



Chipsmall Limited consists of a professional team with an average of over 10 year of expertise in the distribution of electronic components. Based in Hongkong, we have already established firm and mutual-benefit business relationships with customers from,Europe,America and south Asia,supplying obsolete and hard-to-find components to meet their specific needs.

With the principle of “Quality Parts,Customers Priority,Honest Operation,and Considerate Service”,our business mainly focus on the distribution of electronic components. Line cards we deal with include Microchip,ALPS,ROHM,Xilinx,Pulse,ON,Everlight and Freescale. Main products comprise IC,Modules,Potentiometer,IC Socket,Relay,Connector.Our parts cover such applications as commercial,industrial, and automotives areas.

We are looking forward to setting up business relationship with you and hope to provide you with the best service and solution. Let us make a better world for our industry!



Contact us

Tel: +86-755-8981 8866 Fax: +86-755-8427 6832

Email & Skype: info@chipsmall.com Web: www.chipsmall.com

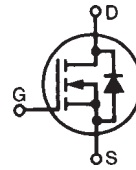
Address: A1208, Overseas Decoration Building, #122 Zhenhua RD., Futian, Shenzhen, China



HiPerFET™ Power MOSFETs Q-CLASS

Single MOSFET Die

N-Channel Enhancement Mode
Avalanche Rated, Low Q_g
High dV/dt, Low t_{rr}



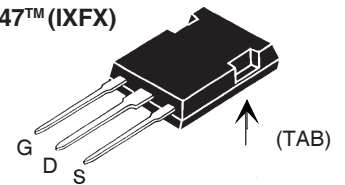
IXFK/IXFX 48N50Q
IXFK/IXFX 44N50Q

V _{DSS}	I _{D25}	R _{DS(on)}
500 V	48 A	100 mΩ
500 V	44 A	120 mΩ

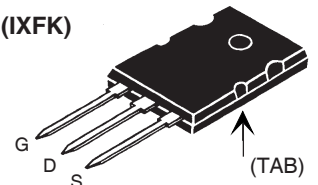
t_{rr} ≤ 250 ns

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	44N50 44	A
		48N50 48	A
I _{DM}	T _C = 25°C, pulse width limited by T _{JM}	44N50 176	A
		48N50 192	A
I _{AR}	T _C = 25°C	48	A
E _{AR}	T _C = 25°C	60	mJ
E _{AS}	T _C = 25°C	2.5	J
dv/dt	I _S ≤ I _{DM} , di/dt ≤ 100 A/μs, V _{DD} ≤ V _{DSS} T _J ≤ 150°C, R _G = 2 Ω	15	V/ns
P _D	T _C = 25°C	500	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	TO-264 0.4/6	Nm/lb.in.
Weight		PLUS 247	6 g
		TO-264	10 g

PLUS247™ (IXFX)



TO-264 AA (IXFK)



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

Features

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

Applications

- DC-DC converters
- Battery chargers
- Switched-mode and resonant-mode power supplies
- DC choppers
- AC motor control
- Temperature and lighting controls

Advantages

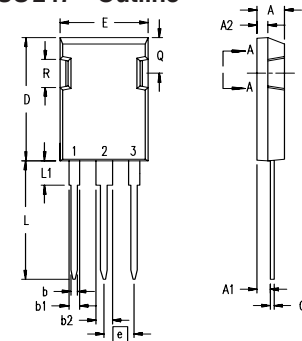
- PLUS 247™ package for clip or spring mounting
- Space savings
- High power density

Symbol	Test Conditions	Characteristic Values (T _J = 25°C, unless otherwise specified)		
		min.	typ.	max.
V _{DSS}	V _{GS} = 0 V, I _D = 250μA	500		V
V _{GS(th)}	V _{DS} = V _{GS} , I _D = 4mA	2.0		4.0 V
I _{GSS}	V _{GS} = ±20 V, V _{DS} = 0			±100 nA
I _{DSS}	V _{DS} = V _{DSS} V _{GS} = 0 V T _J = 125°C			100 μA 2 mA
R _{DS(on)}	V _{GS} = 10 V, I _D = 0.5 • I _{D25} Note 1	44N50		120 mΩ
		48N50		100 mΩ

