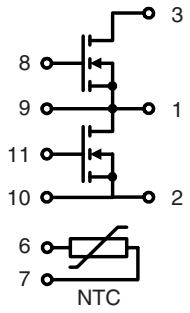
Dual Power HiPerFET™ Module

Phaseleg Configuration

V_{DSS} = 900 V
I_{D25} = 85 A
$R_{DS(on)}$ = 76 mΩ



MOSFET T1 + T2

Symbol	Conditions	Maximum Ratings	
V_{DSS}	T_{VJ} = 25°C to 150°C	900	V
V_{GS}		±20	V
I_{D25}	T_C = 25°C	85	A
I_{D80}	T_C = 80°C	65	A
I_{F25}	(diode) T_C = 25°C	85	A
I_{F80}	(diode) T_C = 80°C	65	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}			76	mΩ
V_{GSth}	V_{DS} = 20 V; I_D = 30 mA	3		5	V
I_{DSS}	V_{DS} = 0.8 • V_{DSS}; V_{GS} = 0 V; T_{VJ} = 25°C			0.4	mA
	T_{VJ} = 125°C		1.5		mA
I_{GSS}	V_{GS} = ±20 V; V_{DS} = 0 V			1	µA
Q_g	V_{GS}= 10 V; V_{DS} = 450 V; I_D = 50 A		960		nC
Q_{gs}			225		nC
Q_{gd}			430		nC
$t_{d(on)}$	V_{GS}= 10 V; V_{DS} = 0.5 • V_{DSS};		150		ns
t_r	I_D = I_{D80}; R_G = 0.47 Ω		180		ns
$t_{d(off)}$			330		ns
t_f			140		ns
V_F	(diode) I_F = 90 A; V_{GS} = 0 V		1.1	1.6	V
t_{rr}	(diode) I_F = 90 A; -di/dt = 400 A/µs; V_{DS} = 100 V		250		ns
R_{thJC}				0.08	K/W
R_{thJS}	with heat transfer paste		0.12		K/W

Features

- HiPerFET ™ technology
  - low R_{DSon}
  - 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 and high switching speed for
  - power supplies
  - induction heating

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

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

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	3600	V~
M_d	Mounting torque (M6)	2.25 - 2.75	Nm
	Terminal connection torque (M6)	4.5 - 5.5	Nm

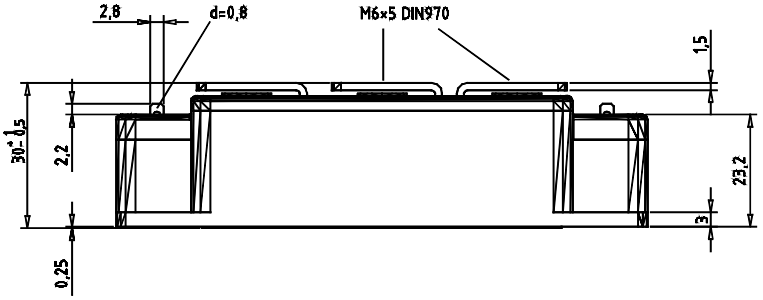
Symbol	Conditions	Characteristic Values min.	typ.	max.
Weight			250	g

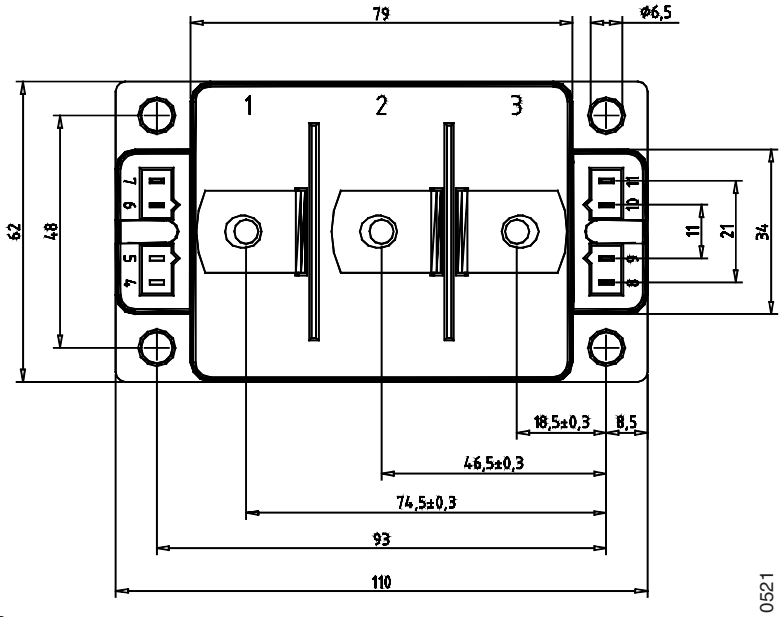
Dimensions in mm (1 mm = 0.0394")

