

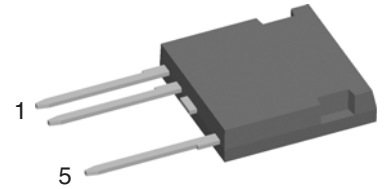
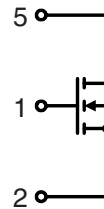
HiPerFET™
Power MOSFET

in High Voltage ISOPLUS i4-PAC™

$$I_{D25} = 22 \text{ A}$$

$$V_{DSS} = 1000 \text{ V}$$

$$R_{DSon} = 390 \text{ m}\Omega$$


MOSFET

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

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

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

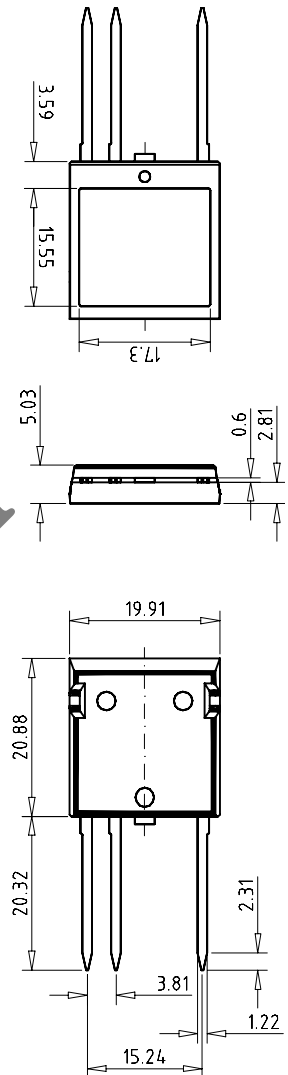
Applications

- 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}	$I_{ISOL} \leq 1 \text{ mA}; 50/60 \text{ Hz}$	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")