Symbol	Test Conditions	Characteristic Values ($T_J = 25^\circ\text{C}$, unless otherwise specified)		
		min.	typ.	max.
g_{fs}	$V_{DS} = 10\text{ V}; I_D = 0.5 \cdot I_{D25}$ Note 1	30	42	S
C_{iss}	$V_{GS} = 0\text{ V}, V_{DS} = 25\text{ V}, f = 1\text{ MHz}$		7000	pF
C_{oss}			960	pF
C_{rss}			230	pF
$t_{d(on)}$	$V_{GS} = 10\text{ V}, V_{DS} = 0.5 \cdot V_{DSS}, I_D = 0.5 \cdot I_{D25}$ $R_G = 1\ \Omega$ (External),		33	ns
t_r			22	ns
$t_{d(off)}$			75	ns
t_f			10	ns
$Q_{g(on)}$	$V_{GS} = 10\text{ V}, V_{DS} = 0.5 \cdot V_{DSS}, I_D = 0.5 \cdot I_{D25}$		190	nC
Q_{gs}			40	nC
Q_{gd}			86	nC
R_{thJC}			0.26	K/W
R_{thCK}		0.15		K/W

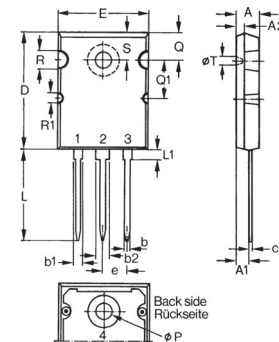
Source-Drain Diode		Characteristic Values ($T_J = 25^\circ\text{C}$, unless otherwise specified)		
Symbol	Test Conditions	min.	typ.	max.
I_S	$V_{GS} = 0\text{ V}$			48 A
I_{SM}	Repetitive; pulse width limited by T_{JM}			192 A
V_{SD}	$I_F = I_S, V_{GS} = 0\text{ V}$, Note 1			1.5 V
t_{rr}	$I_F = 25\text{ A}, -di/dt = 100\text{ A}/\mu\text{s}, V_R = 100\text{ V}$			250 ns
Q_{RM}			1.0	μC
I_{RM}			10	A

Note: 1. Pulse test, $t \leq 300\ \mu\text{s}$, duty cycle $d \leq 2\%$

PLUS 247™ Outline


Terminals: 1 - Gate
2 - Drain (Collector)
3 - Source (Emitter)
4 - Drain (Collector)

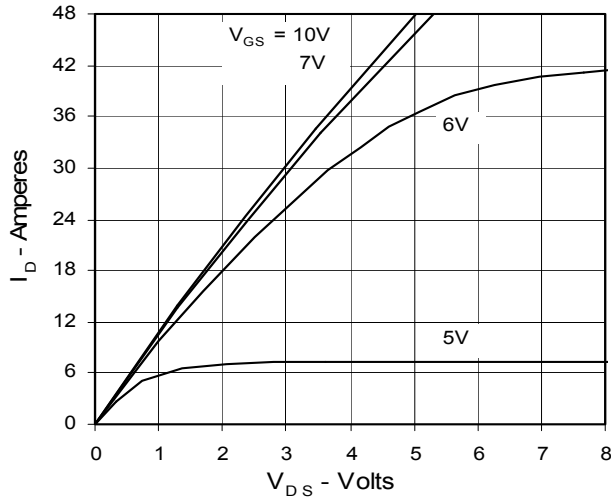
Dim.	Millimeter		Inches	
	Min.	Max.	Min.	Max.
A	4.83	5.21	.190	.205
A ₁	2.29	2.54	.090	.100
A ₂	1.91	2.16	.075	.085
b	1.14	1.40	.045	.055
b ₁	1.91	2.13	.075	.084
b ₂	2.92	3.12	.115	.123
C	0.61	0.80	.024	.031
D	20.80	21.34	.819	.840
E	15.75	16.13	.620	.635
e	5.45 BSC		.215 BSC	
L	19.81	20.32	.780	.800
L1	3.81	4.32	.150	.170
Q	5.59	6.20	.220	0.244
R	4.32	4.83	.170	.190

