

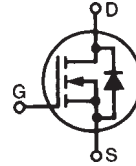
HiPerFET™ Power MOSFETs

N-Channel Enhancement Mode
High dv/dt, Low t_{rr} , HDMOS™ Family

IXFH/IXFM 10 N100
IXFH/IXFM 12 N100

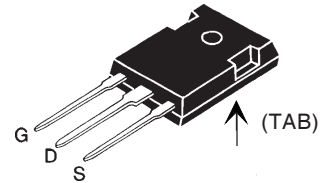
V_{DSS}	I_{D25}	$R_{DS(on)}$
1000 V	10 A	1.20 Ω
1000 V	12 A	1.05 Ω

$t_{rr} \leq 250$ ns

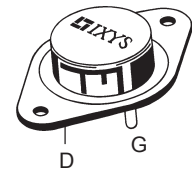


Symbol	Test Conditions	Maximum Ratings		
V_{DSS}	$T_J = 25^\circ\text{C}$ to 150°C	1000	V	
V_{DGR}	$T_J = 25^\circ\text{C}$ to 150°C ; $R_{GS} = 1 \text{ M}\Omega$	1000	V	
V_{GS}	Continuous	± 20	V	
V_{GSM}	Transient	± 30	V	
I_{D25}	$T_C = 25^\circ\text{C}$	10N100	10	A
		12N100	12	A
I_{DM}	$T_C = 25^\circ\text{C}$, pulse width limited by T_{JM}	10N100	40	A
		12N100	48	A
I_{AR}	$T_C = 25^\circ\text{C}$	10N100	10	A
		12N100	12	A
E_{AR}	$T_C = 25^\circ\text{C}$	30	mJ	
dv/dt	$I_S \leq I_{DM}$, $di/dt \leq 100 \text{ A}/\mu\text{s}$, $V_{DD} \leq V_{DSS}$, $T_J \leq 150^\circ\text{C}$, $R_G = 2 \Omega$	5	V/ns	
P_D	$T_C = 25^\circ\text{C}$	300	W	
T_J		-55 ... +150	$^\circ\text{C}$	
T_{JM}		150	$^\circ\text{C}$	
T_{stg}		-55 ... +150	$^\circ\text{C}$	
T_L	1.6 mm (0.062 in.) from case for 10 s	300	$^\circ\text{C}$	
M_d	Mounting torque	1.13/10	Nm/lb.in.	
Weight		TO-204 = 18 g, TO-247 = 6 g		

TO-247 AD (IXFH)



TO-204 AA (IXFM)



G = Gate, D = Drain,
S = Source, TAB = Drain

Features

- International standard packages
- Low $R_{DS(on)}$ HDMOS™ process
- Rugged polysilicon gate cell structure
- Unclamped Inductive Switching (UIS) rated
- Low package inductance
 - easy to drive and to protect
- Fast intrinsic Rectifier

Applications

- DC-DC converters
- Synchronous rectification
- Battery chargers
- Switched-mode and resonant-mode power supplies
- DC choppers
- AC motor control
- Temperature and lighting controls
- Low voltage relays

Advantages

- Easy to mount with 1 screw (TO-247) (isolated mounting screw hole)
- Space savings
- High power density

Symbol	Test Conditions	Characteristic Values ($T_J = 25^\circ\text{C}$, unless otherwise specified)		
		min.	typ.	max.
V_{DSS}	$V_{GS} = 0 \text{ V}$, $I_D = 3 \text{ mA}$	1000		V
$V_{GS(th)}$	$V_{DS} = V_{GS}$, $I_D = 4 \text{ mA}$	2.0		4.5 V
I_{GSS}	$V_{GS} = \pm 20 \text{ V}_{DC}$, $V_{DS} = 0$			± 100 nA
I_{DSS}	$V_{DS} = 0.8 \cdot V_{DSS}$, $T_J = 25^\circ\text{C}$ $V_{GS} = 0 \text{ V}$, $T_J = 125^\circ\text{C}$			250 μA 1 mA
$R_{DS(on)}$	$V_{GS} = 10 \text{ V}$, $I_D = 0.5 \cdot I_{D25}$ Pulse test, $t \leq 300 \mu\text{s}$, duty cycle $d \leq 2 \%$	10N100 12N100		1.20 Ω 1.05 Ω

