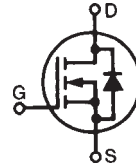


# HiPerFET™ Power MOSFETs Q-Class

**IXFH 32N50Q**  
**IXFT 32N50Q**

N-Channel Enhancement Mode  
Avalanche Rated, Low  $Q_g$ , High dv/dt

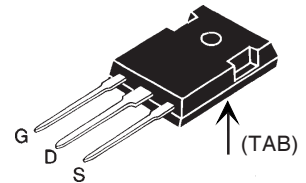


$V_{DSS}$	$I_{D25}$	$R_{DS(on)}$
500 V	32 A	0.16 $\Omega$
500 V	32 A	0.16 $\Omega$

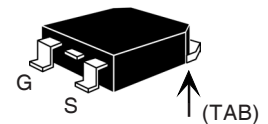
$t_{rr} \leq 250$  ns

Symbol	Test Conditions	Maximum Ratings	
$V_{DSS}$	$T_J = 25^\circ\text{C}$ to $150^\circ\text{C}$	500	V
$V_{DGR}$	$T_J = 25^\circ\text{C}$ to $150^\circ\text{C}$ ; $R_{GS} = 1$ M $\Omega$	500	V
$V_{GS}$	Continuous	$\pm 20$	V
$V_{GSM}$	Transient	$\pm 30$	V
$I_{D25}$	$T_C = 25^\circ\text{C}$	32	A
$I_{DM}$	$T_C = 25^\circ\text{C}$ ; pulse width limited by $T_{JM}$	128	A
$I_{AR}$	$T_C = 25^\circ\text{C}$	32	A
$E_{AR}$	$T_C = 25^\circ\text{C}$	45	mJ
$E_{AS}$		1500	mJ
dv/dt	$I_S \leq I_{DM}$ , $di/dt \leq 100$ A/ $\mu\text{s}$ , $V_{DD} \leq V_{DSS}$ , $T_J \leq 150^\circ\text{C}$ , $R_G = 2$ $\Omega$	5	V/ns
$P_D$	$T_C = 25^\circ\text{C}$	416	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 (0.063 in) from case for 10 s	300	$^\circ\text{C}$
$M_d$	Mounting torque	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      D = Drain  
S = Source      TAB = Drain

Symbol	Test Conditions	Characteristic Values ( $T_J = 25^\circ\text{C}$ , unless otherwise specified)		
		min.	typ.	max.
$V_{DSS}$	$V_{GS} = 0$ V, $I_D = 250$ $\mu\text{A}$	500		V
$V_{GS(th)}$	$V_{DS} = V_{GS}$ , $I_D = 4$ mA	2.5		4.5 V
$I_{GSS}$	$V_{GS} = \pm 20$ V <sub>DC</sub> , $V_{DS} = 0$			$\pm 100$ nA
$I_{DSS}$	$V_{DS} = V_{DSS}$ , $V_{GS} = 0$ V	$T_J = 25^\circ\text{C}$		100 $\mu\text{A}$
		$T_J = 125^\circ\text{C}$		1 mA
$R_{DS(on)}$	$V_{GS} = 10$ V, $I_D = 0.5 I_{D25}$ Note 1			0.16 $\Omega$

## Features

- IXYS advanced low  $Q_g$  process
- Low gate charge and capacitances
  - easier to drive
  - faster switching
- International standard packages
- Low  $R_{DS(on)}$
- Unclamped Inductive Switching (UIS) rated
- Molding epoxies meet UL 94 V-0 flammability classification

