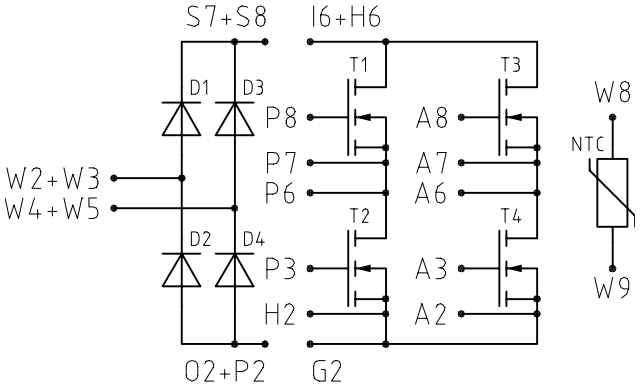
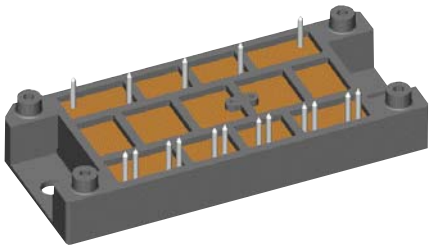
Module with HiPerFET™ H-Bridge and Single Phase Mains Rectifier Bridge

Preliminary data

V_{DSS} = 500 V
R_{DSon} = 116 mΩ
V_{RRM} = 1200 V
I_{DAV25} = 90 A





pin configuration see outlines

Mains Rectifier Bridge D1 - D4

Symbol	Conditions	Maximum Ratings	
V_{RRM}		1200	V
I_{FAV25}	T_C = 25°C; sine 180°	45	A
I_{FAV80}	T_C = 80°C; sine 180°	33	A
I_{FSM}	T_{VJ} = 25°C; t = 10 ms sine 50 Hz	400	A

Symbol	Conditions		Characteristic Values (T_{VJ} = 25°C, unless otherwise specified) min.	typ.	max.	
V_F	I_F = 20 A	T_{VJ} = 25°C		1.1	1.2	V
		T_{VJ} = 125°C		1.0		V
I_R	$V_R = V_{RRM}$	T_{VJ} = 25°C			0.02	mA
		T_{VJ} = 125°C		0.4		mA
R_{thJC}	(per diode)				1.42	K/W
R_{thJS}	with heat transfer paste			2.8		K/W

Application

primary side of mains supplied
- welding converters
- switched mode power supplies
- induction heaters

Features

- H-bridge with HiPerFET™ technology:
  - low R_{DSon}
  - unclamped inductive switching (UIS) capability
  - dv/dt ruggedness
  - fast intrinsic reverse diode
  - Kelvin source for easy drive
  - low inductive, symmetrical current paths
- thermistor for internal temperature measurement
- package:
  - high level of integration - only one power semiconductor module required for the whole primary side
  - solder terminals for PCB mounting
  - isolated DCB ceramic base plate

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

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MOSFET H - Bridge T1 - T4

Symbol	Conditions	Maximum Ratings	
V_{DSS}	T_{VJ} = 25°C to 150°C	500	V
V_{GS}		±20	V
I_{D25}	T_C = 25°C	40	A
I_{D80}	T_C = 80°C	30	A
I_{F25}	(diode) T_C = 25°C	40	A
I_{F80}	(diode) T_C = 80°C	30	A

Symbol	Conditions	Characteristic Values (T_{VJ} = 25°C, unless otherwise specified) min.	typ.	max.	
R_{DSon}	V_{GS} = 10 V; I_D = I_{D80}			116	mΩ
V_{GSth}	V_{DS} = 20 V; I_D = 8 mA	2		4	V
I_{DSS}	V_{DS} = 0.8 • V_{DSS}; V_{GS} = 0 V; T_{VJ} = 25°C			0.4	mA
	T_{VJ} = 125°C		0.5		mA
I_{GSS}	V_{GS} = ±20 V; V_{DS} = 0 V			0.2	µA
Q_g	V_{GS}= 10 V; V_{DS} = 0.5 • V_{DSS}; I_D = 20A		270		nC
Q_{gs}			56		nC
Q_{gd}			124		nC
$t_{d(on)}$	V_{GS}= 10 V; V_{DS} = 0.5 • V_{DSS}; I_D = 20A; R_G = 1 Ω		50		ns
t_r			100		ns
$t_{d(off)}$			100		ns
t_f			80		ns
V_F	(diode) I_F = 20 A; V_{GS} = 0 V			1.5	V
t_{rr}	(diode) I_F = 40 A; -di/dt = 200 A/µs; V_{DS} = 100V		300		ns
R_{thJC}				0.32	K/W
R_{thJS}	with heat transfer paste		0.47		K/W

