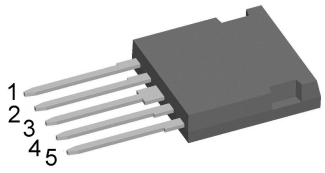
Standard Rectifier

3~ Rectifier		
V_{RRM}	=	1200 V
I_{DAV}	=	30 A
I_{FSM}	=	150 A

3~ Rectifier Bridge

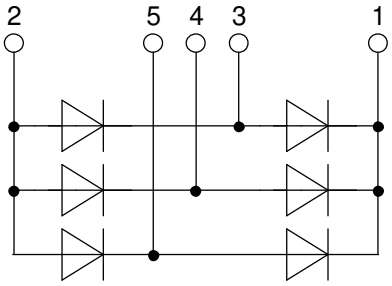
Part number

FUO22-12N



Backside: isolated

E72873



Features / Advantages:

- Package with DCB ceramic
- Improved temperature and power cycling
- Planar passivated chips
- Very low forward voltage drop
- Very low leakage current

Applications:

- Diode for main rectification
- For single and three phase bridge configurations

Package: i4-Pac

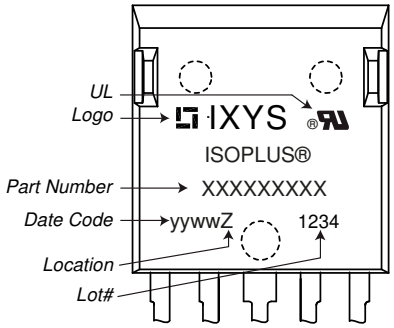
- Isolation Voltage: 3000 V~
- Industry convenient outline
- RoHS compliant
- Epoxy meets UL 94V-0
- Soldering pins for PCB mounting
- Backside: DCB ceramic
- Reduced weight
- Advanced power cycling

Rectifier

Symbol	Definition	Conditions		Ratings min.	typ.	max.	Unit
V_{RSM}	*max. non-repetitive reverse blocking voltage*		T_{VJ} = 25°C			1300	V
V_{RRM}	*max. repetitive reverse blocking voltage*		T_{VJ} = 25°C			1200	V
I_R	*reverse current*	V_R = 1200 V	T_{VJ} = 25°C			10	µA
		V_R = 1200 V	T_{VJ} = 150°C			1	mA
V_F	*forward voltage drop*	I_F = 10 A	T_{VJ} = 25°C			1.20	V
		I_F = 30 A				1.62	V
		I_F = 10 A	T_{VJ} = 150°C			1.12	V
		I_F = 30 A				1.73	V
I_{DAV}	*bridge output current*	T_C = 120°C	T_{VJ} = 175°C			30	A
		rectangular d = ⅓					
V_{F0}	*threshold voltage* } *for power loss calculation only*		T_{VJ} = 175°C			0.81	V
r_F	*slope resistance* }					31	mΩ
R_{thJC}	*thermal resistance junction to case*					3	K/W
R_{thCH}	*thermal resistance case to heatsink*				0.2		K/W
P_{tot}	*total power dissipation*		T_C = 25°C			50	W
I_{FSM}	*max. forward surge current*	t = 10 ms; (50 Hz), sine	T_{VJ} = 45°C			150	A
		t = 8,3 ms; (60 Hz), sine	V_R = 0 V			160	A
		t = 10 ms; (50 Hz), sine	T_{VJ} = 150°C			130	A
		t = 8,3 ms; (60 Hz), sine	V_R = 0 V			140	A
I^2t	*value for fusing*	t = 10 ms; (50 Hz), sine	T_{VJ} = 45°C			115	A²s
		t = 8,3 ms; (60 Hz), sine	V_R = 0 V			105	A²s
		t = 10 ms; (50 Hz), sine	T_{VJ} = 150°C			85	A²s
		t = 8,3 ms; (60 Hz), sine	V_R = 0 V			82	A²s
C_J	*junction capacitance*	V_R = 400 V; f = 1 MHz	T_{VJ} = 25°C		4		pF