TO-264 AA Outline


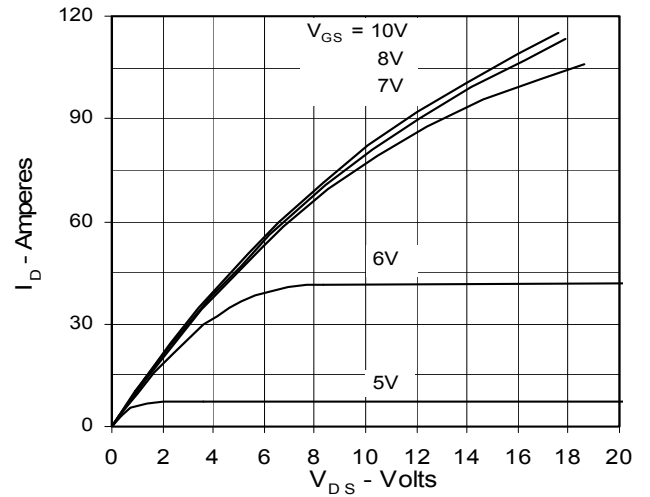
Dim.	Millimeter		Inches	
	Min.	Max.	Min.	Max.
A	4.82	5.13	.190	.202
A1	2.54	2.89	.100	.114
A2	2.00	2.10	.079	.083
b	1.12	1.42	.044	.056
b1	2.39	2.69	.094	.106
b2	2.90	3.09	.114	.122
c	0.53	0.83	.021	.033
D	25.91	26.16	1.020	1.030
E	19.81	19.96	.780	.786
e	5.46 BSC		.215 BSC	
J	0.00	0.25	.000	.010
K	0.00	0.25	.000	.010
L	20.32	20.83	.800	.820
L1	2.29	2.59	.090	.102
P	3.17	3.66	.125	.144
Q	6.07	6.27	.239	.247
Q1	8.38	8.69	.330	.342
R	3.81	4.32	.150	.170
R1	1.78	2.29	.070	.090
S	6.04	6.30	.238	.248
T	1.57	1.83	.062	.072

