

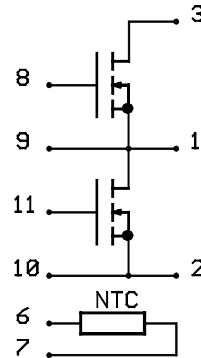
Dual Power HiPerFET™ Module

VMM 650-01F

$V_{DSS} = 100 \text{ V}$
 $I_{D25} = 680 \text{ A}$
 $R_{DS(on)} = 1.8 \text{ m}\Omega$

Phaseleg Configuration

Preliminary Data



MOSFET T1 + T2

Symbol	Conditions	Maximum Ratings
V_{DSS}	$T_{VJ} = 25^\circ\text{C to } 150^\circ\text{C}$	100 V
V_{GS}		± 20 V
I_{D25}	$T_C = 25^\circ\text{C}$ ①	680 A
I_{D80}	$T_C = 80^\circ\text{C}$ ①	500 A
I_{F25}	(diode) $T_C = 25^\circ\text{C}$ ①	680 A
I_{F80}	(diode) $T_C = 80^\circ\text{C}$ ①	500 A

Symbol	Conditions	Characteristic Values ($T_{VJ} = 25^\circ\text{C}$, unless otherwise specified)
		min. typ. max.
$R_{DS(on)}$	$V_{GS} = 10 \text{ V}; I_D = I_{D80}$	1.8 2.2 m Ω
$V_{GS(th)}$	$V_{DS} = 20 \text{ V}; I_D = 30 \text{ mA}$	2 4 V
I_{DSS}	$V_{DS} = 0.8 \cdot V_{DSS}; V_{GS} = 0 \text{ V}; T_{VJ} = 25^\circ\text{C}$ $T_{VJ} = 125^\circ\text{C}$	1.5 1 mA mA
I_{GSS}	$V_{GS} = \pm 20 \text{ V}; V_{DS} = 0 \text{ V}$	1 μA
Q_g Q_{gs} Q_{gd}	$V_{GS} = 10 \text{ V}; V_{DS} = 75 \text{ V}; I_D = I_{D80}$	1440 200 680 nC nC nC
$t_{d(on)}$ t_r $t_{d(off)}$ t_f	$V_{GS} = 10 \text{ V}; V_{DS} = 0.5 \cdot V_{DSS};$ $I_D = I_{D80}; R_G = 0.47 \Omega$	150 250 400 200 ns ns ns ns ns
V_F	(diode) $I_F = 650 \text{ A}; V_{GS} = 0 \text{ V}$	1.2 1.5 V
t_{rr}	(diode) $I_F = 650 \text{ A}; -di/dt = 500 \text{ A}/\mu\text{s}; V_{DS} = \frac{1}{2} V_{DSS}$	300 ns
R_{thJC} R_{thJS}	with heat transfer paste	0.08 0.12 K/W K/W

① additional current limitation by external leads

Features

- HiPerFET™ technology
 - low $R_{DS(on)}$
 - unclamped inductive switching (UIS) capability
 - dv/dt ruggedness
 - fast intrinsic reverse diode
 - low gate charge
- thermistor for internal temperature measurement
- package
 - low inductive current path
 - screw connection to high current main terminals
 - use of non interchangeable connectors for auxiliary terminals possible
 - Kelvin source terminals for easy drive
 - isolated DCB ceramic base plate

Applications

- converters with high power density for
 - main and auxiliary AC drives of electric vehicles
 - 4 quadrant DC drives
 - power supplies

Temperature Sensor NTC

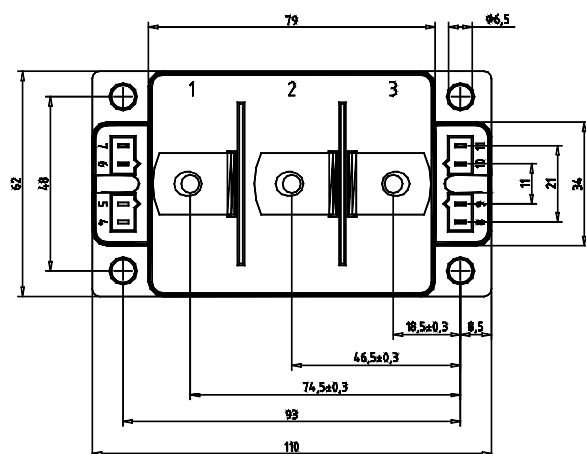
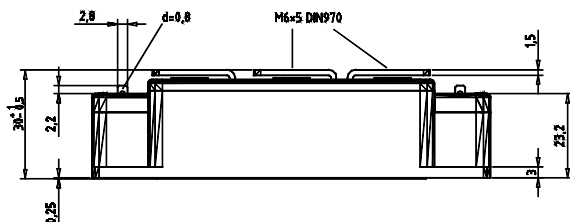
Symbol	Conditions	Characteristic Values		
		min.	typ.	max.
R_{25}	$T = 25^{\circ}\text{C}$	1950	2057	2170
$B_{25/100}$			3560	
				Ω K

Module

Symbol	Conditions	Maximum Ratings		
		min.	typ.	max.
T_{VJ}		-40...+150		$^{\circ}\text{C}$
T_{stg}		-40...+125		$^{\circ}\text{C}$
V_{ISOL}	$I_{ISOL} \leq 1 \text{ mA}; 50/60 \text{ Hz}$		3600	V~
M_d	Mounting torque (M6)	2.25 - 2.75		Nm
	Terminal connection torque (M6)	4.5 - 5.5		Nm

Symbol	Conditions	Characteristic Values		
		min.	typ.	max.
Weight			250	g

Dimensions in mm (1 mm = 0.0394")



Optional accessories for modules

keyed twin plugs
(UL758, style 1385, CSA class 5851,
guide 460-1-1)

- Type ZY180L with wire length 350mm
– for pins 4 (yellow wire) and 5 (red wire)
– for pins 11 (yellow wire) and 10 (red wire)
- Type ZY180R with wire length 350mm
– for pins 7 (yellow wire) and 6 (red wire)
– for pins 8 (yellow wire) and 9 (red wire)