Fig. 1 Output Characteristics

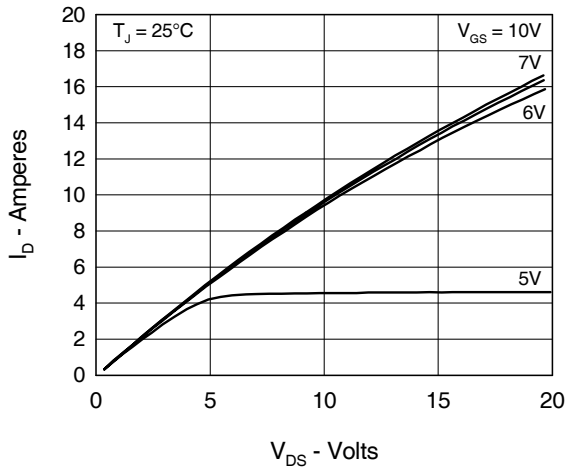


Fig. 2 Input Admittance

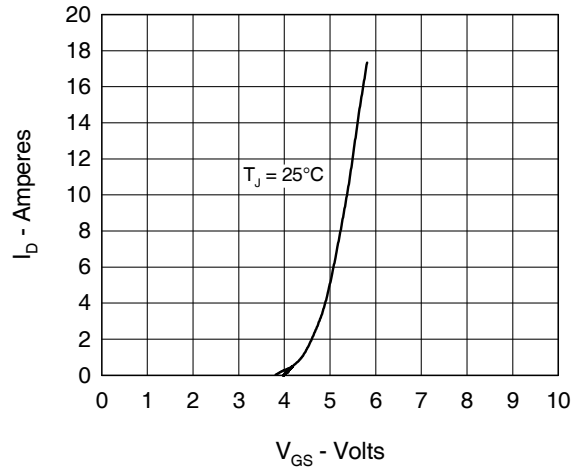


Fig. 3 $R_{DS(on)}$ vs. Drain Current

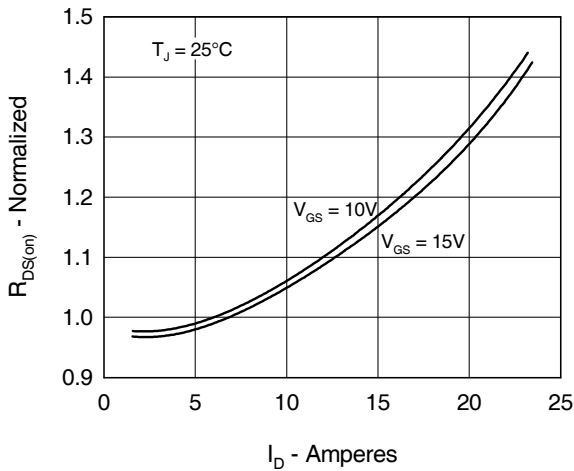


Fig. 4 Temperature Dependence of Drain to Source Resistance

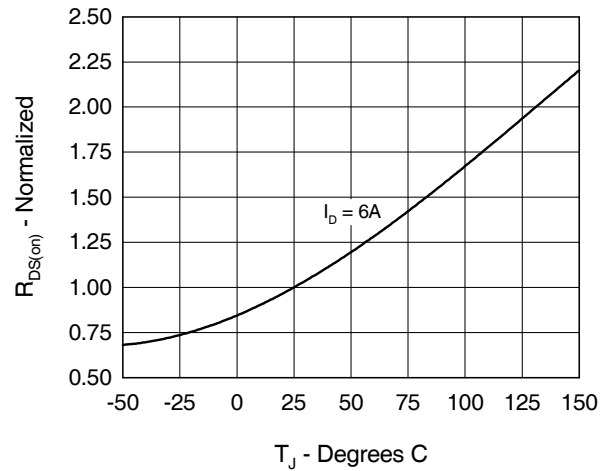


Fig. 5 Drain Current vs. Case Temperature

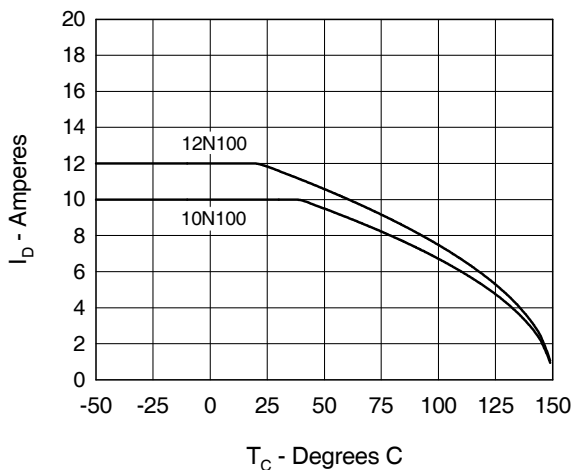


Fig. 6 Temperature Dependence of Breakdown and Threshold Voltage