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

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



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



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

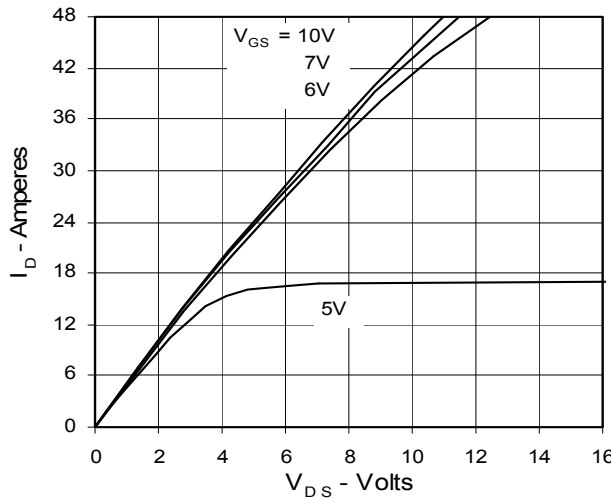


Fig. 4. $R_{DS(on)}$ Normalized to I_{D25} Value vs. Junction Temperature

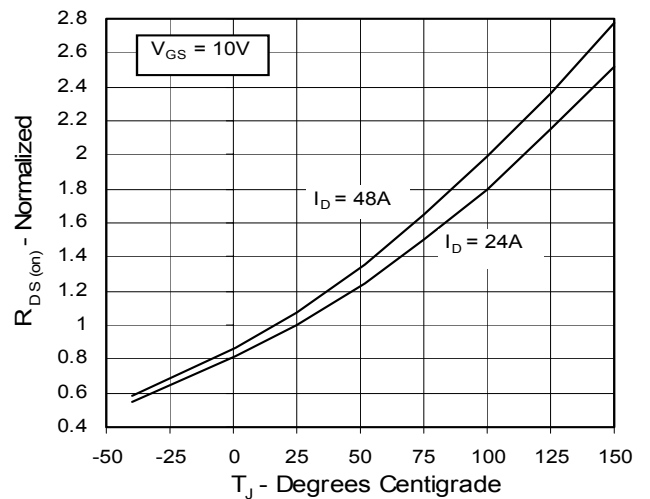


Fig. 5. $R_{DS(on)}$ Normalized to I_{D25} Value vs. I_D

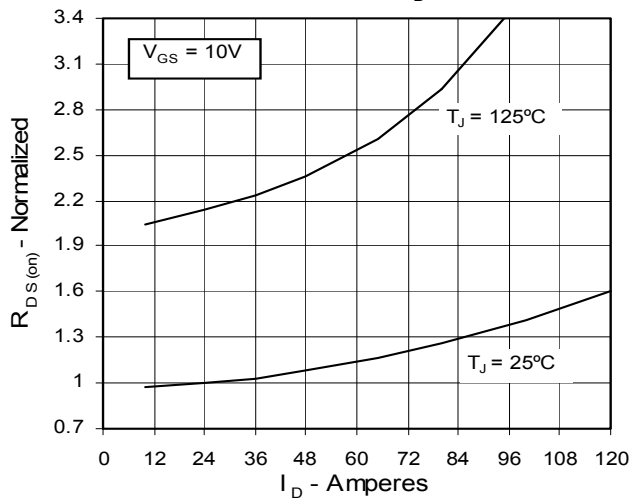


Fig. 6. Drain Current vs. Case Temperature