PHASE-OUT

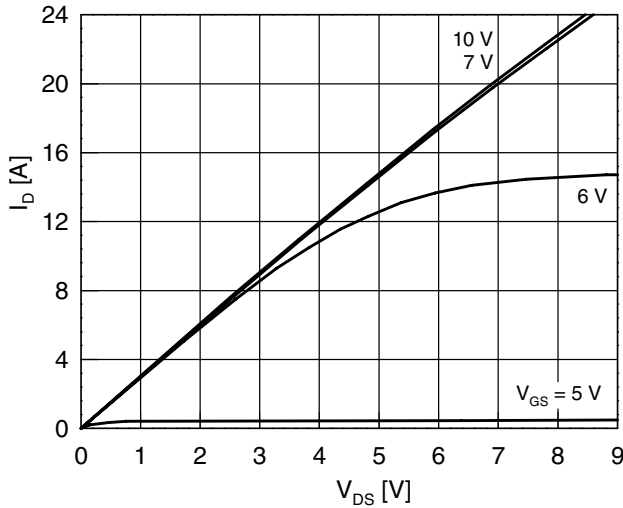


Fig. 1. Output Characteristics @ 25°C

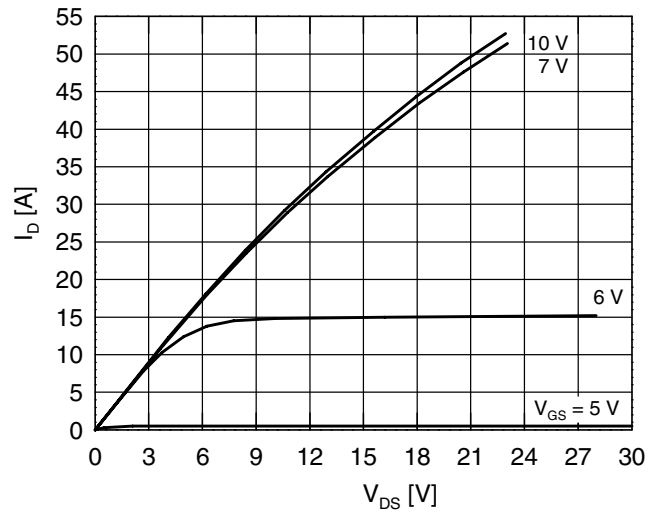


Fig. 2. Extended Output Characteristics @ 25°C

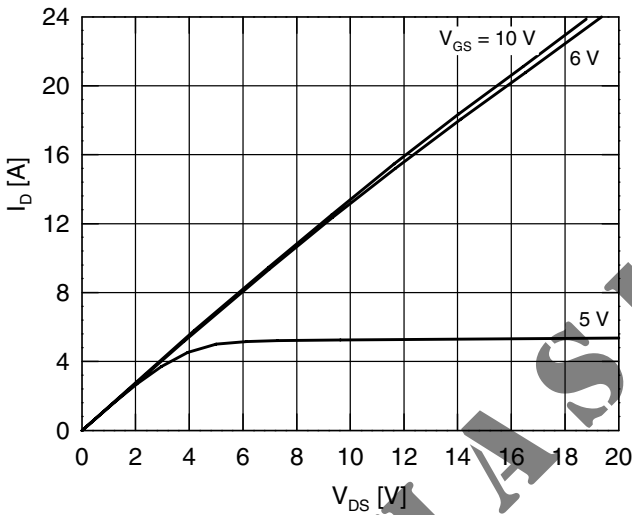


Fig. 3. Output Characteristics @ 125°C

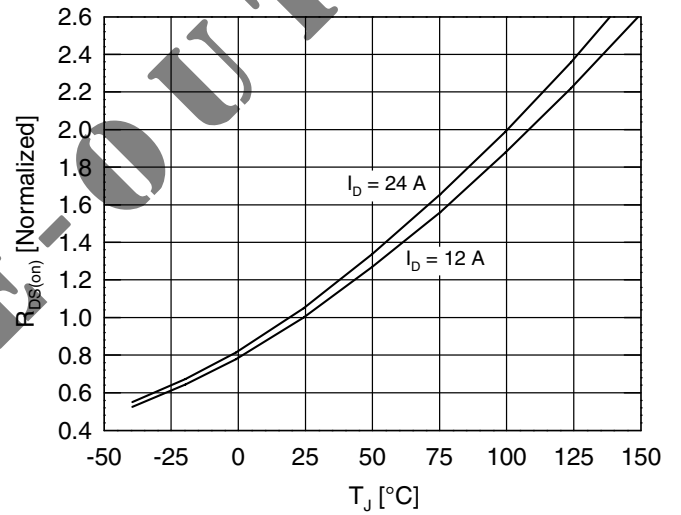


Fig. 4. $R_{DS(on)}$ Normalized to $I_D = 12 A$ Value versus Junction Temperature