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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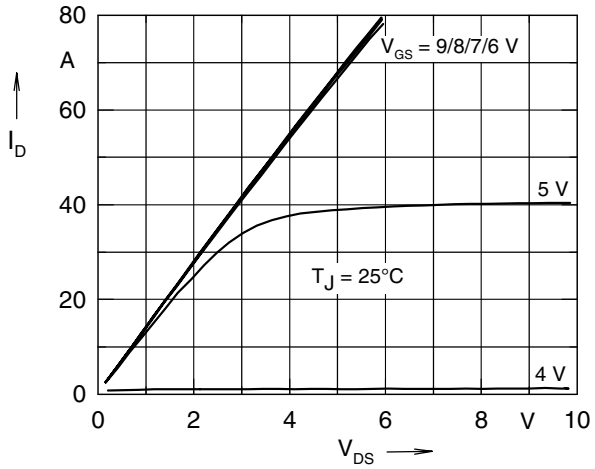

Fig. 1 Typical output characteristics

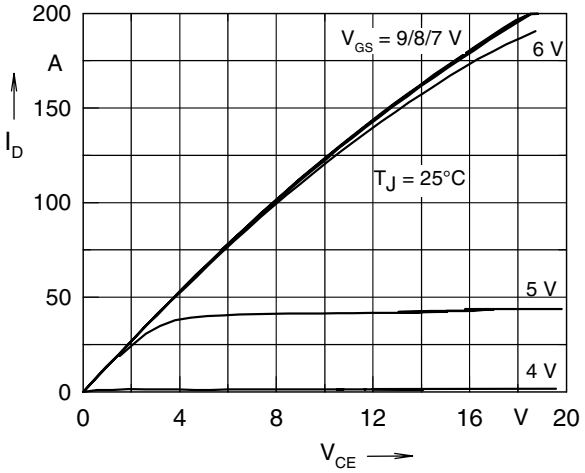

Fig. 2 Typical transfer characteristics

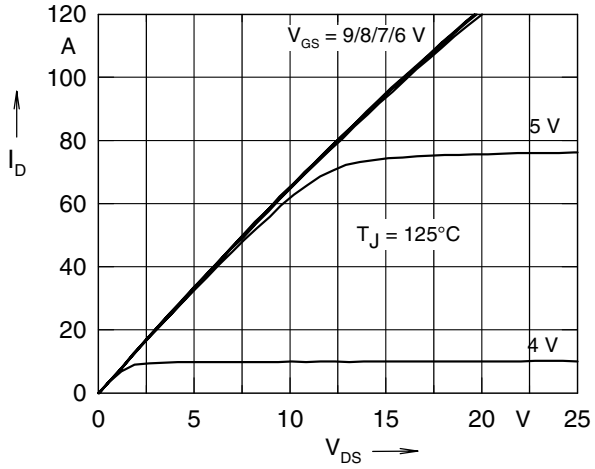

Fig. 3 Typical output characteristics

