



IXFN 58N50
IXFN 61N50

Preliminary Data Sheet

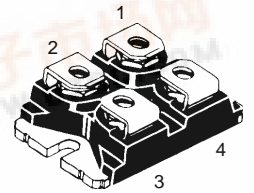
High Current Power MOSFET

N-Channel Enhancement Mode

	V_{DSS}	I_{D25}	$R_{DS(on)}$
IXFN 58N50	500V	58A	85 mΩ
IXFN 61N50	500V	61A	75 mΩ

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 ; $R_{GS} = 1.0\text{ M}\Omega$	500	V
V_{GS}	Continuous	± 20	V
V_{GSM}	Transient	± 30	V
I_{D25}	$T_C = 25^\circ\text{C}$	IXFN 58N50	58 A
		IXFN 61N50	61 A
I_{DM}	$T_C = 25^\circ\text{C}$ (1)	IXFN 58N50	232 A
		IXFN 61N50	244 A
P_D	$T_C = 25^\circ\text{C}$	625	W
T_J		-40 ... +150	$^\circ\text{C}$
T_{JM}		150	$^\circ\text{C}$
T_{stg}		-40 ... +150	$^\circ\text{C}$
V_{ISOL}	50/60 Hz, RMS	$t = 1$ minute	2500 V~
		$t = 1$ s	3000 V~
M_d	Mounting torque	1.5/13	Nm/lb.in.
	Terminal connection torque (M4)	1.5/13	Nm/lb.in.
Weight		30	g
E_{AR}		75	mJ

miniBLOC, SOT-227 B



1 = Source 2 = Gate
3 = Drain 4 = Source

Features

- International standard package
- Isolation voltage 3000V (RMS)
- Low $R_{DS(on)}$ HDMOS™ process¹
- Rugged polysilicon gate cell structure
- Low drain-to-case capacitance (<60 pF)
 - reduced RFI
- Low package inductance (< 10 nH)
 - easy to drive and to protect
- Aluminium Nitride Isolation
 - increased current ratings

Applications

- DC choppers
- AC motor speed controls
- DC servo and robot drives
- Uninterruptible power supplies (UPS)
- Switched mode and resonant mode power supplies

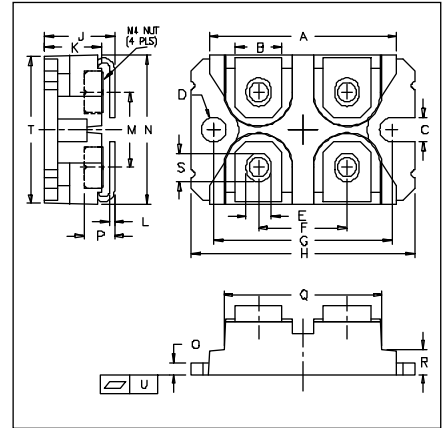
Advantages

- Easy to mount
- Space savings
- High power density

Symbol	Test Conditions	Characteristic Values ($T_J = 25^\circ\text{C}$ unless otherwise specified)		
		Min.	Typ.	Max.
V_{DSS}	$V_{GS} = 0\text{ V}$, $I_D = 5\text{ mA}$	500		V
$V_{GS(th)}$	$V_{DS} = V_{GS}$, $I_D = 12\text{ mA}$	1.7		V
I_{GSS}	$V_{GS} = \pm 20\text{ V DC}$, $V_{DS} = 0$			$\pm 200\text{ nA}$
I_{DSS}	$V_{DS} = 0.8 V_{DSS}$, $T_J = 25^\circ\text{C}$ $V_{GS} = 0\text{ V}$, $T_J = 125^\circ\text{C}$			500 μA
				2 mA
$R_{DS(on)}$	$V_{GS} = 10\text{ V}$, $I_D = 0.5 I_{D25}$ Pulse test, $t \leq 300\text{ }\mu\text{s}$, duty cycle $\leq 2\%$	58N50		85 mΩ
		61N50		75 mΩ



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} , pulse test	20	30	S
C_{iss}	V _{GS} = 0 V, V _{DS} = 25 V, f = 1 MHz		11	nF
C_{oss}			1550	pF
C_{rss}			225	pF
t_{d(on)}	V _{GS} = 10 V, V _{DS} = 0.5 V _{DSS} , I _D = 50 A		30	ns
t_r	R _G = 1 Ω (External)		60	ns
t_{d(off)}			100	ns
t_f			50	ns
Q_g	V _{GS} = 10 V, V _{DS} = 0.5 V _{DSS} , I _D = I _{D25}		420	nC
Q_{gs}			55	nC
Q_{gd}			160	nC
R_{thJC}				0.20 K/W
R_{thCK}			0.05	K/W

Package Outline


SYM	INCHES		MILLIMETERS	
	MIN	MAX	MIN	MAX
A	1.240	1.255	31.50	31.88
B	.307	.323	7.80	8.20
C	.161	.169	4.09	4.29
D	.161	.169	4.09	4.29
E	.161	.169	4.09	4.29
F	.587	.595	14.91	15.11
G	1.186	1.193	30.12	30.30
H	1.496	1.505	38.00	38.23
J	.460	.481	11.68	12.22
K	.351	.378	8.92	9.60
L	.030	.033	0.76	0.84
M	.496	.506	12.60	12.85
N	.990	1.001	25.15	25.42
O	.078	.084	1.98	2.13
P	.195	.235	4.95	5.97
Q	1.045	1.059	26.54	26.90
R	.155	.174	3.94	4.42
S	.186	.191	4.72	4.85
T	.968	.987	24.59	25.07
U	-.002	.004	-0.05	0.1

Source-Drain Diode
Ratings and Characteristics

(T_J = 25°C unless otherwise specified)

Symbol	Test Conditions	Ratings and Characteristics		
		Min.	Typ.	Max.
I_S	V _{GS} = 0			61 A
I_{SM}	Repetitive; pulse width limited by T _{JM}			244 A
V_{SD}	I _F = I _S , V _{GS} = 0 V, Pulse test, t ≤ 300 μs, duty cycle ≤ 2 %			1.5 V
t_{rr}	I _F = 50A, di/dt = -100 A/μs, V _R = 100 V			250 ns

- Notes:
1. Pulse width limited by max T_J.
 2. I_F ≤ I_{DM}, di/dt ≤ 100 A/μs, V_{DD} ≤ V_{DSS}, T_J ≤ 150°C, R_G = 2Ω.