WINSOURCE
ELECTRONICS

THE DATASHEET OF

IXFT26N50Q

IXYS

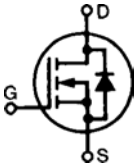
HiPerFET™ Power MOSFETs

Q-Class

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

	V_{DSS}	I_{D25}	$R_{DS(on)}$
IXFH/IXFT 24N50Q	**500 V**	**24 A**	**0.23 Ω**
IXFH/IXFT 26N50Q	**500 V**	**26 A**	**0.20 Ω**

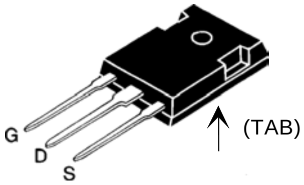
$t_{rr} \leq 250$ ns



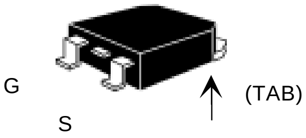
Symbol	Test Conditions		Maximum Ratings	
V_{DSS}	T_J = 25°C to 150°C		500	V
V_{DGR}	T_J = 25°C to 150°C; R_{GS} = 1 MΩ		500	V
V_{GS}	Continuous		±20	V
V_{GSM}	Transient		±30	V
I_{D25}	T_C = 25°C	24N50Q	24	A
		26N50Q	26	A
I_{DM}	T_C = 25°C, Note 1	24N50Q	96	A
		26N50Q	104	A
I_{AR}	T_C = 25°C	24N50Q	24	A
		26N50Q	26	A
E_{AR}	T_C = 25°C		30	mJ
E_{AS}	T_C = 25°C		1.5	J
dv/dt	$I_S \leq I_{DM}$, di/dt ≤ 100 A/µs, $V_{DD} \leq V_{DSS}$, $T_J \leq$ 150°C, R_G = 2 Ω		5	V/ns
P_D	T_C = 25°C		300	W
T_J			-55 ... +150	°C
T_{JM}			150	°C
T_{stg}			-55 ... +150	°C
T_L	1.6 mm (0.063 in) from case for 10 s		300	°C
M_d	Mounting torque		1.13/10	Nm/lb.in.
Weight	TO-247		6	g
	TO-268		4	g

Symbol	Test Conditions		Characteristic Values (T_J = 25°C, unless otherwise specified) min.	typ.	max.	
V_{DSS}	V_{GS} = 0 V, I_D = 250 µA		500			V
$V_{GS(th)}$	$V_{DS} = V_{GS}$, I_D = 4 mA		2.5		4.5	V
I_{GSS}	V_{GS} = ±20 V_{DC}, V_{DS} = 0				±100	nA
I_{DSS}	$V_{DS} = V_{DSS}$	T_J = 25°C			25	µA
	V_{GS} = 0 V	T_J = 125°C			1	mA
$R_{DS(on)}$	V_{GS} = 10 V, I_D = 0.5 I_{D25}	24N50Q			0.23	Ω
	Note 2	26N50Q			0.20	Ω

TO-247 AD (IXFH)



TO-268 (D3) (IXFT) Case Style



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

Features

- IXYS advanced low Q_g process
- International standard packages
- Low $R_{DS\ (on)}$
- Unclamped Inductive Switching (UIS) rated
- Fast switching
- Molding epoxies meet UL 94 V-0 flammability classification

Advantages

- Easy to mount
- Space savings
- High power density

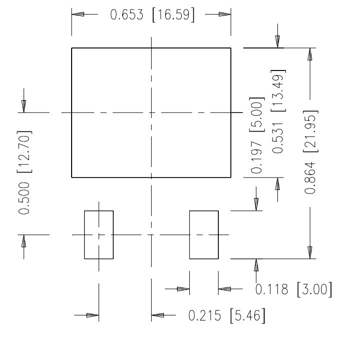
Symbol	Test Conditions	Characteristic Values (T_J = 25°C, unless otherwise specified) min.	typ.	max.	
g_{fs}	V_{DS} = 10 V; $I_D = 0.5 \bullet I_{D25}$, Note 2	14	24		S
C_{iss}	V_{GS} = 0 V, V_{DS} = 25 V, f = 1 MHz		3900		pF
C_{oss}			500		pF
C_{rss}			130		pF
$t_{d(on)}$	V_{GS} = 10 V, $V_{DS} = 0.5 \bullet V_{DSS}$, $I_D = 0.5 \bullet I_{D25}$ R_G = 2 Ω (External),		28		ns
t_r			30		ns
$t_{d(off)}$			55		ns
t_f			16		ns
$Q_{g(on)}$	V_{GS} = 10 V, $V_{DS} = 0.5 \bullet V_{DSS}$, $I_D = 0.5 \bullet I_{D25}$		95		nC
Q_{gs}			27		nC
Q_{gd}			40		nC
R_{thJC}				0.42	K/W
R_{thCK}	(TO-247)		0.25		K/W

