

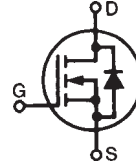
# HiPerFET™ Power MOSFETs Q-Class

**IXFH 30N60Q**  
**IXFT 30N60Q**

**V<sub>DSS</sub> = 600 V**  
**I<sub>D25</sub> = 30 A**  
**R<sub>DS(on)</sub> = 0.23 Ω**

N-Channel Enhancement Mode  
Avalanche Rated, High dv/dt, Low Q<sub>g</sub>

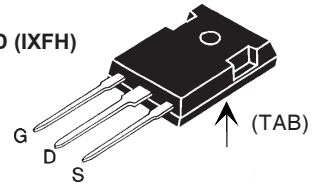
Preliminary Data Sheet



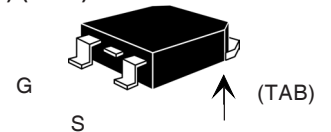
**t<sub>rr</sub> ≤ 250 ns**

Symbol	Test Conditions	Maximum Ratings	
V <sub>DSS</sub>	T <sub>J</sub> = 25°C to 150°C	600	V
V <sub>DGR</sub>	T <sub>J</sub> = 25°C to 150°C; R <sub>GS</sub> = 1 MΩ	600	V
V <sub>GS</sub>	Continuous	±20	V
V <sub>GSM</sub>	Transient	±30	V
I <sub>D25</sub>	T <sub>C</sub> = 25°C	30	A
I <sub>DM</sub>	T <sub>C</sub> = 25°C, pulse width limited by T <sub>JM</sub>	120	A
I <sub>AR</sub>	T <sub>C</sub> = 25°C	30	A
E <sub>AR</sub>	T <sub>C</sub> = 25°C	45	mJ
E <sub>AS</sub>	T <sub>C</sub> = 25°C	1.5	J
dv/dt	I <sub>S</sub> ≤ I <sub>DM</sub> , di/dt ≤ 100 A/μs, V <sub>DD</sub> ≤ V <sub>DSS</sub> , T <sub>J</sub> ≤ 150°C, R <sub>G</sub> = 2 Ω	10	V/ns
P <sub>D</sub>	T <sub>C</sub> = 25°C	500	W
T <sub>J</sub>		-55 ... +150	°C
T <sub>JM</sub>		150	°C
T <sub>stg</sub>		-55 ... +150	°C
T <sub>L</sub>	1.6 mm (0.063 in) from case for 10 s	300	°C
M <sub>d</sub>	Mounting torque	TO-247	1.13/10 Nm/lb.in.
Weight		TO-247	6 g
		TO-268	4 g

TO-247 AD (IXFH)



TO-268 (D3) (IXFT)



G = Gate  
S = Source

D = Drain  
TAB = Drain

## Features

- Low gate charge
- International standard packages
- Epoxy meet UL 94 V-0, flammability classification
- Low R<sub>DS(on)</sub> HD MOS™ process
- Rugged polysilicon gate cell structure
- Avalanche energy and current rated
- Fast intrinsic Rectifier

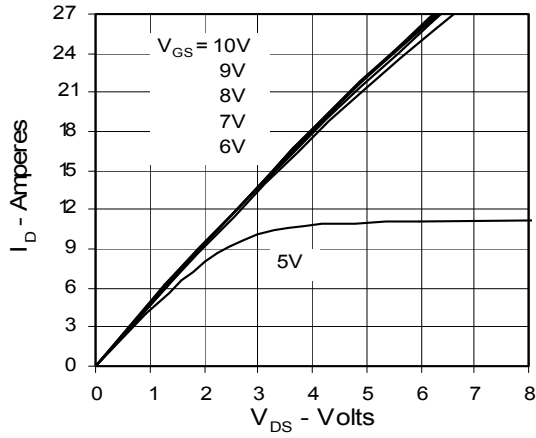
## Advantages

- Easy to mount
- Space savings
- High power density

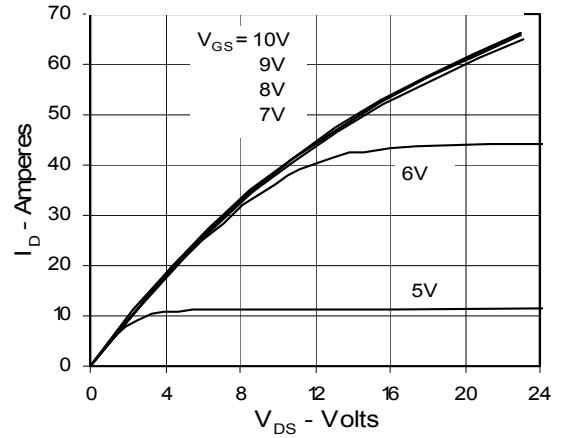
Symbol	Test Conditions	Characteristic Values (T <sub>J</sub> = 25°C, unless otherwise specified)		
		min.	typ.	max.
V <sub>DSS</sub>	V <sub>GS</sub> = 0 V, I <sub>D</sub> = 250 μA Temperature Coefficient	600	0.095	V %/K
V <sub>GS(th)</sub>	V <sub>DS</sub> = V <sub>GS</sub> , I <sub>D</sub> = 4 mA Temperature Coefficient	2.5	- 0.24	V %/K
I <sub>GSS</sub>	V <sub>GS</sub> = ±20 V <sub>DC</sub> , V <sub>DS</sub> = 0			±200 nA
I <sub>DSS</sub>	V <sub>DS</sub> = V <sub>DSS</sub> , T <sub>J</sub> = 25°C V <sub>GS</sub> = 0 V, T <sub>J</sub> = 125°C			25 μA 1 mA
R <sub>DS(on)</sub>	V <sub>GS</sub> = 10 V, I <sub>D</sub> = 0.5 • I <sub>D25</sub> Pulse test, t ≤ 300 μs, duty cycle d ≤ 2 %			0.23 Ω