Temperature Sensor NTC

Symbol	Conditions	Characteristic Values min.	typ.	max.	
R_{25}	T = 25°C	1950	2057	2170	Ω
$B_{25/100}$			3560		K

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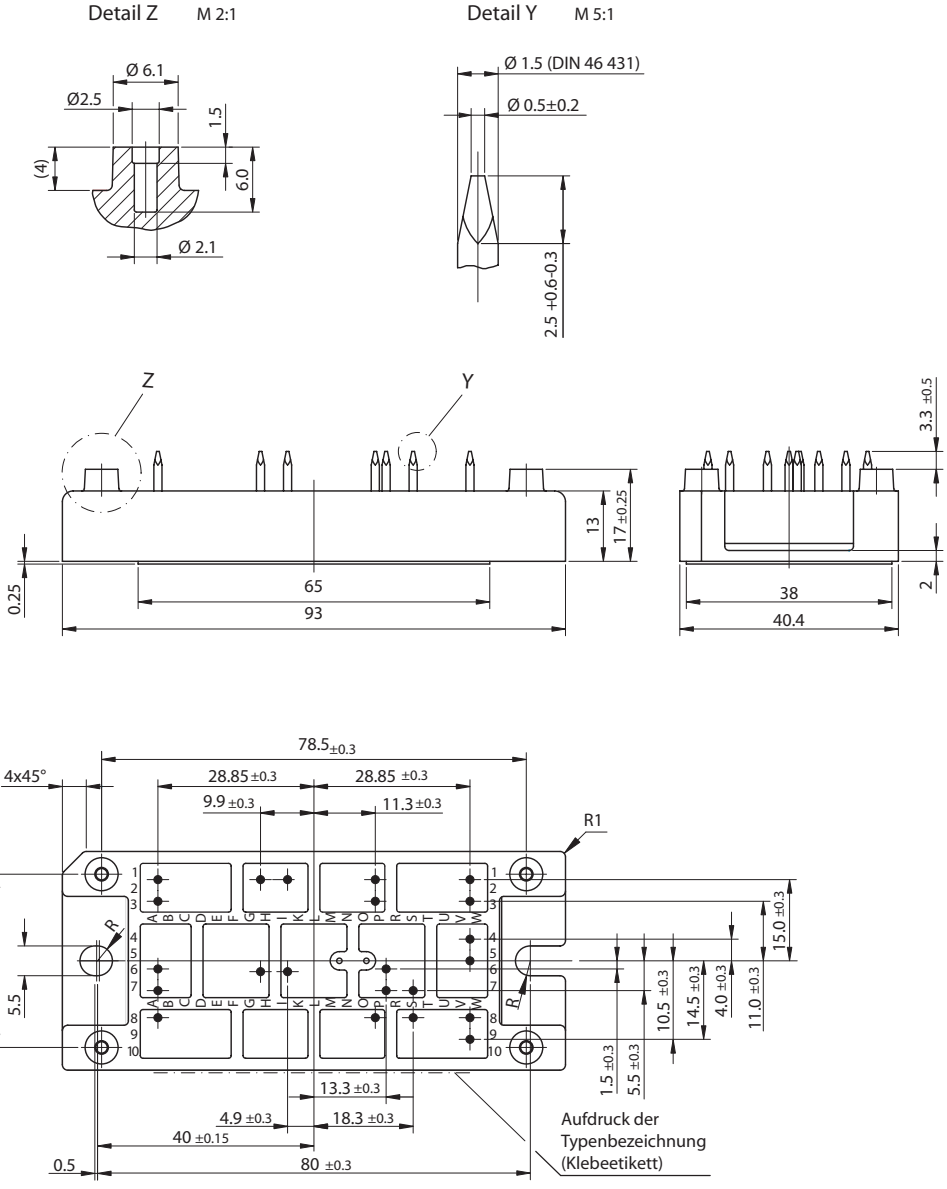
Module

Symbol	Conditions	Maximum Ratings	
T_{VJ}		-40...+150	°C
T_{stg}		-40...+125	°C
V_{ISOL}	$I_{ISOL} \leq 1$ mA; 50/60 Hz; t = 1 min	3000	V~
M_d	Mounting torque (M5)	2 - 2.5	Nm

Symbol	Conditions	Characteristic Values (T_{VJ} = 25°C, unless otherwise specified) min.	typ.	max.	
d_S	Creepage distance on surface	8			mm
d_A	Strike distance through air	8			mm
Weight	typ.		80		g

Dimensions in mm (1 mm = 0.0394")



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