Package i4-Pac				Ratings			
Symbol	**Definition**	**Conditions**		**min.**	**typ.**	**max.**	**Unit**
I_{RMS}	*RMS current*	per terminal				35	A
T_{VJ}	*virtual junction temperature*			-55		175	°C
T_{op}	*operation temperature*			-55		150	°C
T_{stg}	*storage temperature*			-55		150	°C
Weight					6		g
F_C	*mounting force with clip*			20		120	N
$d_{Spp/App}$	*creepage distance on surface | striking distance through air*		*terminal to terminal*	1.7			mm
$d_{Spb/Apb}$			*terminal to backside*	5.1			mm
V_{ISOL}	*isolation voltage*	t = 1 second	50/60 Hz, RMS; I_{ISOL} ≤ 1 mA	3000			V
		t = 1 minute		2500			V

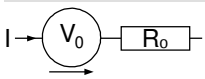
Product Marking



Ordering	Ordering Number	Marking on Product	Delivery Mode	Quantity	Code No.
Standard	FUO22-12N	FUO22-12N	Tube	25	492426

Equivalent Circuits for Simulation

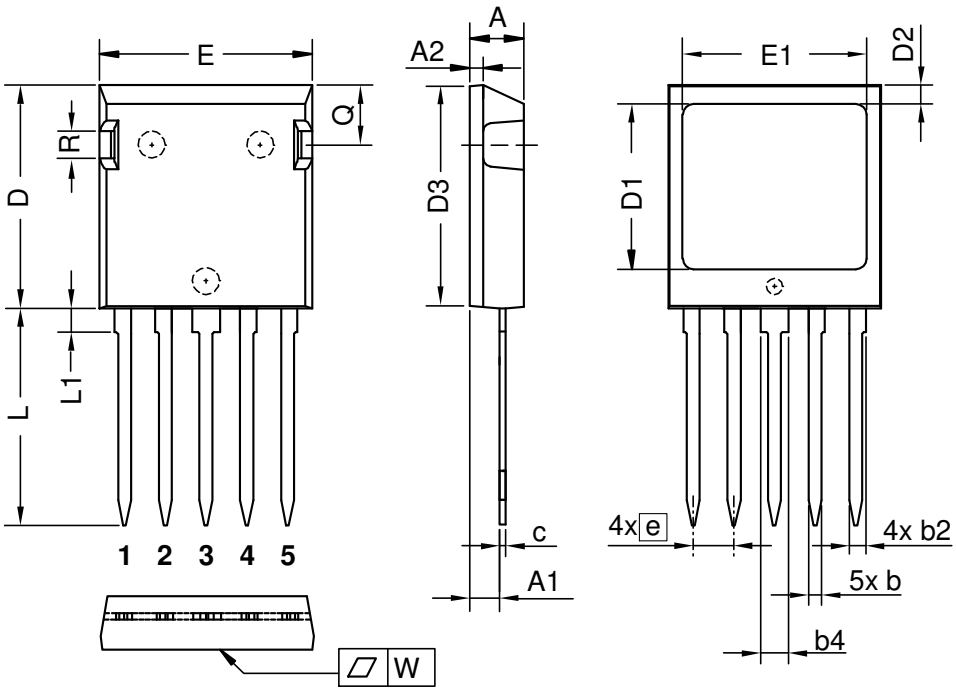
** on die level* T_{VJ} = 175°C



Rectifier

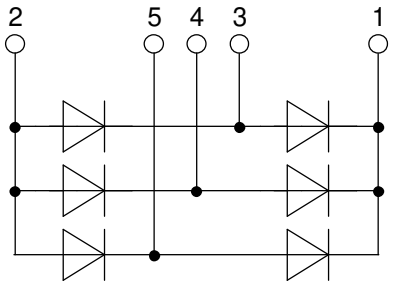
$V_{0\,max}$	*threshold voltage*	0.81	V
$R_{0\,max}$	*slope resistance **	28	mΩ