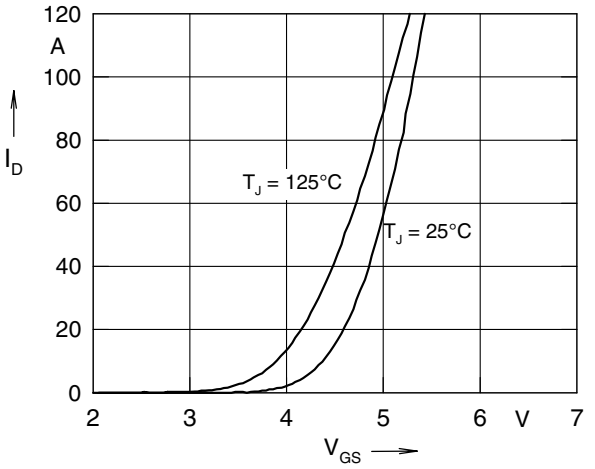

Fig. 4 Typical transfer characteristics

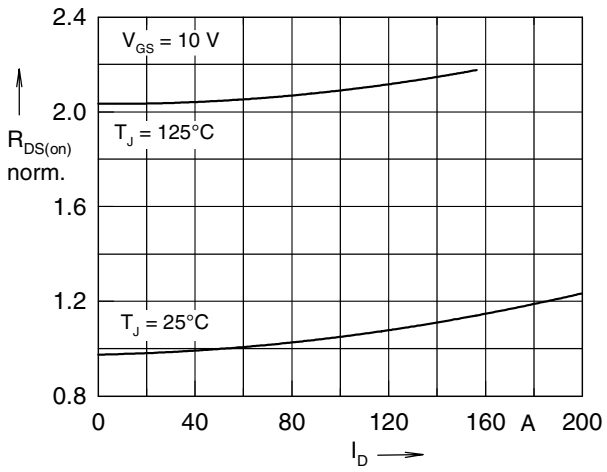

Fig. 5 Typical normalized R_{DSon} versus I_D

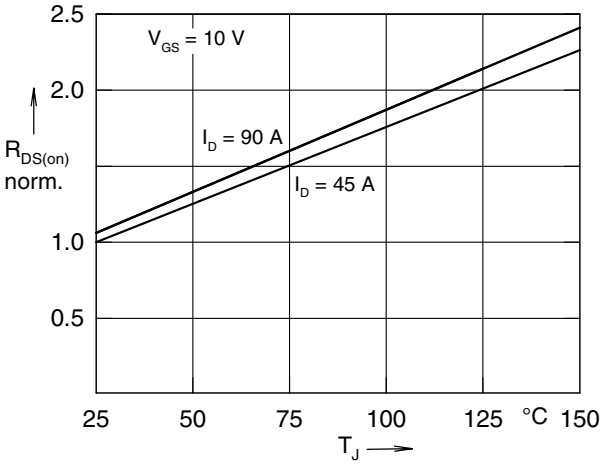

Fig. 6 Typical normalized R_{DSon} versus T_J

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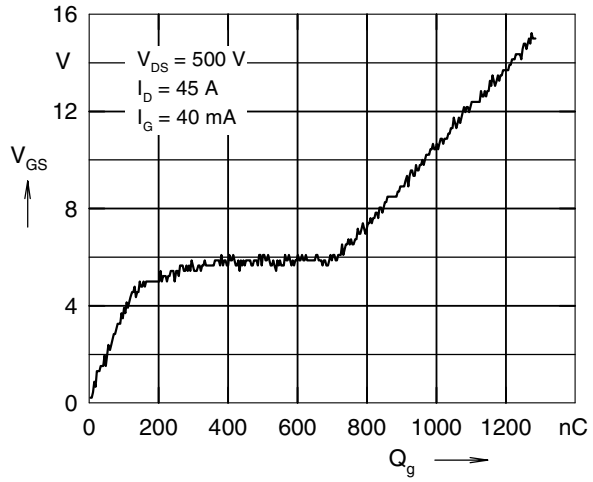

