

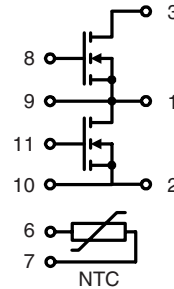
Dual Power HiPerFET™ Module

Phaseleg Configuration

$$V_{DSS} = 900 \text{ V}$$

$$I_{D25} = 85 \text{ A}$$

$$R_{DS(on)} = 76 \text{ m}\Omega$$



MOSFET T1 + T2		
Symbol	Conditions	Maximum Ratings
V_{DSS}	$T_{VJ} = 25^\circ\text{C}$ to 150°C	900 V
V_{GS}		± 20 V
I_{D25}	$T_C = 25^\circ\text{C}$	85 A
I_{D80}	$T_C = 80^\circ\text{C}$	65 A
I_{F25}	(diode) $T_C = 25^\circ\text{C}$	85 A
I_{F80}	(diode) $T_C = 80^\circ\text{C}$	65 A

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

Symbol	Conditions	Characteristic Values ($T_{VJ} = 25^\circ\text{C}$, unless otherwise specified)		
		min.	typ.	max.
$R_{DS(on)}$	$V_{GS} = 10 \text{ V}; I_D = I_{D80}$			76 m Ω
$V_{GS(th)}$	$V_{DS} = 20 \text{ V}; I_D = 30 \text{ mA}$	3		5 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	0.4 mA mA
I_{GSS}	$V_{GS} = \pm 20 \text{ V}; V_{DS} = 0 \text{ V}$			1 μA
Q_g Q_{gs} Q_{gd}	$V_{GS} = 10 \text{ V}; V_{DS} = 450 \text{ V}; I_D = 50 \text{ A}$		960	nC
			225	nC
			430	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	ns
			180	ns
			330	ns
			140	ns
V_F	(diode) $I_F = 90 \text{ A}; V_{GS} = 0 \text{ V}$		1.1	1.6 V
t_{rr}	(diode) $I_F = 90 \text{ A}; -di/dt = 400 \text{ A}/\mu\text{s}; V_{DS} = 100 \text{ V}$		250	ns
$R_{th(jc)}$ $R_{th(js)}$	with heat transfer paste		0.12	0.08 K/W K/W

Applications

- converters with high power density and high switching speed for
 - power supplies
 - induction heating

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Electrical Characteristics

Symbol	Conditions	Characteristic Values		
		min.	typ.	max.
R_{25}	$T = 25^{\circ}\text{C}$		2200	Ω
$B_{25/100}$			3560	K

Module

Symbol	Conditions	Maximum Ratings		
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

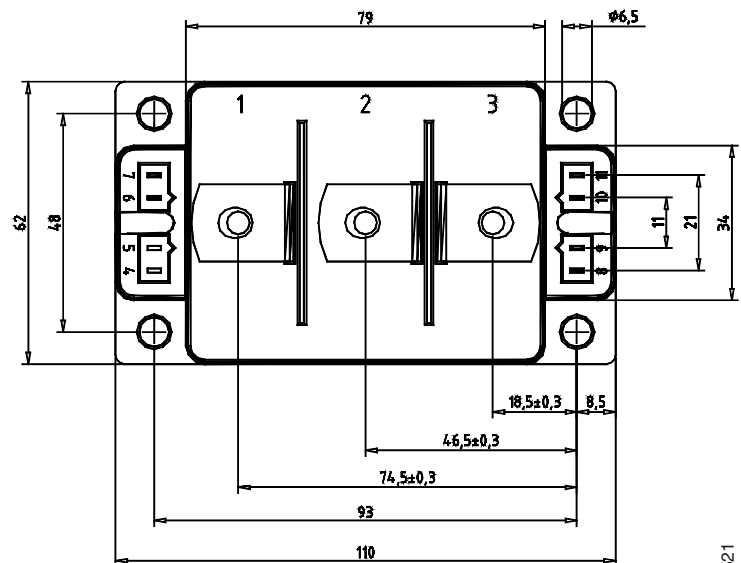
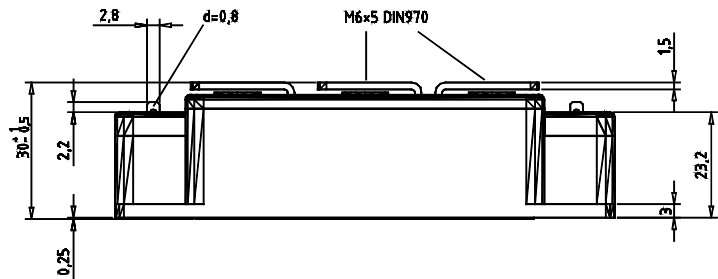
Symbol	Conditions	Characteristic Values		
		min.	typ.	max.
Weight			250	g

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)