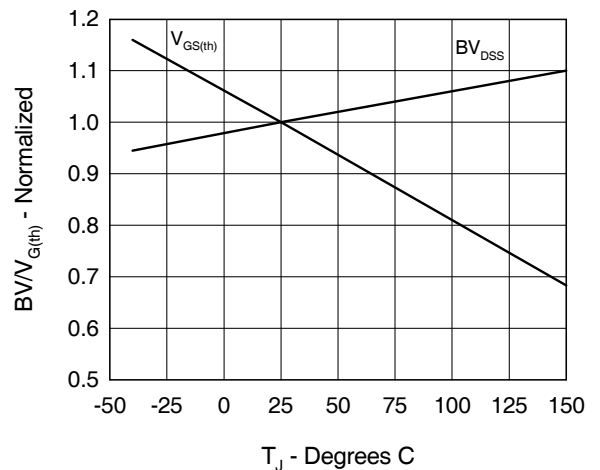


Fig.7 Gate Charge Characteristic Curve

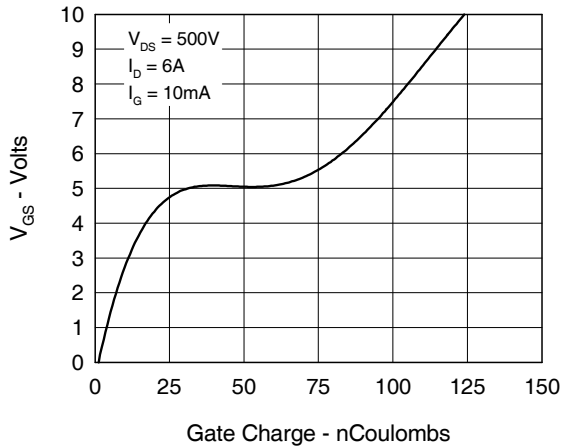


Fig.8 Capacitance Curves

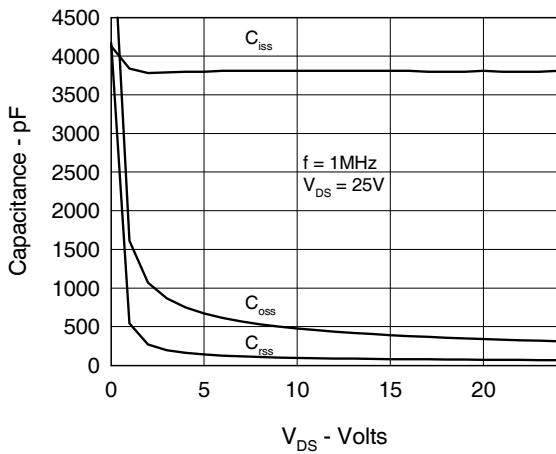


Fig.9 Source Current vs. Source to Drain Voltage

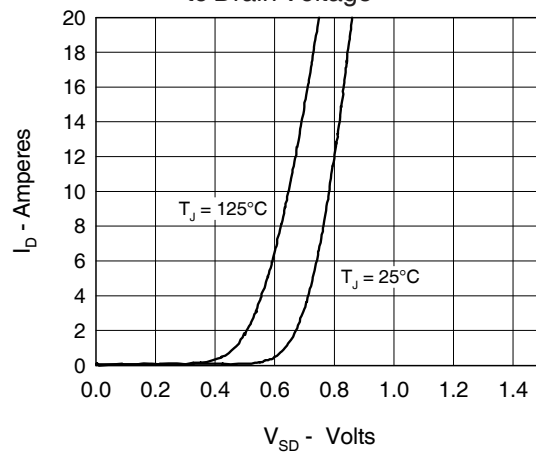
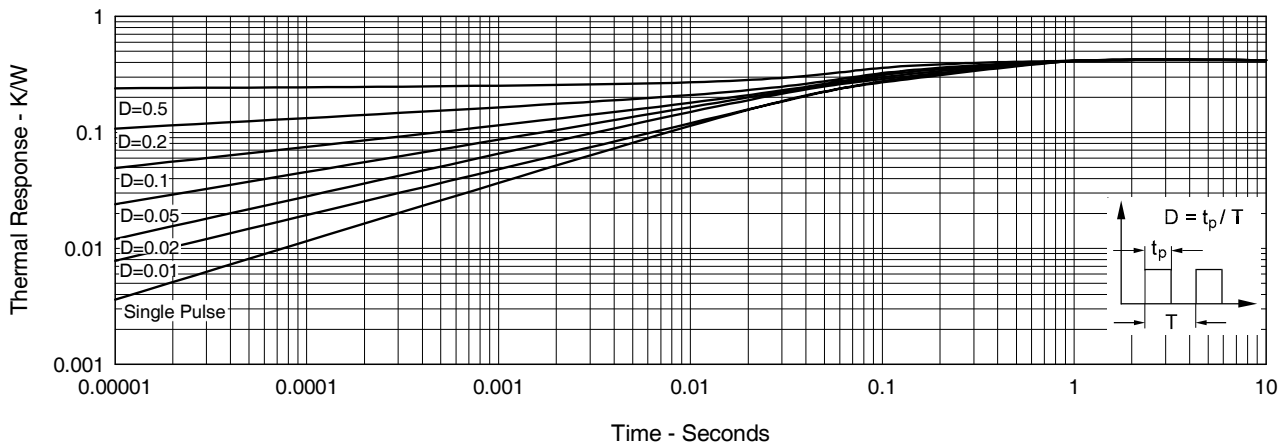


Fig.10 Transient Thermal Impedance



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