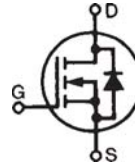


HiPerFET™ Power MOSFETs

IXFL 80N50Q2

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

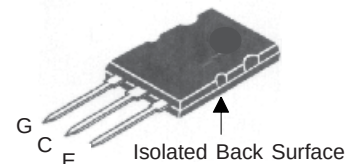
$$\begin{aligned} V_{DSS} &= 500 \text{ V} \\ I_{D25} &= 64 \text{ A} \\ R_{DS(on)} &= 66 \text{ m}\Omega \\ t_{rr} &\leq 250 \text{ ns} \end{aligned}$$



Symbol	Test Conditions	Maximum Ratings	
V_{DSS}	$T_J = 25^\circ\text{C}$ to 150°C	500	V
V_{DGR}	$T_J = 25^\circ\text{C}$ to 150°C ; $R_{GS} = 1 \text{ M}\Omega$	500	V
V_{GS}	Continuous	± 30	V
V_{GSM}	Transient	± 40	V
I_{D25}	$T_C = 25^\circ\text{C}$	64	A
I_{DM}	$T_C = 25^\circ\text{C}$, pulse width limited by T_{JM}	320	A
I_{AR}	$T_C = 25^\circ\text{C}$	80	A
E_{AR}	$T_C = 25^\circ\text{C}$	60	mJ
E_{AS}	$T_C = 25^\circ\text{C}$	5.0	J
dv/dt	$I_S \leq I_{DM}$, $di/dt \leq 100 \text{ A}/\mu\text{s}$, $V_{DD} \leq V_{DSS}$ $T_J \leq 150^\circ\text{C}$, $R_G = 2 \Omega$	20	V/ns
P_D	$T_C = 25^\circ\text{C}$	625	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	$^\circ\text{C}$
V_{ISOL}	50/60 Hz, RMS $t = 1 \text{ min}$ $I_{ISOL} \leq 1 \text{ mA}$ $t = 1 \text{ s}$	2500 3000	V~ V~
F_C	Mounting force	9-27/40-120	lbs / N
Weight		8	g

Symbol	Test Conditions	Characteristic Values ($T_J = 25^\circ\text{C}$, unless otherwise specified)		
		min.	typ.	max.
V_{DSS}	$V_{GS} = 0 \text{ V}$, $I_D = 1 \text{ mA}$	500		V
$V_{GS(th)}$	$V_{DS} = V_{GS}$, $I_D = 8 \text{ mA}$	2.5		5.0 V
I_{GSS}	$V_{GS} = \pm 30 \text{ V}$, $V_{DS} = 0$			$\pm 200 \text{ nA}$
I_{DSS}	$V_{DS} = V_{DSS}$ $V_{GS} = 0 \text{ V}$			$100 \mu\text{A}$ 5 mA
$R_{DS(on)}$	$V_{GS} = 10 \text{ V}$, $I_D = 40 \text{ A}$ Note 1			66m Ω

ISOPLUS-264™



Features

- Electrically isolated mounting tab
- Double metal process for low gate resistance
- Unclamped Inductive Switching (UIS) rated
- Low package inductance
- easy to drive and to protect
- Fast intrinsic rectifier

Applications

- DC-DC converters
- Switched-mode and resonant-mode power supplies, >500kHz switching
- DC choppers
- Pulse generation
- Laser drivers

Advantages

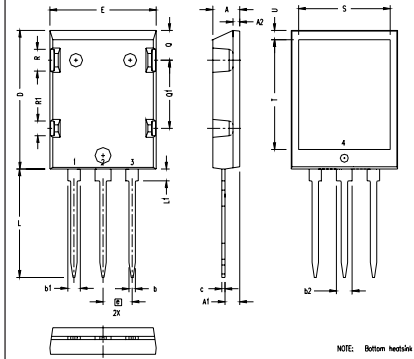
- 2500 V~ Electrical isolation
- PLUS 264™ package for clip or spring mounting
- Space savings
- High power density

Symbol	Test Conditions		Characteristic Values ($T_J = 25^\circ\text{C}$, unless otherwise specified)		
			min.	typ.	max.
g_{fs}	$V_{DS} = 10\text{ V}; I_D = 40\text{ A}$	Note 1	50	65	S
C_{iss}	$V_{GS} = 0\text{ V}, V_{DS} = 25\text{ V}, f = 1\text{ MHz}$			10500	pF
C_{oss}				1610	pF
C_{rss}				300	pF
$t_{d(on)}$	$V_{GS} = 10\text{ V}, V_{DS} = 0.5 \cdot V_{DSS}, I_D = 40\text{ A}$ $R_G = 1\ \Omega$ (External)		25	29	ns
t_r				ns	
$t_{d(off)}$					
t_f				11	ns
$Q_{g(on)}$	$V_{GS} = 10\text{ V}, V_{DS} = 0.5 \cdot V_{DSS}, I_D = 40\text{ A}$			260	nC
Q_{gs}				65	nC
Q_{gd}				125	nC
R_{thJC}				0.05	0.2 K/W
R_{thCK}					K/W

Source-Drain Diode

Symbol	Test Conditions		Characteristic Values ($T_J = 25^\circ\text{C}$, unless otherwise specified)		
			min.	typ.	max.
I_S	$V_{GS} = 0\text{ V}$				80 A
I_{SM}	Repetitive; pulse width limited by T_{JM}				320 A
V_{SD}	$I_F = I_S, V_{GS} = 0\text{ V}$, Note 1				1.5 V
t_{rr}	$I_F = 25\text{ A}$ $-di/dt = 100\text{ A}/\mu\text{s}$ $V_R = 100\text{ V}$			1.2	250 ns
Q_{RM}					μC
I_{RM}					A

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

ISOPLUS 264 OUTLINE


SYM	INCHES		MILLIMETERS	
	MIN	MAX	MIN	MAX
A	.190	.205	4.83	5.21
A1	.102	.118	2.59	3.00
A2	.046	.055	1.17	1.40
b	.045	.055	1.14	1.40
b1	.087	.102	2.21	2.59
b2	.111	.126	2.82	3.20
c	.020	.029	0.51	0.74
D	1.020	1.040	25.91	26.42
E	.770	.799	19.56	20.29
e	.215 BSC		5.46 BSC	
L	.780	.820	19.81	20.83
L1	.080	.102	2.03	2.59
Q	.210	.235	5.33	5.97
Q1	.490	.513	12.45	13.03
R	.150	.180	3.81	4.57
R1	.100	.130	2.54	3.30
S	.668	.690	16.97	17.53
T	.801	.821	20.34	20.85
U	.065	.080	1.65	2.03

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	4,931,844	5,049,961	5,237,481	6,162,665	6,404,065 B1	6,683,344	6,727,585
4,850,072	5,017,508	5,063,307	5,381,025	6,259,123 B1	6,534,343	6,710,405 B2	6,759,692
4,881,106	5,034,796	5,187,117	5,486,715	6,306,728 B1	6,583,505	6,710,463	