## Advantages

- Easy to mount
- Space savings
- High power density



Figure 1. Output Characteristics at 25°C

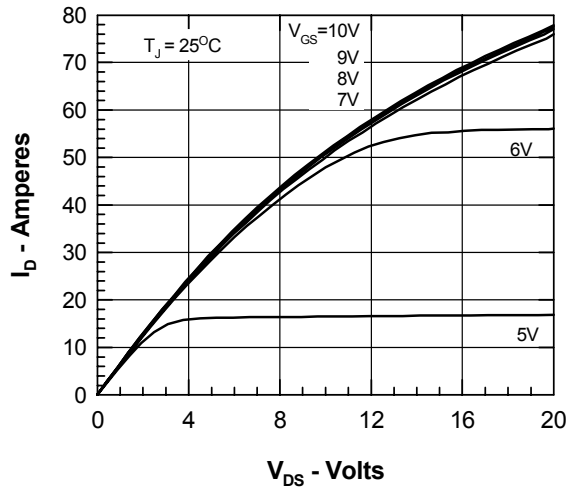


Figure 2. Output Characteristics at 125°C

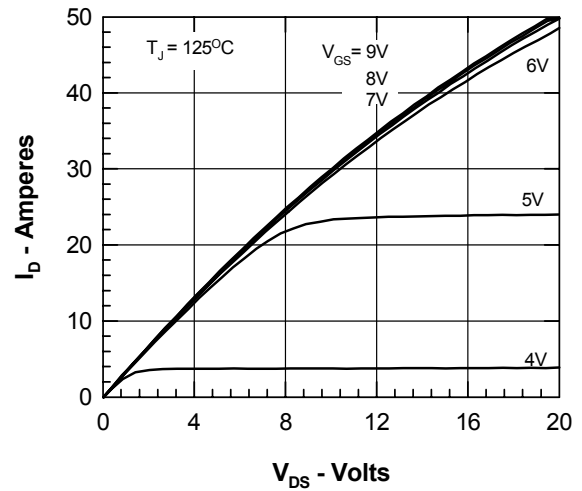


Figure 3.  $R_{DS(on)}$  normalized to 15A/25°C vs.  $I_D$

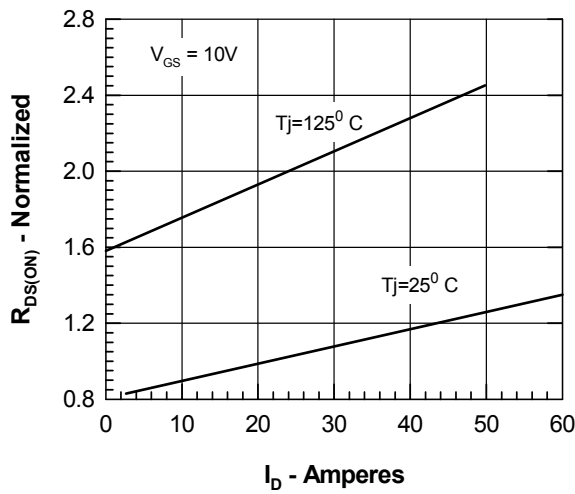


Figure 4.  $R_{DS(on)}$  normalized to 15A/25°C vs.  $T_J$

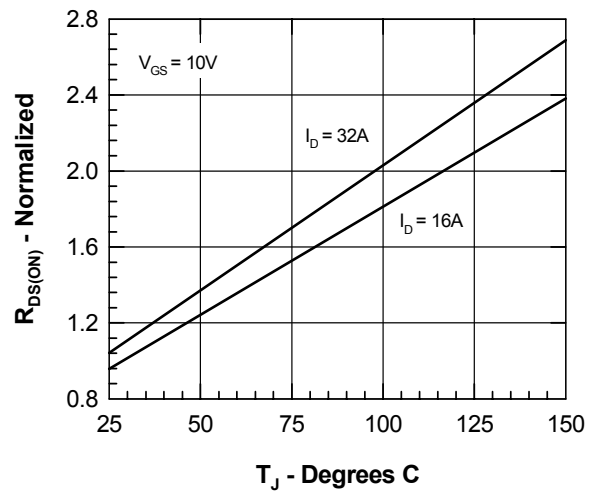