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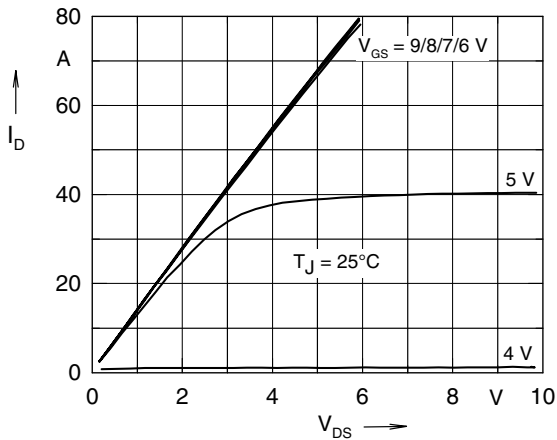


Fig. 1 Typical output characteristics

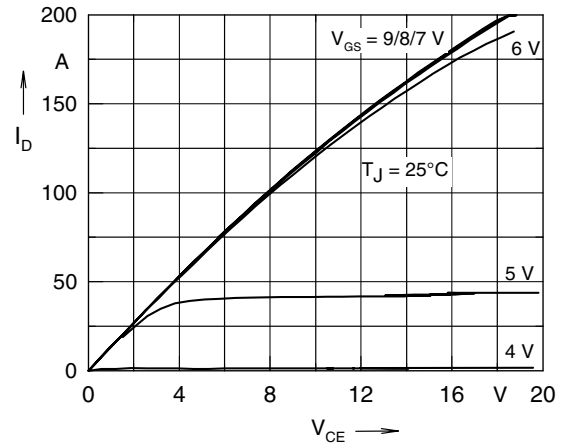


Fig. 2 Typical transfer characteristics

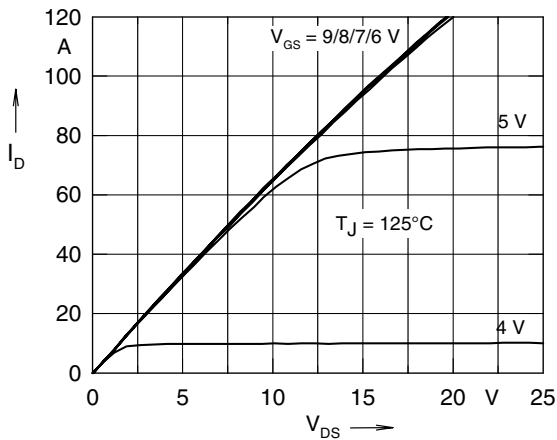


Fig. 3 Typical output characteristics

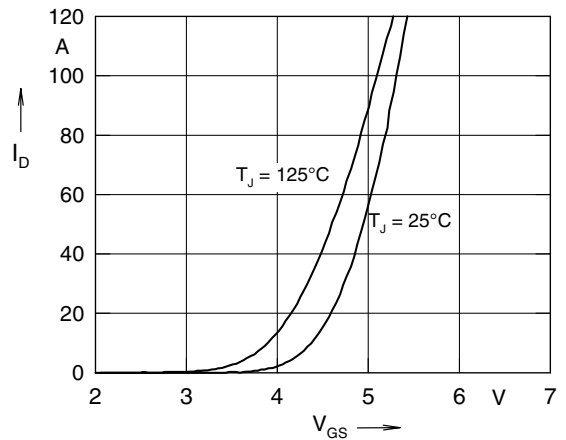


Fig. 4 Typical transfer characteristics

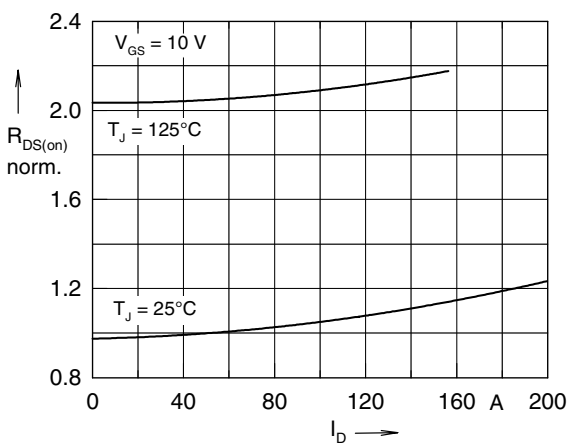


Fig. 5 Typical normalized $R_{DS(on)}$ versus I_D

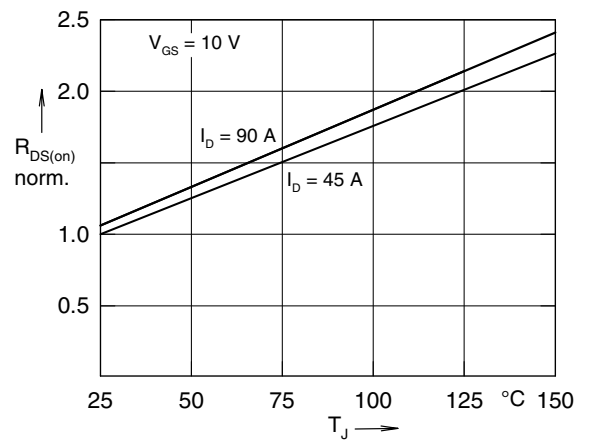