Source-Drain Diode

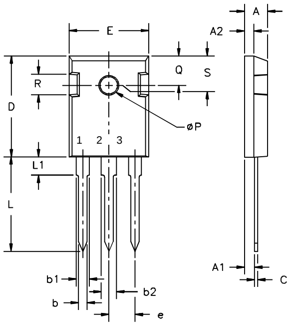
Symbol	Test Conditions	Characteristic Values (T_J = 25°C, unless otherwise specified) min.	typ.	max.	
I_S	V_{GS} = 0 V 24N50Q			24	A
	26N50Q			26	A
I_{SM}	Repetitive; Note1 24N50Q			96	A
	26N50Q			104	A
V_{SD}	$I_F = I_S$, V_{GS} = 0 V, Pulse test, t ≤ 300 μs, duty cycle d ≤ 2 %			1.3	V
t_{rr}	$I_F = I_S$, -di/dt = 100 A/μs, V_R = 100 V			250	ns
Q_{RM}			0.85		μC
I_{RM}			8		A

Note 1. Pulse width limited by T_{JM}
2. Pulse test, t ≤ 300 μs, duty cycle d ≤ 2 %

Min Recommended Footprint



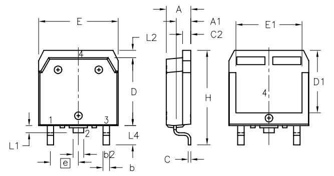
TO-247 AD Outline

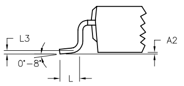


Terminals:
1 - Gate
2 - Drain
3 - Source
Tab - Drain

Dim.	Millimeter Min.	Max.	Inches Min.	Max.
A	4.7	5.3	.185	.209
A_1	2.2	2.54	.087	.102
A_2	2.2	2.6	.059	.098
b	1.0	1.4	.040	.055
b_1	1.65	2.13	.065	.084
b_2	2.87	3.12	.113	.123
C	.4	.8	.016	.031
D	20.80	21.46	.819	.845
E	15.75	16.26	.610	.640
e	5.20	5.72	0.205	0.225
L	19.81	20.32	.780	.800
L1		4.50		.177
∅P	3.55	3.65	.140	.144
Q	5.89	6.40	0.232	0.252
R	4.32	5.49	.170	.216
S	6.15 BSC		242 BSC	

TO-268 Outline





Dim.	Millimeter Min.	Max.	Inches Min.	Max.
A	4.9	5.1	.193	.201
A_1	2.7	2.9	.106	.114
A_2	.02	.25	.001	.010
b	1.15	1.45	.045	.057
b_2	1.9	2.1	.75	.83
C	.4	.65	.016	.026
D	13.80	14.00	.543	.551
E	15.85	16.05	.624	.632
E_1	13.3	13.6	.524	.535
e	5.45 BSC		.215 BSC	
H	18.70	19.10	.736	.752
L	2.40	2.70	.094	.106
L1	1.20	1.40	.047	.055
L2	1.00	1.15	.039	.045
L3	0.25 BSC		.010 BSC	
L4	3.80	4.10	.150	.161

