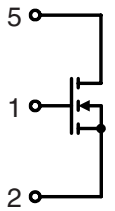
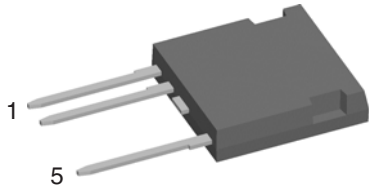
HiPerFET™ Power MOSFET

in High Voltage ISOPLUS i4-PAC™

I_{D25} = 22 A
V_{DSS} = 1000 V
R_{DSon} = 390 mΩ





MOSFET

Symbol	Conditions	Maximum Ratings	
V_{DSS}	T_{VJ} = 25°C to 150°C	1000	V
V_{GS}		±20	V
I_{D25}	T_C = 25°C	22	A
I_{D90}	T_C = 90°C	15	A
I_{F25}	(diode) T_C = 25°C	120	A
I_{F90}	(diode) T_C = 90°C	75	A
dv/dt	$V_{DS} < V_{DSS}$; $I_F \le 100A$; $\lvert di_F/dt \rvert \le 100A/\mu s$; R_G = 2 Ω; T_{VJ} = 150°C	5	V/ns
E_{AR}	T_C = 25°C	64	mJ

Symbol	Conditions (unless otherwise specified)	Characteristic Values min.	typ.	max.	
R_{DSon}	V_{GS} = 10 V; $I_D = I_{D90}$			390	mΩ
V_{GSth}	V_{DS} = 20 V; I_D = 8 mA;	2.5		5	V
I_{DSS}	$V_{DS} = V_{DSS}$; V_{GS} = 0 V; T_{VJ} = 25°C			0.1	mA
	T_{VJ} = 125°C		0.25		mA
I_{GSS}	V_{GS} = ±20 V; V_{DS} = 0 V			200	nA
Q_g	V_{GS}= 10 V; V_{DS} = 500 V; I_D = 12 A		250		nC
Q_{gs}			55		nC
Q_{gd}			135		nC
$t_{d(on)}$	V_{GS}= 10 V; V_{DS} = 500 V;		35		ns
t_r			35		ns
$t_{d(off)}$	I_D = 12 A; R_G = 1 Ω		75		ns
t_f			21		ns
V_F	(diode) I_F = 12 A; V_{GS} = 0 V			1.5	V
t_{rr}	(diode) I_F = 24 A; -di/dt = 100 A/µs; V_{DS} = 100 V		250		ns
R_{thJC}				0.32	K/W

Features

- HiPerFET™ technology
  - low R_{DSon}
  - low gate charge for high frequency operation
  - unclamped inductive switching (UIS) capability
  - dv/dt ruggedness
  - fast intrinsic reverse diode
- ISOPLUS i4-PAC™ high voltage package
  - isolated back surface
  - enlarged creepage towards heatsink
  - enlarged creepage between high voltage pins
  - application friendly pinout
  - high reliability
  - industry standard outline

Applications

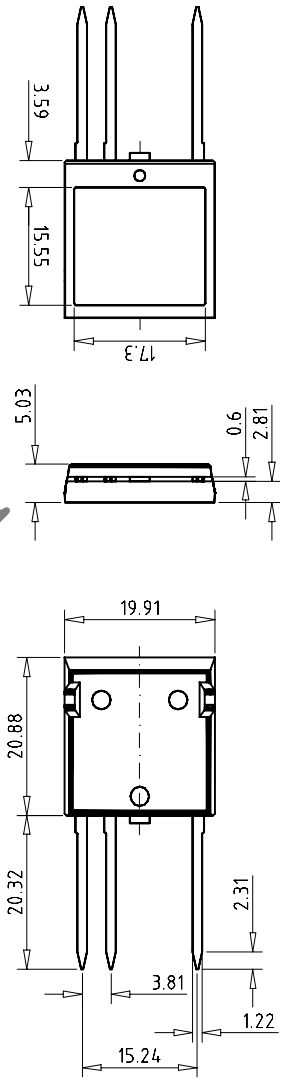
- switched mode power supplies
- DC-DC converters
- resonant converters

Component

Symbol	Conditions	Maximum Ratings	
T_{VJ}		-55...+150	°C
T_{stg}		-55...+125	°C
V_{ISOL}	$I_{ISOL} \leq 1$ mA; 50/60 Hz	2500	V~
F_C	mounting force with clip	20...120	N

Symbol	Conditions	Characteristic Values min.	typ.	max.	
d_S,d_A	D pin - S pin	7.0			mm
d_S,d_A	pin - backside metal	5.5			mm
R_{thCH}	with heatsink compound		0.15		K/W
Weight			9		g

Dimensions in mm (1 mm = 0.0394")