Figure 5. Drain Current vs. Case Temperature

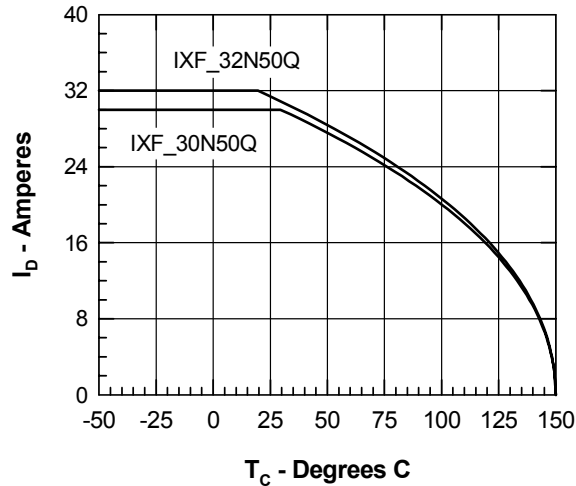


Figure 6. Admittance Curves

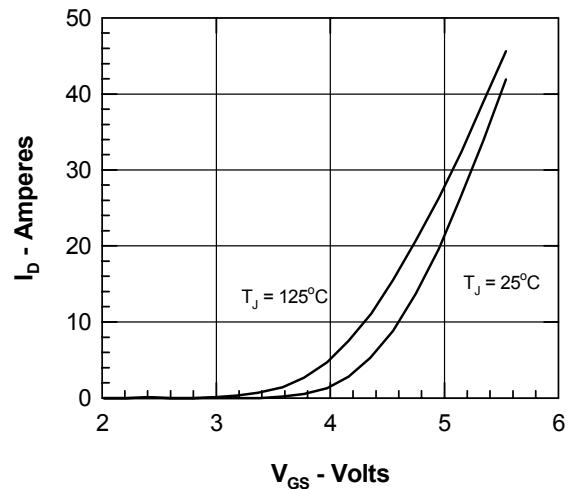


Figure 7. Gate Charge

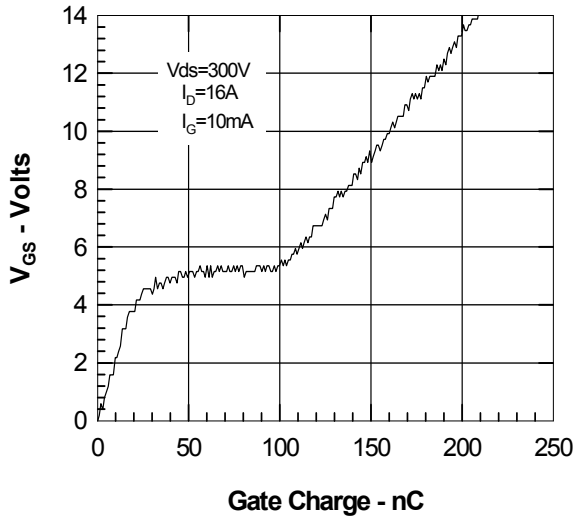


Figure 8. Capacitance Curves

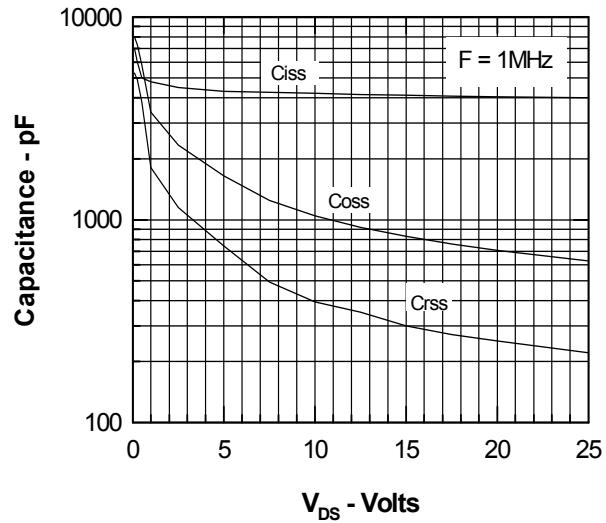


Figure 9. Forward Voltage Drop of the Intrinsic Diode

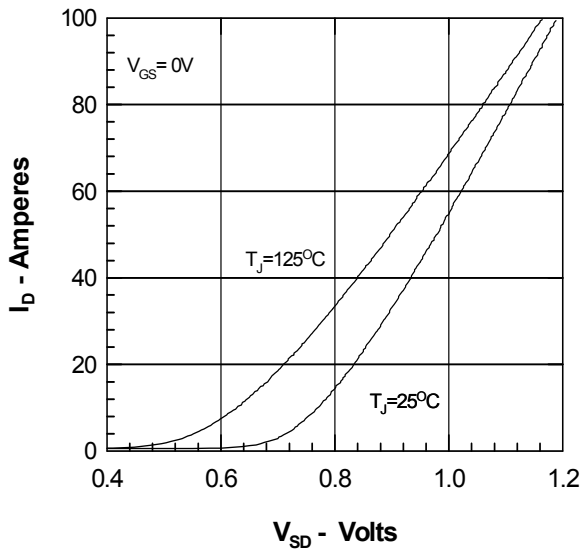


Figure 10. Transient Thermal Resistance