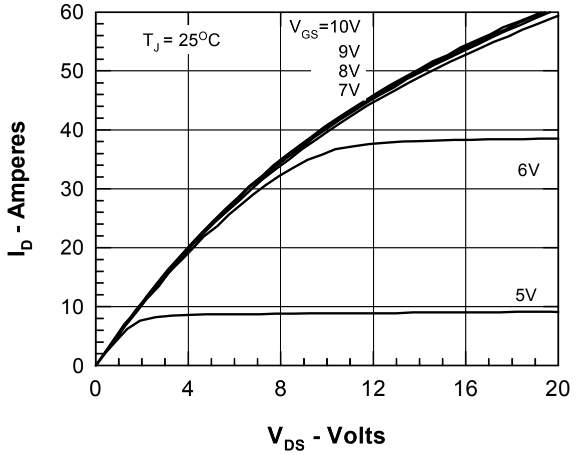


Fig.1 Output Characteristics @ T_j = 25°C

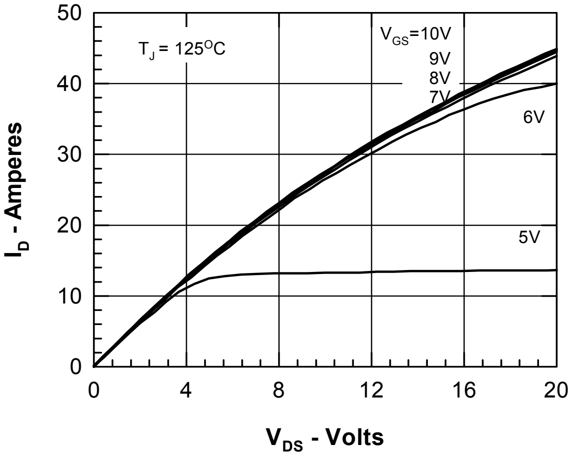


Fig.2 Output Characteristics @ T_j = 125°C

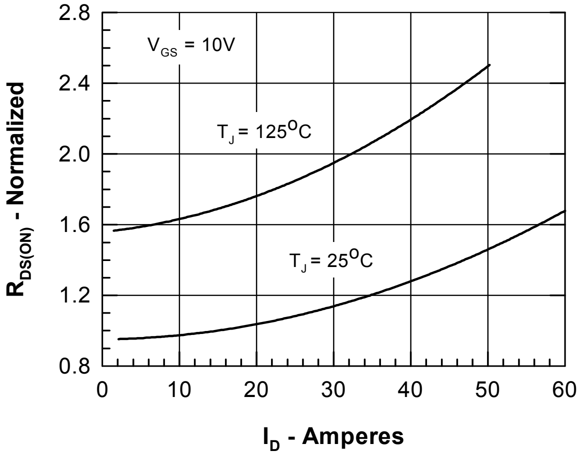


Fig.3 $R_{DS(on)}$ vs. Drain Current

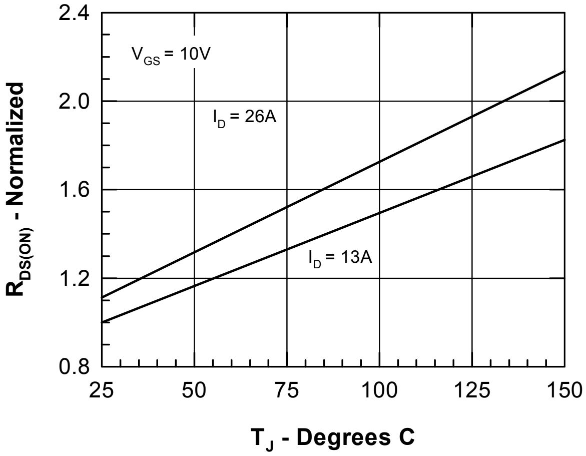


Fig.4 Temperature Dependence of Drain to Source Resistance

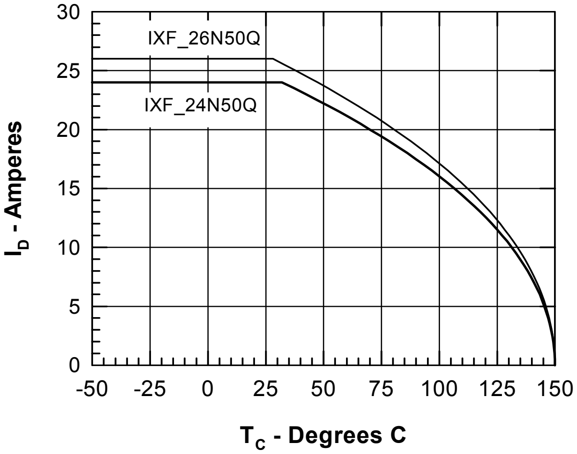


Fig.5 Drain Current vs. Case Temperature

