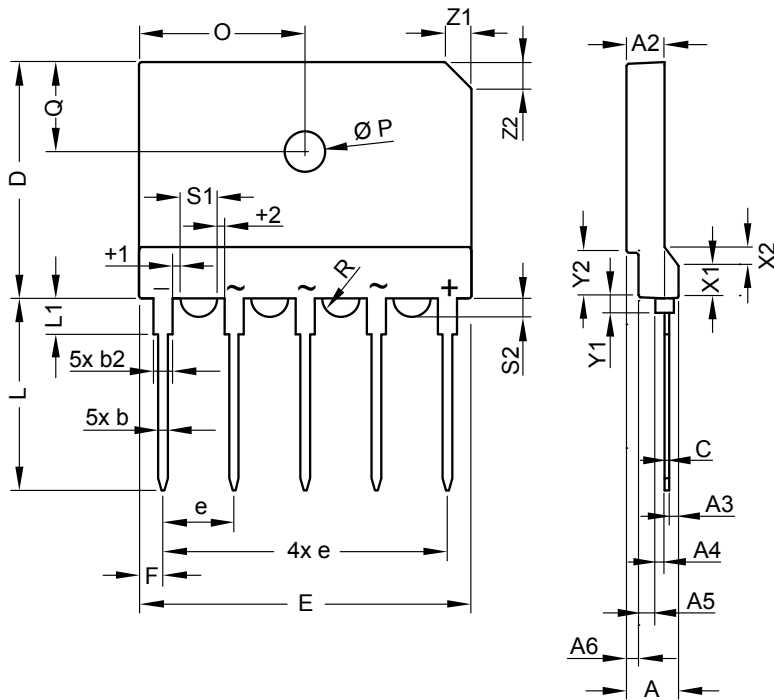
Dim.	Millimeter			Inches		
	min	typ.	max	min	typ.	max
A	5.40	5.50	5.60	0.213	0.217	0.221
A2	3.90	4.00	4.10	0.154	0.158	0.162
A3	0.95	1.00	1.10	0.037	0.039	0.043
A4	0.95	1.00	1.05	0.037	0.039	0.041
A5	1.60	1.70	1.80	0.063	0.067	0.071
A6	1.25	1.30	1.35	0.049	0.051	0.053
b	0.95	1.00	1.05	0.037	0.039	0.041
b2	1.95	2.00	2.05	0.077	0.079	0.081
C	0.45	0.50	0.55	0.018	0.020	0.022
D	24.80	25.00	25.20	0.977	0.985	0.993
E	34.70	35.00	35.30	1.367	1.379	1.391
e	BSC 7.50			BSC 0.296		
F	2.40	2.50	2.60	0.095	0.099	0.102
L	20.30	20.40	20.50	0.800	0.804	0.808
L1	3.70	3.75	3.80	0.146	0.148	0.150
O	17.40	17.50	17.60	0.686	0.690	0.693
Ø P	4.10	4.20	4.30	0.162	0.165	0.169
Q	9.20	9.30	9.40	0.362	0.366	0.370
$\varnothing_{1/2}$ R		1.77			0.070	
s1	3.45	3.50	3.55	0.136	0.138	0.140
s2	1.45	1.50	1.55	0.057	0.059	0.061
t1	0.95	1.00	1.05	0.037	0.039	0.041
t2	0.95	1.00	1.05	0.037	0.039	0.041
x1	3.20	3.30	3.40	0.126	0.130	0.134
x2	1.90	2.00	2.10	0.075	0.079	0.083
y1	1.60	1.65	1.70	0.063	0.065	0.067
y2	4.65	4.70	4.75	0.183	0.185	0.187
z1	2.80	2.90	3.00	0.110	0.114	0.118

IXYS reserves the right to change limits, conditions and dimensions.   Data according to IEC 60747and per diode unless otherwise specified   20110310a
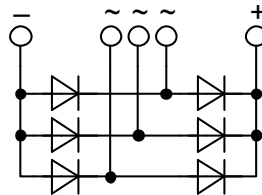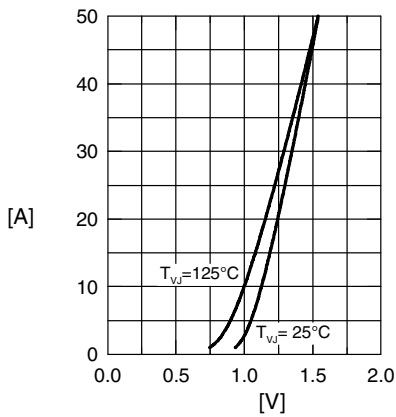
Rectifier

