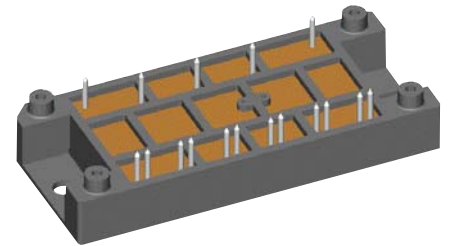
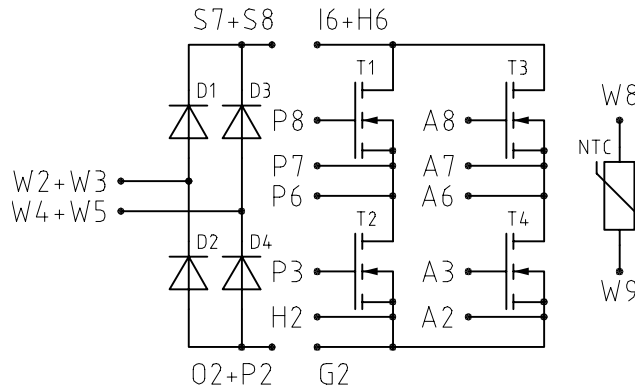


Module with HiPerFET™ H-Bridge and Single Phase Mains Rectifier Bridge

Preliminary data

$$\begin{aligned} V_{DSS} &= 500 \text{ V} \\ R_{DSon} &= 116 \text{ m}\Omega \\ V_{RRM} &= 1200 \text{ V} \\ I_{DAV25} &= 90 \text{ A} \end{aligned}$$



pin configuration see outlines

Mains Rectifier Bridge D1 - D4

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

Symbol	Conditions	Characteristic Values ($T_{VJ} = 25^\circ\text{C}$, unless otherwise specified)		
		min.	typ.	max.
V_F	$I_F = 20 \text{ A}$			
	$T_{VJ} = 25^\circ\text{C}$		1.1	1.2 V
	$T_{VJ} = 125^\circ\text{C}$		1.0	V
I_R	$V_R = V_{RRM}$			
	$T_{VJ} = 25^\circ\text{C}$			0.02 mA
	$T_{VJ} = 125^\circ\text{C}$		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

MOSFET H - Bridge T1 - T4

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

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

Temperature Sensor NTC

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

Module

Symbol	Conditions	Maximum Ratings	
T_{VJ}		-40...+150	°C
T_{stg}		-40...+125	°C
V_{ISOL}	$I_{ISOL} \leq 1 \text{ mA}$; 50/60 Hz; $t = 1 \text{ min}$	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")