Fig. 7 Typical turn-on gate charge characteristics

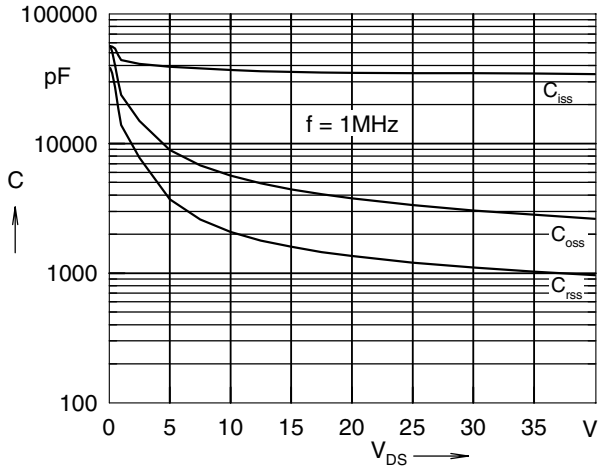

Fig. 8 Typical capacitances

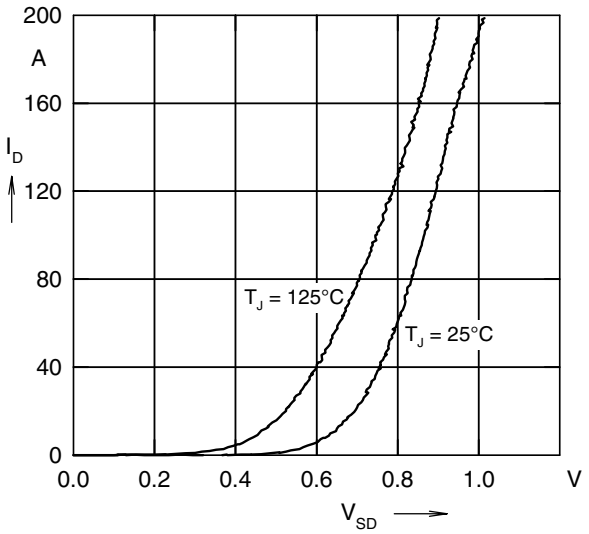

Fig. 9 Typical forward characteristics of diode

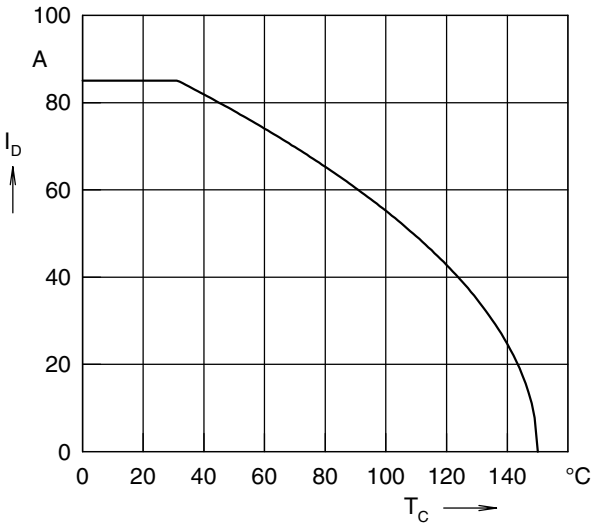

Fig. 10 Continuous drain current

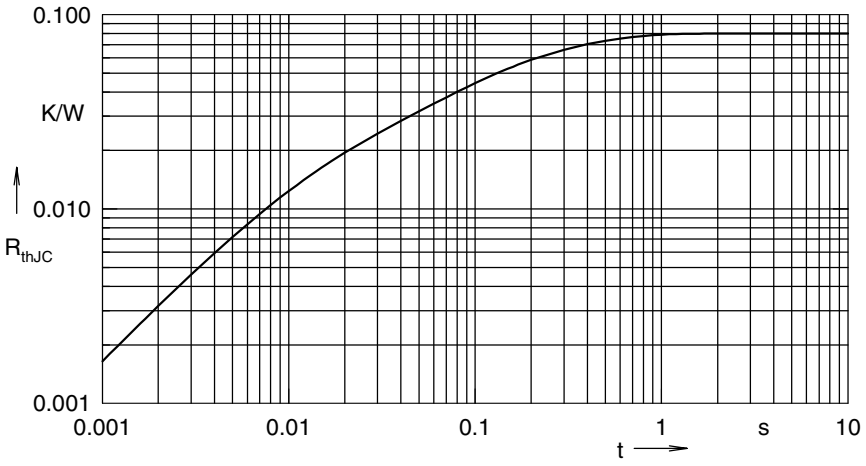

Fig. 11 Transient thermal resistance

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