Fig. 1 Forward current versus
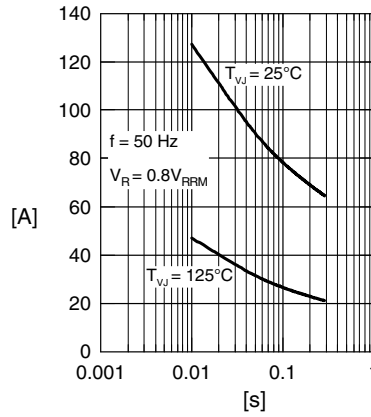voltage drop per diode

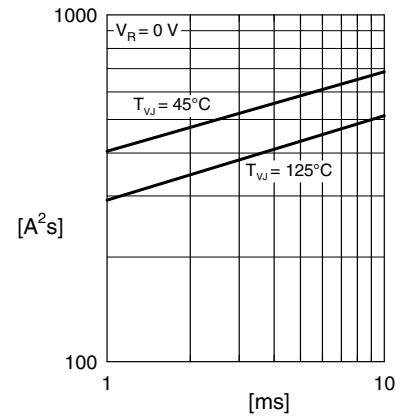Fig. 2 Surge overload current

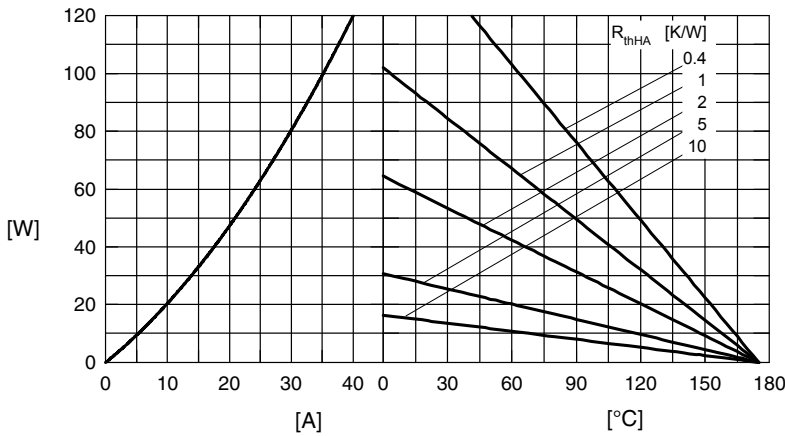Fig. 3 I^2t versus time per diode

Fig. 4 Power dissipation versus direct output current
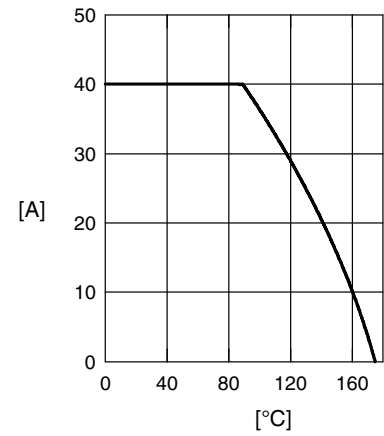and ambient temperature, sine 180°
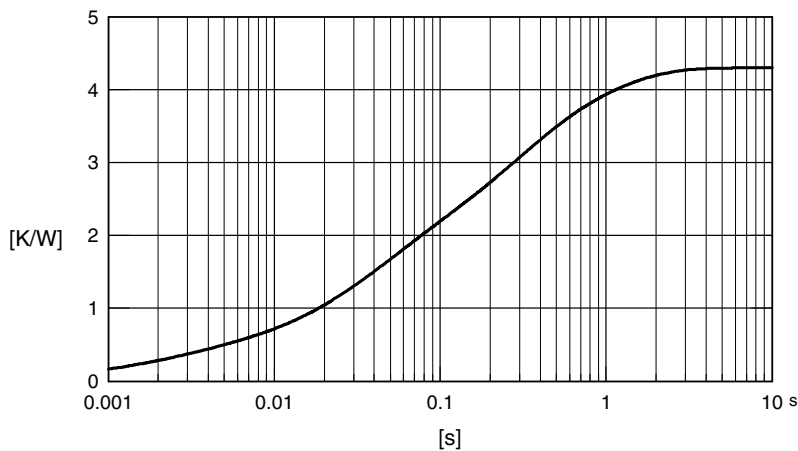

Fig. 5 Max. forward current
vs. case temperature

Fig. 6 Transient thermal impedance junction to case

Constants for Z_{thJC} calculation:

i	R_{thi} [K/W]	t_i [s]
1	0.302	0.002
2	1.252	0.032
3	1.582	0.227
4	1.164	0.82

IXYS reserves the right to change limits, conditions and dimensions.   Data according to IEC 60747and per diode unless otherwise specified   20110310a