Outlines i4-Pac



Dim.	Millimeter		Inches	
	min	max	min	max
A	4.83	5.21	0.190	0.205
A1	2.59	3.00	0.102	0.118
A2	1.17	2.16	0.046	0.085
b	1.14	1.40	0.045	0.055
b2	1.47	1.73	0.058	0.068
b4	2.54	2.79	0.100	0.110
c	0.51	0.74	0.020	0.029
D	20.80	21.34	0.819	0.840
D1	14.99	15.75	0.590	0.620
D2	1.65	2.03	0.065	0.080
D3	20.30	20.70	0.799	0.815
E	19.56	20.29	0.770	0.799
E1	16.76	17.53	0.660	0.690
e	3.81 BSC		0.150 BSC	
L	19.81	21.34	0.780	0.840
L1	2.11	2.59	0.083	0.102
Q	5.33	6.20	0.210	0.244
R	2.54	4.57	0.100	0.180
W	-	0.10	-	0.004

Die konvexe Form des Substrates ist typ. < 0.05 mm über der Kunststoffoberfläche der Bauteilunterseite
The convexbow of substrate is typ. < 0.05 mm over plastic surface level ofdevice bottom side



Rectifier

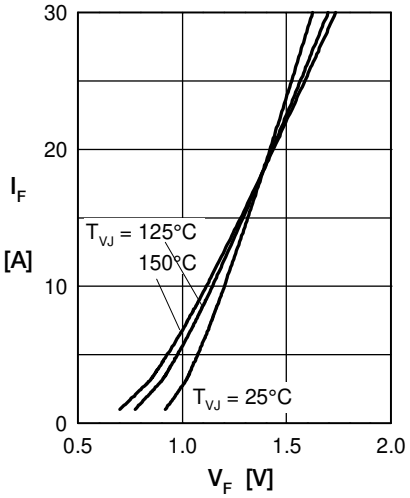


Fig. 1 Forward current versus voltage drop per diode

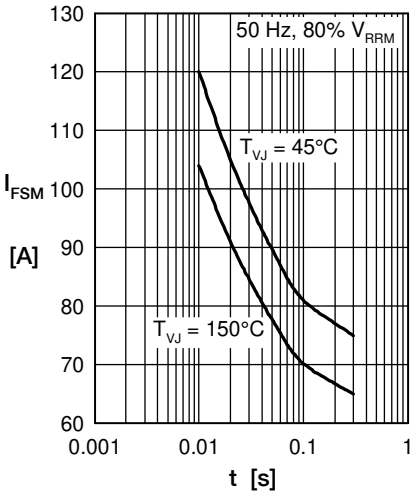


Fig. 2 Surge overload current

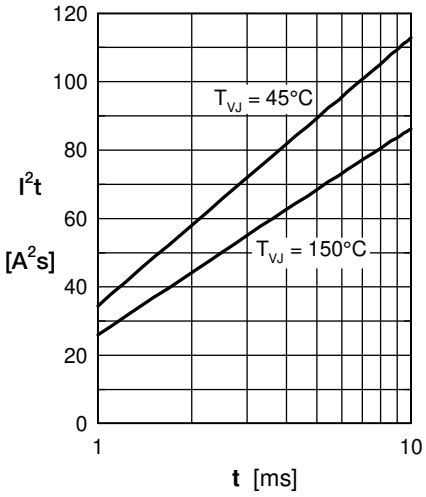


Fig. 3 I^2t versus time per diode

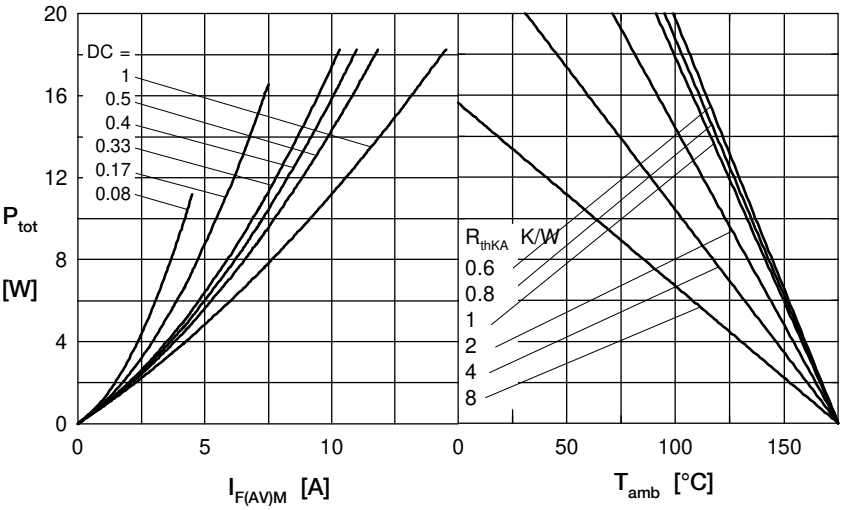


Fig. 4 Power dissipation vs. direct output current & ambient temperature

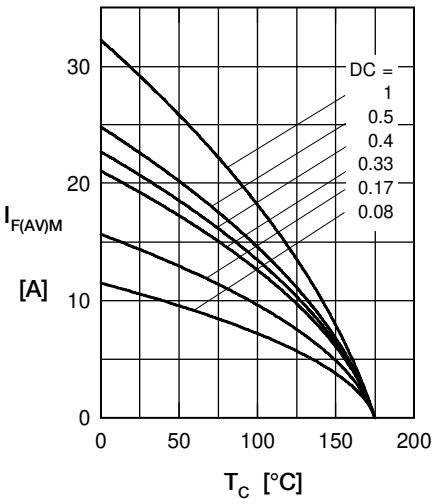


Fig. 5 Max. forward current vs. case temperature

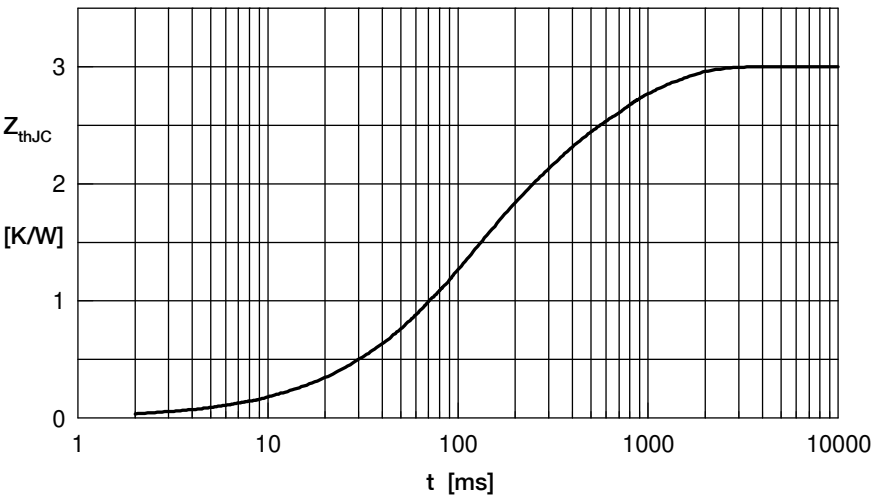


Fig. 6 Transient thermal impedance junction to case

Constants for Z_{thJC} calculation:

i	R_{thi} (K/W)	t_i (s)
1	1.359	0.1015
2	0.3286	0.1026
3	0.4651	0.4919
4	0.8473	0.62