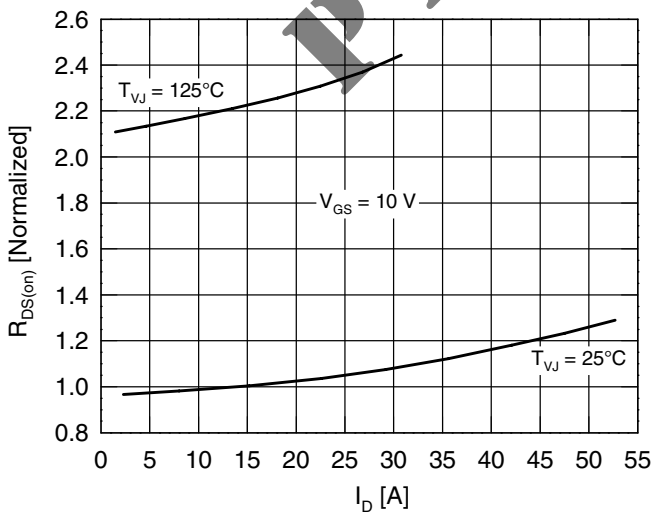


Fig. 5. $R_{DS(on)}$ Normalized to $I_D = 12 A$ Value versus Drain Current

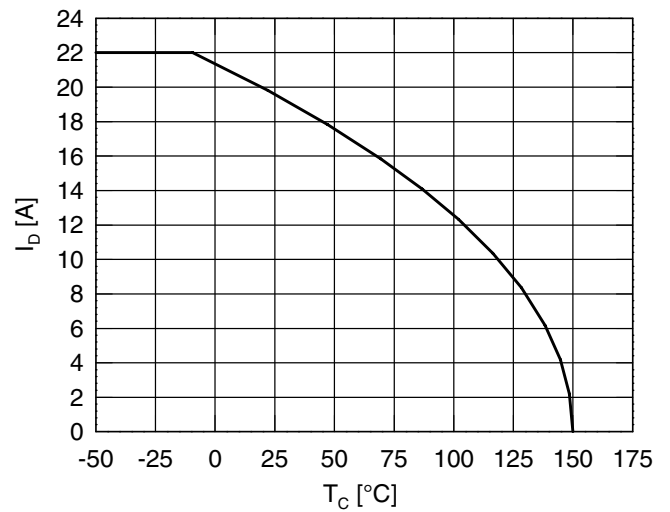


Fig. 6. Max. Drain Current vs. Case Temperature

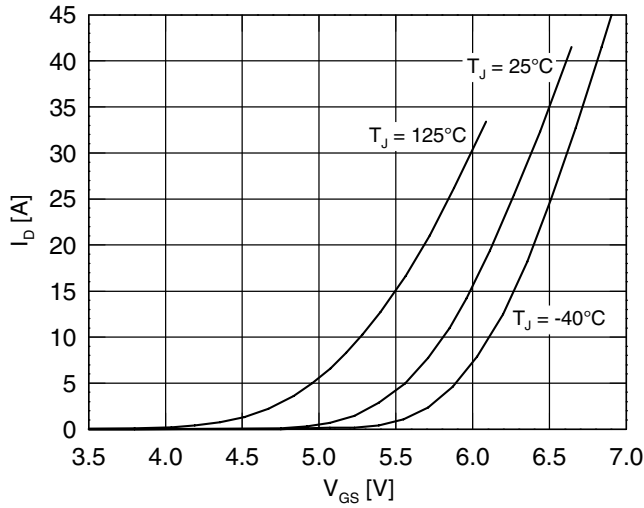


Fig. 7. Input Admittance

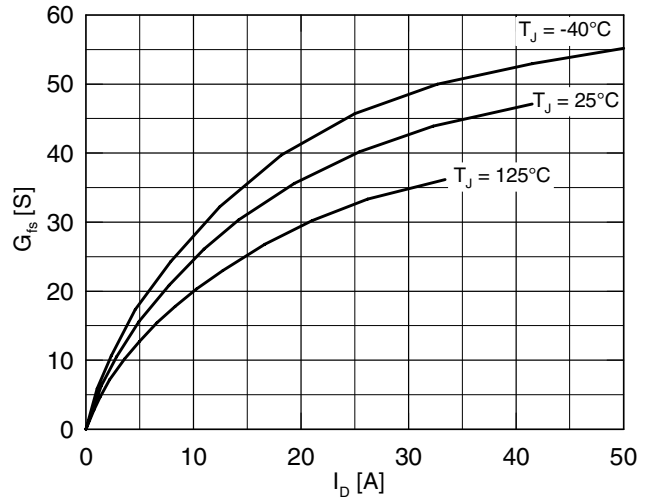


