

HiPerFET™

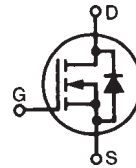
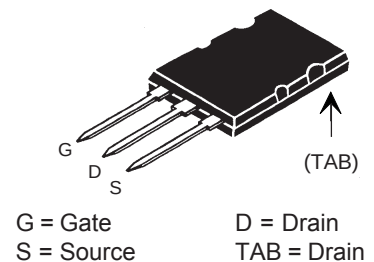
Power MOSFETs

Q-Class

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

IXFB 80N50Q2

$$\begin{aligned} V_{DSS} &= 500 \text{ V} \\ I_{D25} &= 80 \text{ A} \\ R_{DS(on)} &= 55 \text{ m}\Omega \\ t_{rr} &\leq 250 \text{ ns} \end{aligned}$$


PLUS 264™ (IXFB)


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}	$T_C = 25^\circ\text{C}$	80	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	$T_C = 25^\circ\text{C}$	890	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	$^\circ\text{C}$

Features

- 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

- 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.
V_{DSS}	$V_{GS} = 0 \text{ V}$, $I_D = 1 \text{ mA}$	500		V
$V_{GS(th)}$	$V_{DS} = V_{GS}$, $I_D = 8 \text{ mA}$	3.0		5.0 V
I_{GSS}	$V_{GS} = \pm 20 \text{ V}$, $V_{DS} = 0$			$\pm 200 \text{ nA}$
I_{DSS}	$V_{DS} = V_{DSS}$ $V_{GS} = 0 \text{ V}$			$100 \mu\text{A}$ 5 mA
$R_{DS(on)}$	$V_{GS} = 10 \text{ V}$, $I_D = 0.5 \cdot I_{D25}$ Note 1			55 m Ω

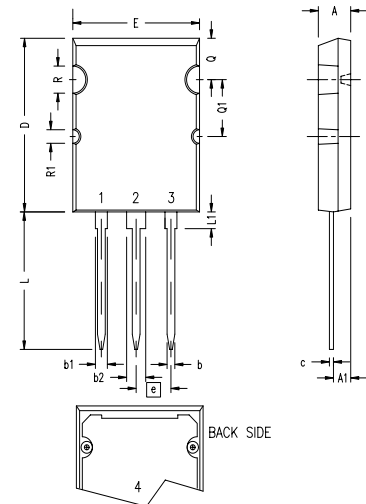
Symbol	Test Conditions	Characteristic Values (T _j = 25°C, unless otherwise specified)			
		min.	typ.	max.	
g_{fs}	V _{DS} = 10 V; I _D = 0.5 • I _{D25} Note 1	40	55		S
C_{iss}	V _{GS} = 0 V, V _{DS} = 25 V, f = 1 MHz		11400		pF
C_{oss}			1620		pF
C_{rss}			320		pF
t_{d(on)}	V _{GS} = 10 V, V _{DS} = 0.5 • V _{DSS} , I _D = 0.5 • I _{D25} R _G = 1 Ω (External)		29		ns
t_r			25		ns
t_{d(off)}			60		ns
t_f			11		ns
Q_{g(on)}	V _{GS} = 10 V, V _{DS} = 0.5 • V _{DSS} , I _D = 0.5 • I _{D25}		290		nC
Q_{gs}			60		nC
Q_{gd}			120		nC
R_{thJC}				0.14	K/W
R_{thCK}			0.13		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			80	A
I_{SM}	Repetitive; pulse width limited by T _{JM}			320	A
V_{SD}	I _F = I _S , V _{GS} = 0 V, Note 1			1.5	V
t_{rr}	I _F = 25A -di/dt = 100 A/μs V _R = 100 V			250	ns
Q_{RM}			1.2		μC
I_{RM}			8		A

Note: 1. Pulse test, t ≤ 300 μs, duty cycle d ≤ 2 %

PLUS 264™ Outline



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

SYM	INCHES	
	MIN	MAX
A	.185	.209
A1	.102	.118
b	.037	.055
b1	.087	.102
b2	.110	.126
c	.017	.029
D	1.007	1.047
E	.760	.799
e	.215	BSC
L	.779	.842
L1	.087	.102
Q	.240	.256
Q1	.330	.346
ØR	.155	.187
ØR1	.085	.093

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
4,850,072 4,931,844 5,034,796 5,063,307 5,237,481 5,381,025