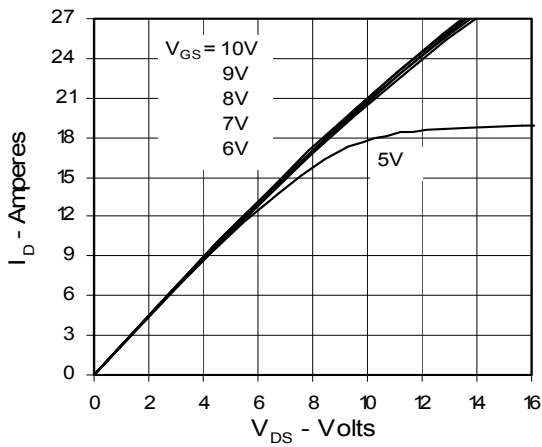
**Fig. 1. Output Characteristics**  
@ 25 Deg. C



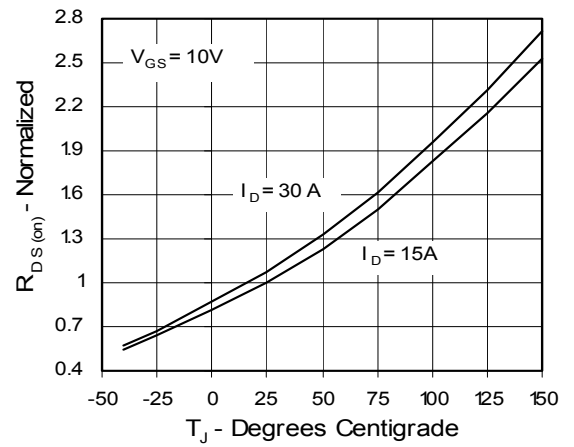
**Fig. 2. Extended Output Characteristics**  
@ 25 deg. C



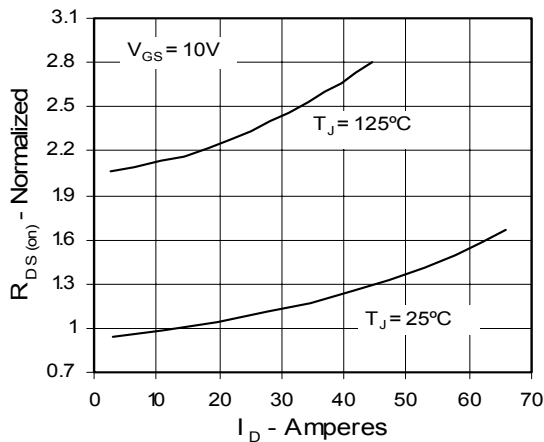
**Fig. 3. Output Characteristics**  
@ 125 Deg. C



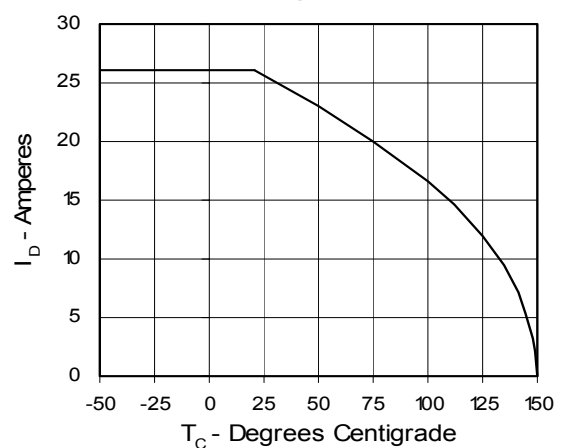
**Fig. 4. R\_DS(on) Normalized to I\_D25 Value vs. Junction Temperature**



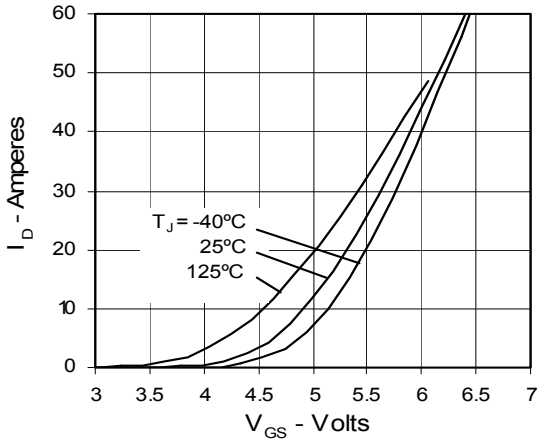
**Fig. 5. R\_DS(on) Normalized to I\_D25 Value vs. I\_D**