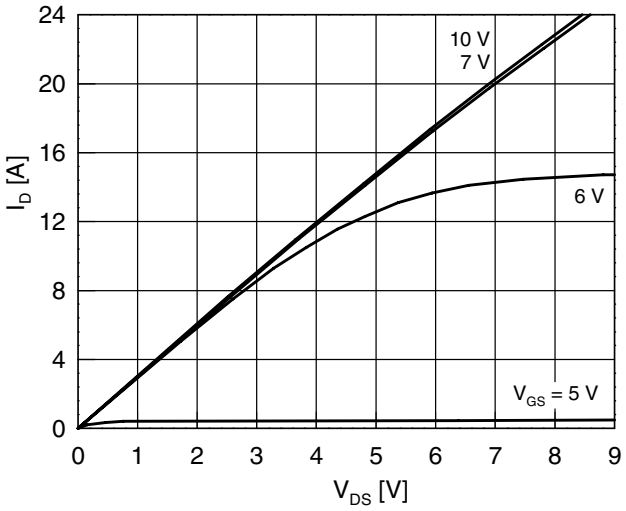


Fig. 1. Output Characteristics@25°C

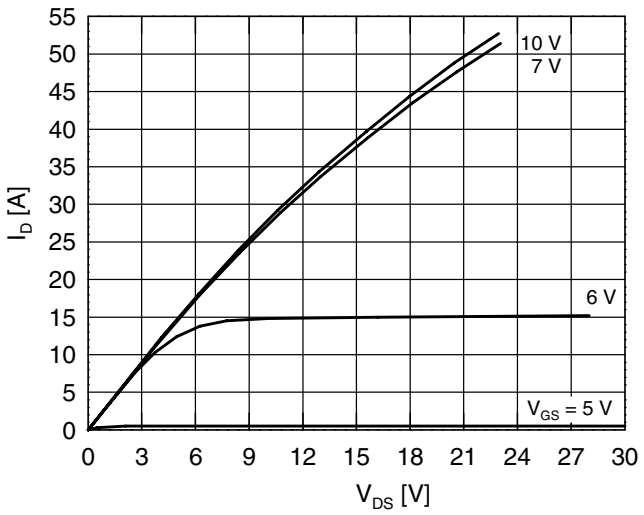


Fig. 2. Extended Output Characteristics @ 25°C

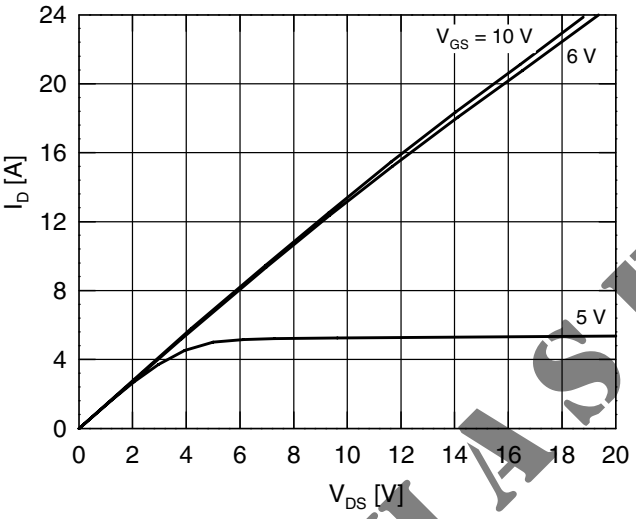


Fig. 3. Output Characteristics @ 125°C

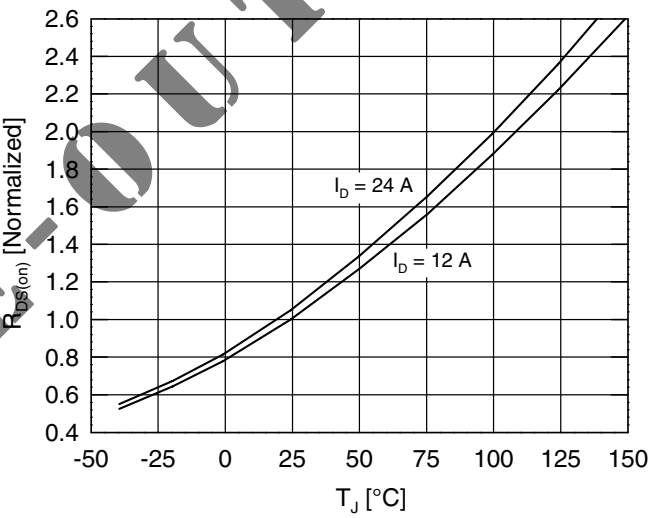


Fig. 4. $R_{DS(on)}$ Normalized to I_D = 12 A Value versus Junction Temperature