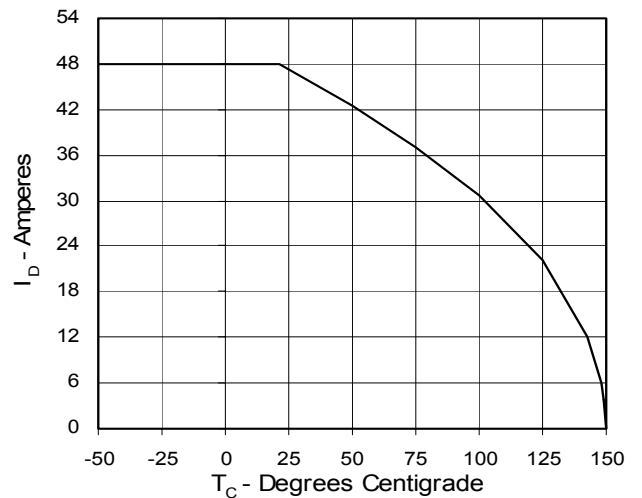


Fig. 7. Input Admittance

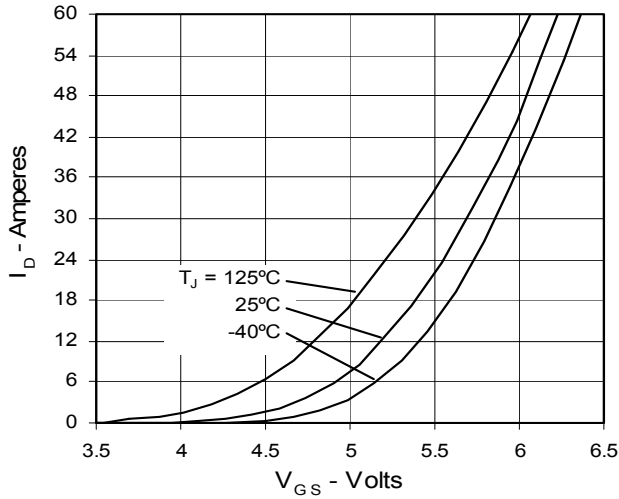


Fig. 8. Transconductance

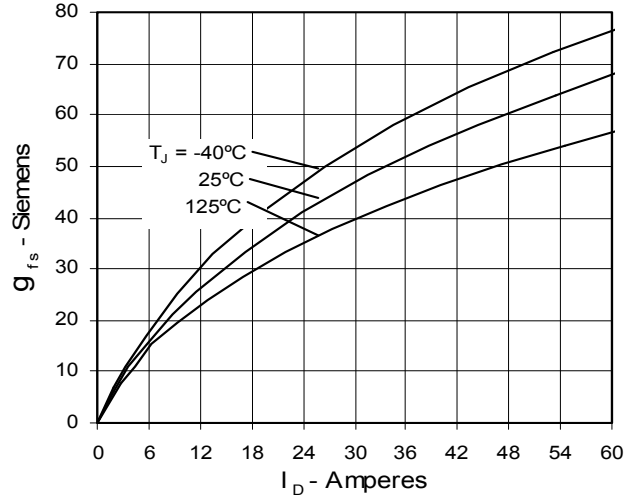


Fig. 9. Source Current vs. Source-To-Drain Voltage

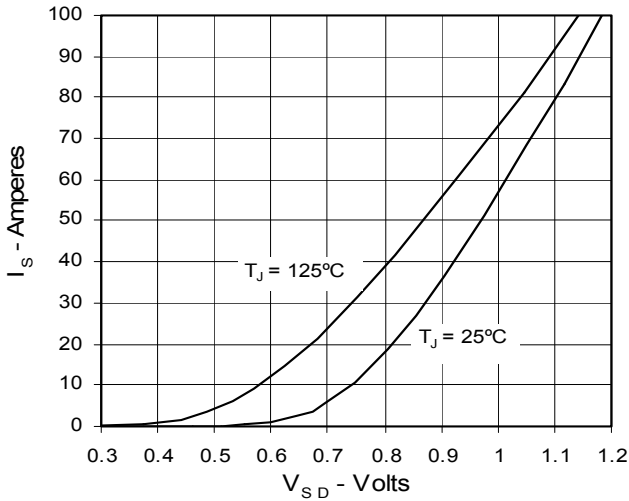


Fig. 10. Gate Charge

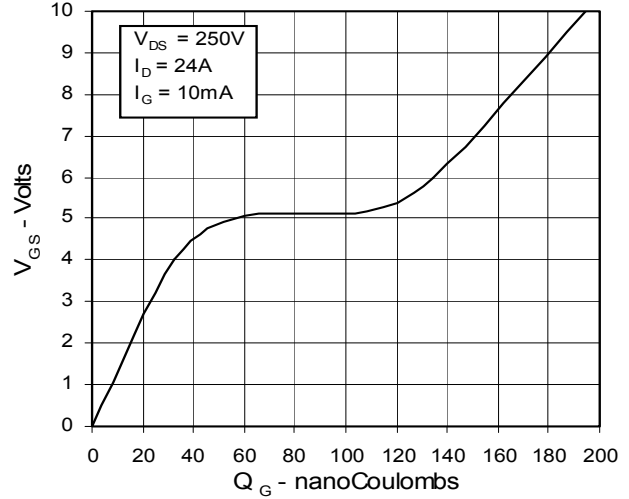


Fig. 11. Capacitance

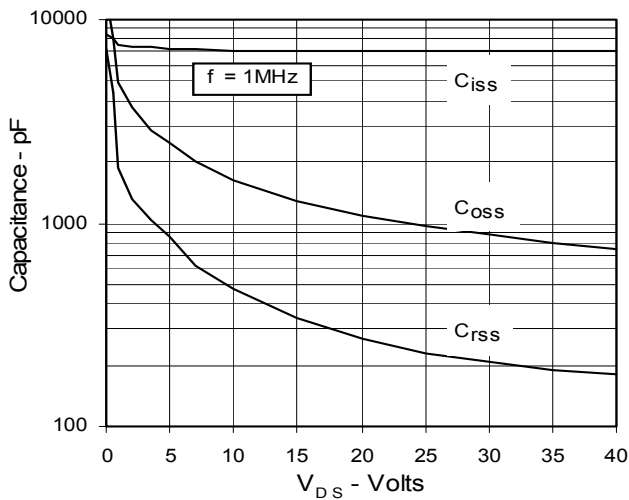
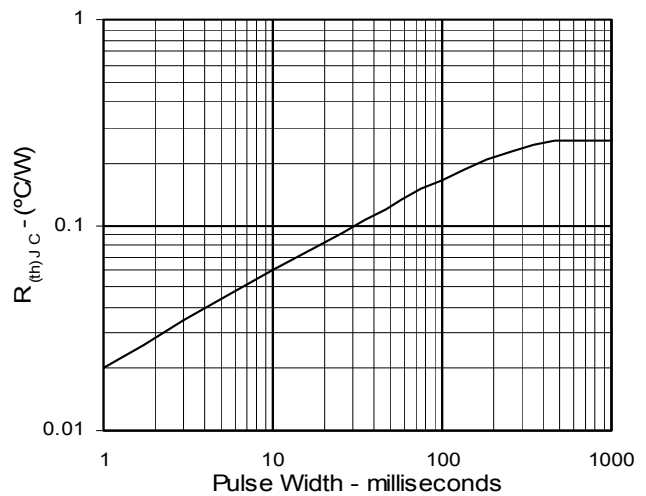


Fig. 12. Maximum Transient Thermal Resistance



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