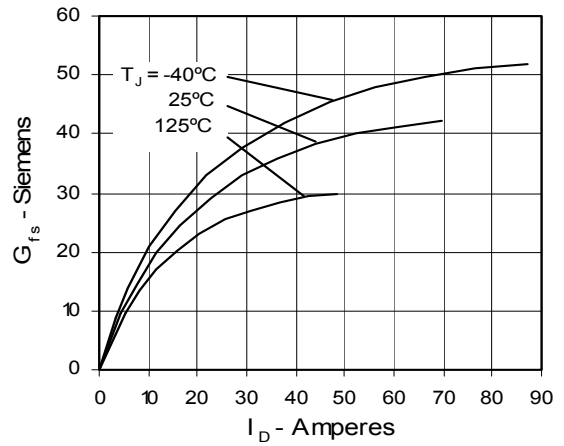
**Fig. 6. Drain Current vs. Case Temperature**



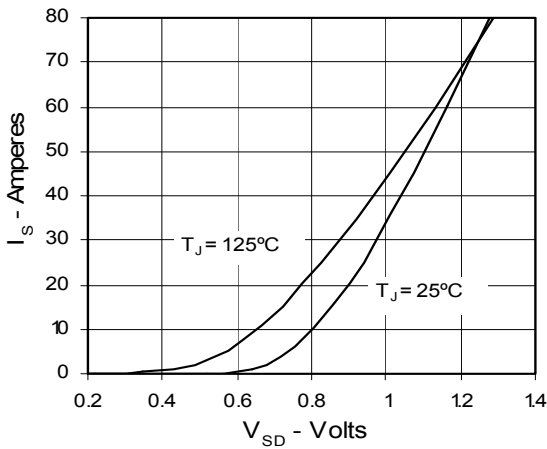
**Fig. 7. Input Admittance**



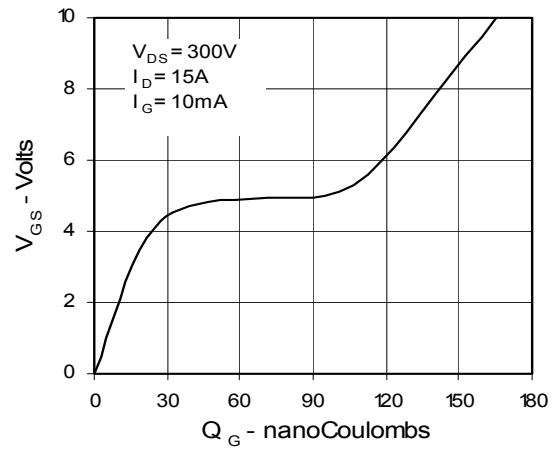
**Fig. 8. Transconductance**



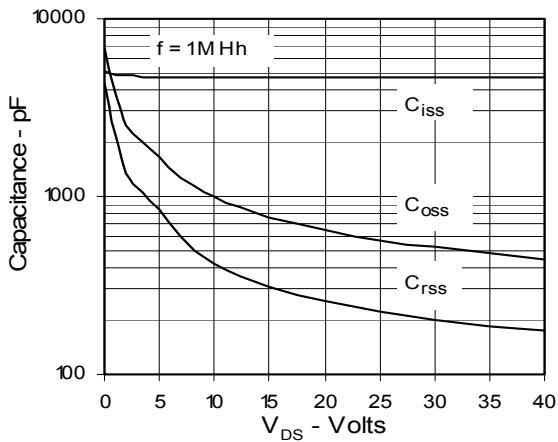
**Fig. 9. Source Current vs. Source-To-Drain Voltage**



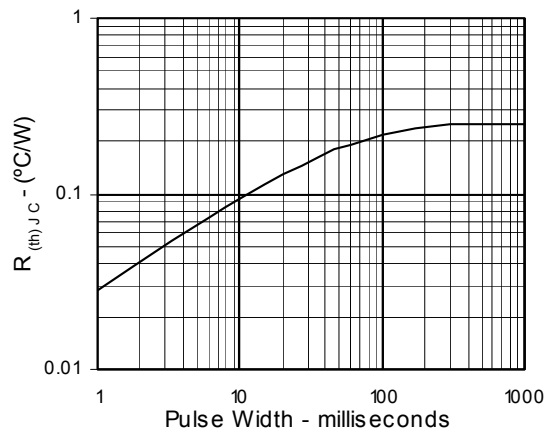
**Fig. 10. Gate Charge**



**Fig. 11. Capacitance**



**Fig. 12. Maximum Transient Thermal Resistance**



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

IXYS MOSFETs and IGBTs are covered by one or more of the following U.S. patents:

4,835,592 4,881,106 5,017,508 5,049,961 5,187,117 5,486,715 6,306,728B1 6,259,123B1 6,306,728B1  
4,850,072 4,931,844 5,034,796 5,063,307 5,237,481 5,381,025 6,404,065B1 6,162,665 6,534,343