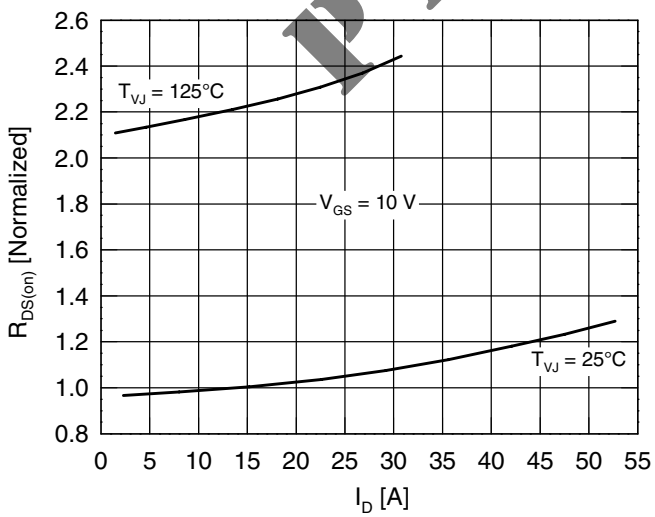


Fig. 5. $R_{DS(on)}$ Normalized to I_D = 12 A Value versus Drain Current

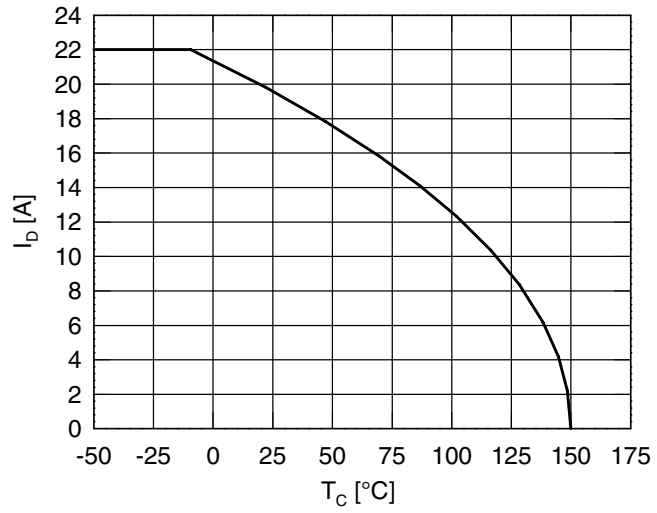


Fig. 6. Max. Drain Current vs. Case Temperature

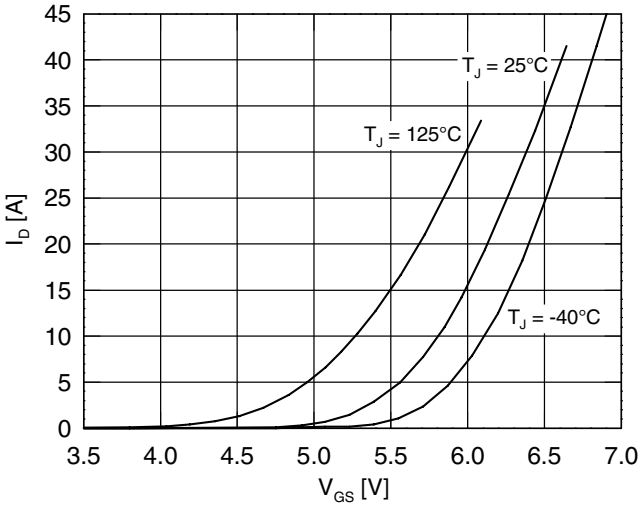


Fig. 7. Input Admittance

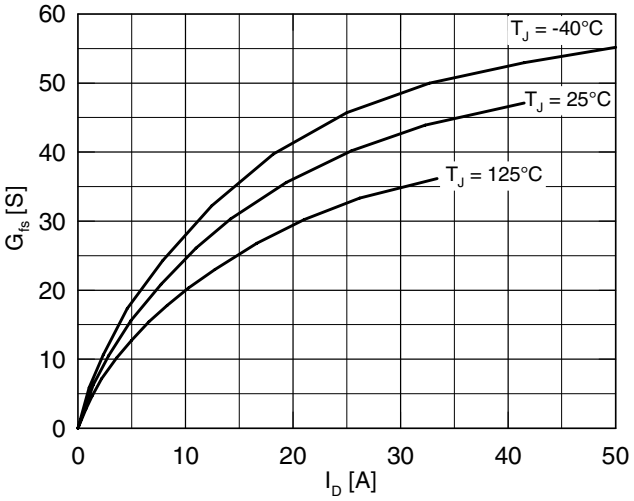