Fig. 8. Transconductance

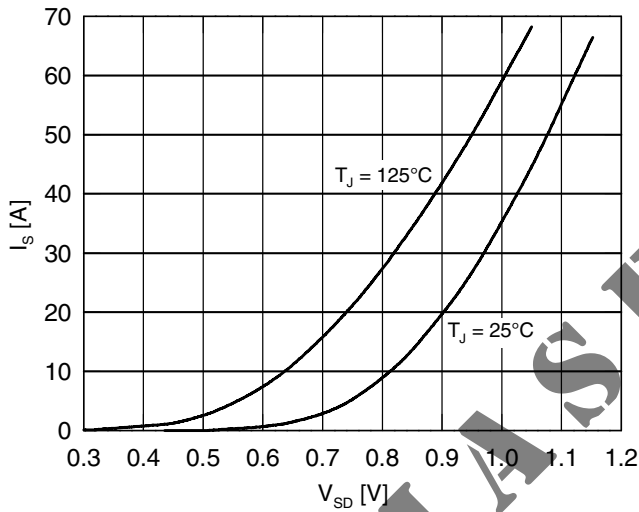


Fig. 9. Forward Voltage Drop of Intrinsic Diode

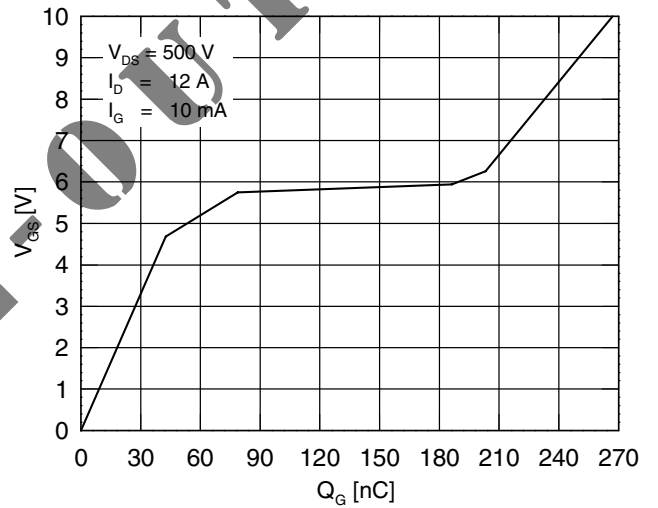


Fig. 10. Gate Charge

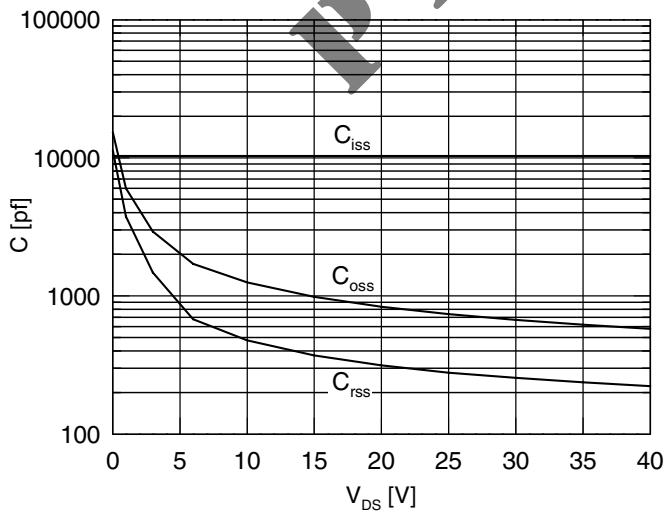


Fig. 11. Capacitance

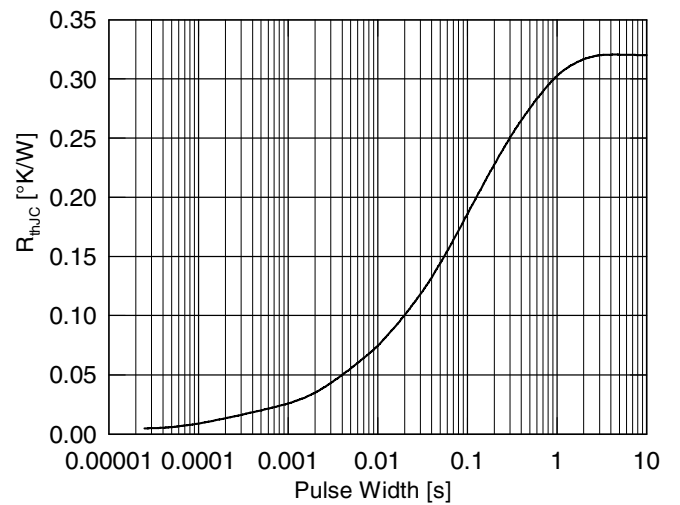


Fig. 12. Max. Transient Thermal Resistance