Fig. 6 Typical normalized $R_{DS(on)}$ versus T_J

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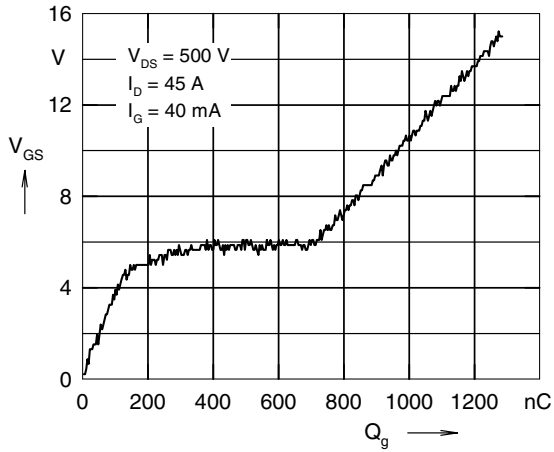


Fig. 7 Typical turn-on gate charge characteristics

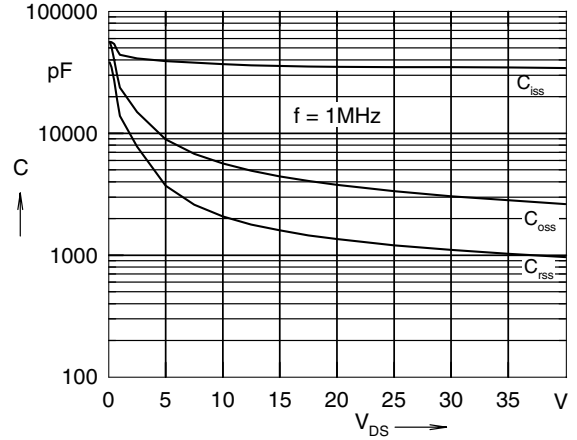


Fig. 8 Typical capacitances

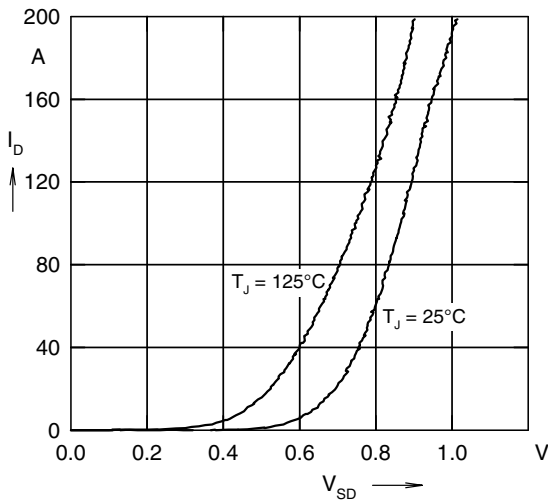


Fig. 9 Typical forward characteristics of diode

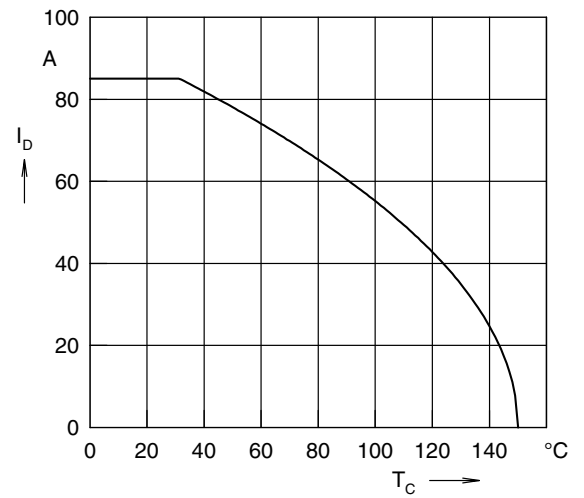


Fig. 10 Continuous drain current

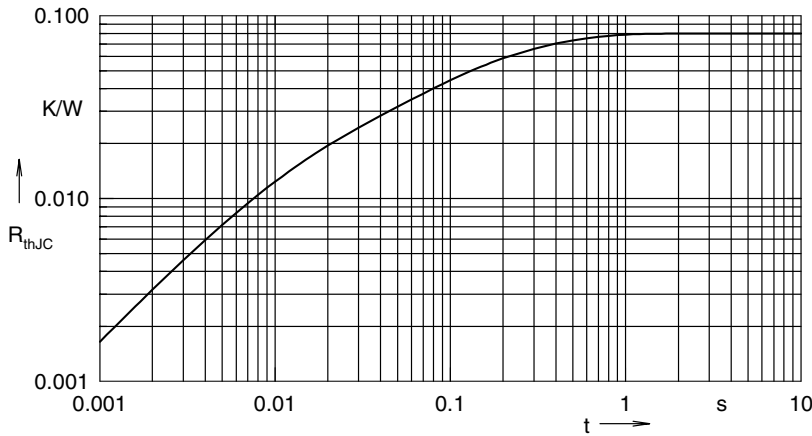


Fig. 11 Transient thermal resistance