Fig. 8. Transconductance

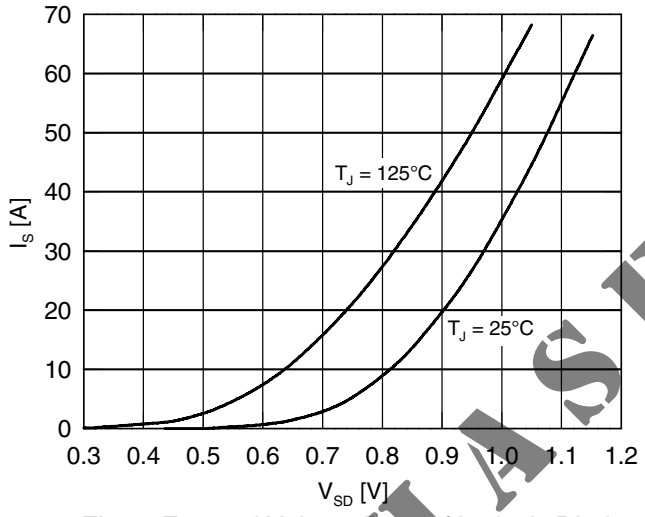


Fig. 9. Forward Voltage Drop of Intrinsic Diode

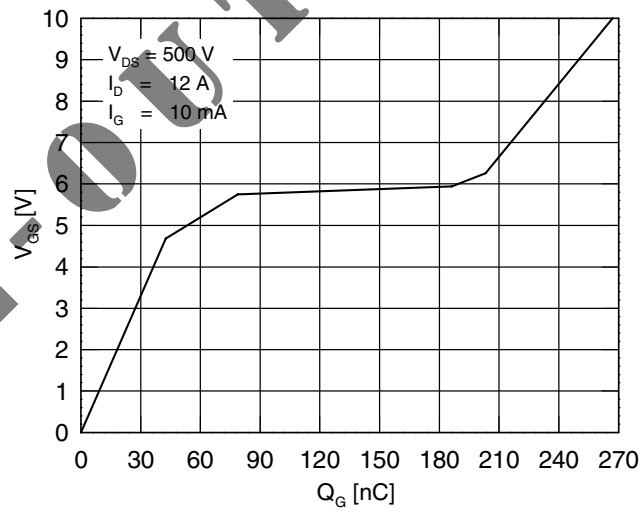


Fig. 10. Gate Charge

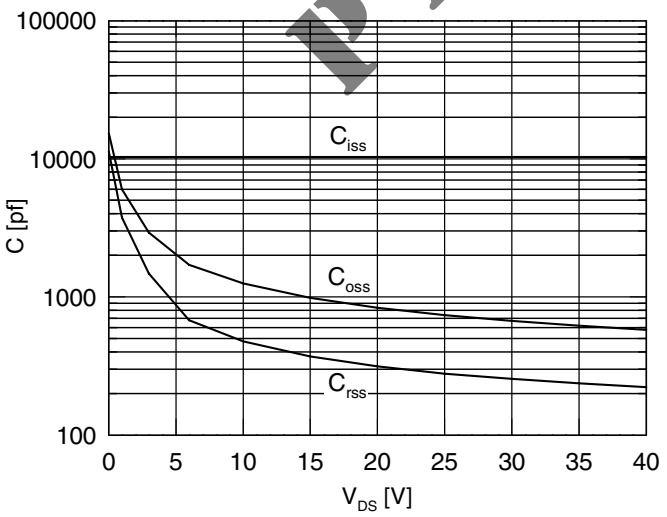


Fig. 11. Capacitance

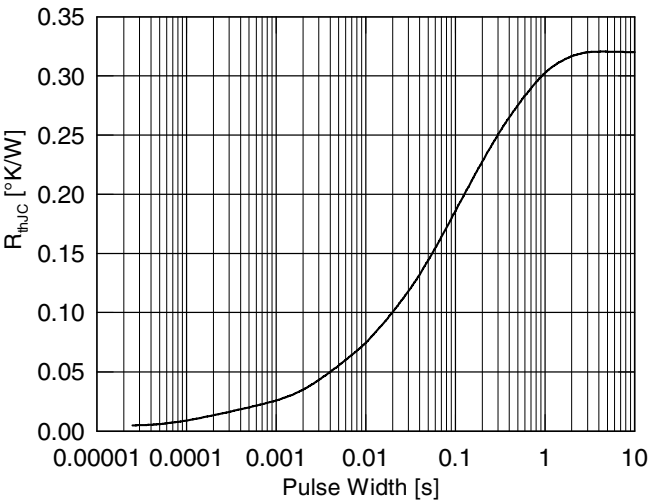


Fig. 12. Max. Transient Thermal Resistance