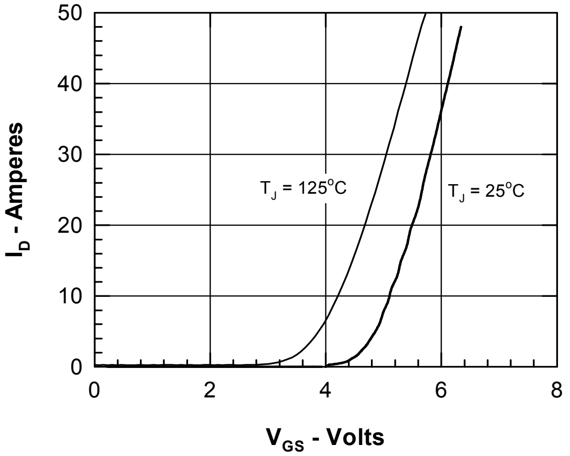


Fig.6 Drain Current vs Gate Source Voltage

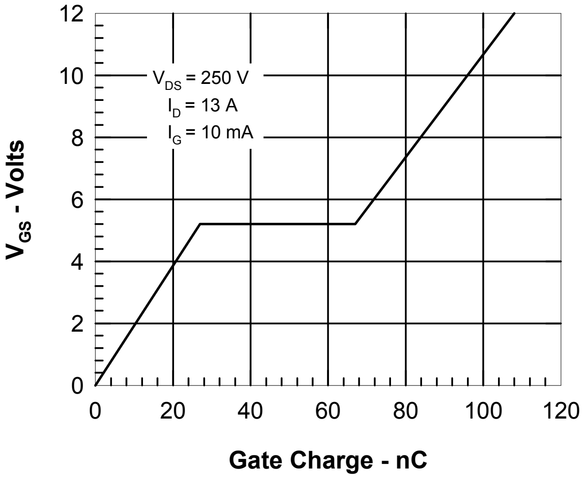


Fig.7 Gate Charge Characteristic Curve

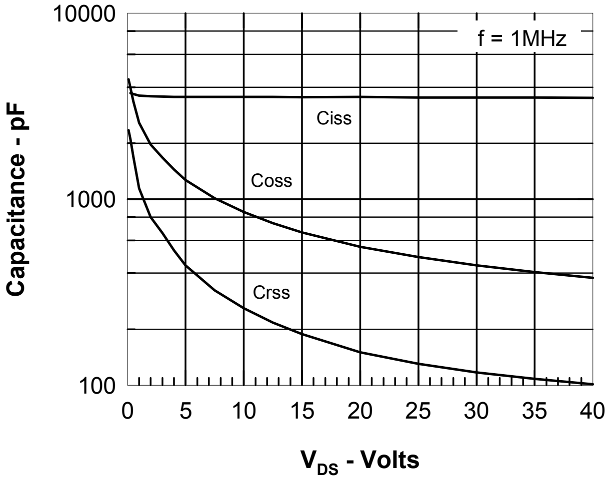


Fig.8 Capacitance Curves

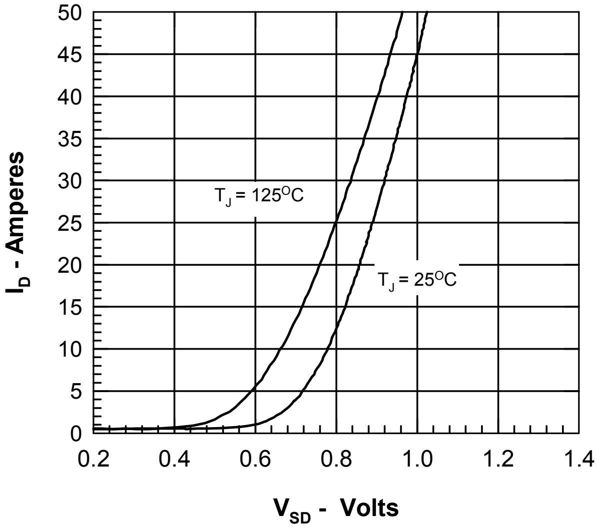


Fig.9 Drain Current vs Drain to Source Voltage

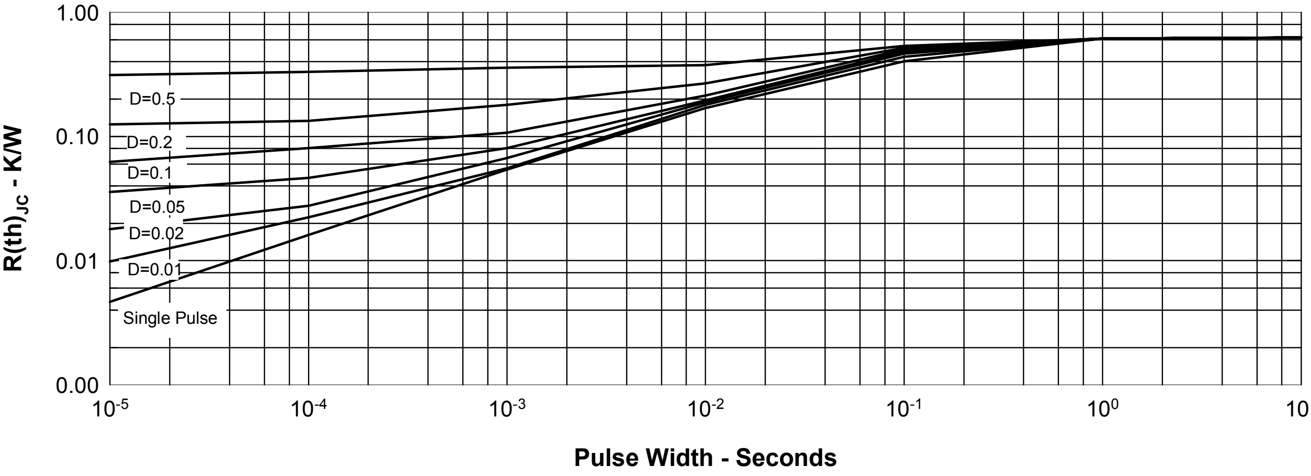


Fig.10 Transient Thermal Impedance

IXYS
A Littelfuse Technology