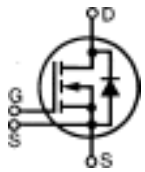
IXYS

High Current Power MOSFET

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

N-Channel Enhancement Mode



Preliminary Data

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} = 1.0 MΩ		500	V
V_{GS}	Continuous		±20	V
V_{GSM}	Transient		±30	V
I_{D25}	T_C = 25°C	IXTN 58N50	58	A
		IXTN 61N50	61	A
I_{DM}	T_C = 25°C	IXTN 58N50	232	A
	Pulse width limited by T_{JM}	IXTN 61N50	244	A
P_D	T_C = 25°C		625	W
T_J		-40 ... +150	°C	
T_{JM}		150	°C	
T_{stg}		-40 ... +150	°C	
V_{ISOL}	50/60 Hz, RMS	t = 1 minute	2500	V~
		t = 1s	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

Symbol	Test Conditions		Characteristic Values (T_J = 25°C unless otherwise specified) Min.	Typ.	Max.	
V_{DSS}	V_{GS} = 0 V, I_D = 5 mA		500			V
$V_{GS(th)}$	$V_{DS} = V_{GS}$, I_D = 12 mA		1.7		4.0	V
I_{GSS}	V_{GS} = ±20 V DC, V_{DS} = 0				±200	nA
I_{DSS}	V_{DS} = 0.8 V_{DSS}	T_J = 25°C			500	µA
	V_{GS} = 0 V	T_J = 125°C			2	mA
$R_{DS(on)}$	V_{GS} = 10 V, I_D = 0.5 I_{D25}	58N50			85	mΩ
		61N50			75	mΩ
	Pulse test, t ≤ 300 µs, duty cycle ≤ 2 %					

miniBLOC, SOT-227 B
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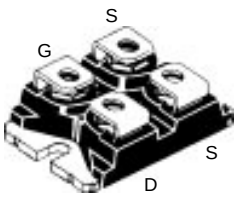

G = Gate D = Drain
S = Source
Either Source terminal at miniBLOC can be used as Main or Kelvin Source

Features

- International standard package
- Isolation voltage 3000V (RMS)
- Low $R_{DS\ (on)}$ HDMOS™ process
- Rugged polysilicon gate cell structure
- Low drain-to-case capacitance (<100 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°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		11000		pF
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 R_G = 1 Ω (External)		30		ns
t_r			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_{D2}		420		nC
Q_{gs}			55		nC
Q_{gd}			160		nC
R_{thJC}				0.20	K/W
R_{thCK}			0.05		K/W

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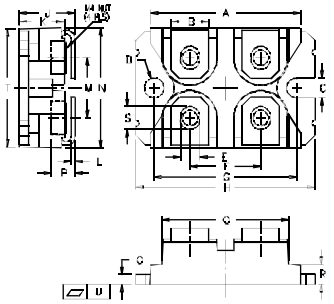

M4 screws (4x) supplied

Dim.	Millimeter Min.	Max.	Inches Min.	Max.
A	31.50	31.88	1.240	1.255
B	7.80	8.20	0.307	0.323
C	4.09	4.29	0.161	0.169
D	4.09	4.29	0.161	0.169
E	4.09	4.29	0.161	0.169
F	14.91	15.11	0.587	0.595
G	30.12	30.30	1.186	1.193
H	38.00	38.23	1.496	1.505
J	11.68	12.22	0.460	0.481
K	8.92	9.60	0.351	0.378
L	0.76	0.84	0.030	0.033
M	12.60	12.85	0.496	0.506
N	25.15	25.42	0.990	1.001
O	1.98	2.13	0.078	0.084
P	4.95	5.97	0.195	0.235
Q	26.54	26.90	1.045	1.059
R	3.94	4.42	0.155	0.174
S	4.72	4.85	0.186	0.191
T	24.59	25.07	0.968	0.987
U	-0.05	0.1	-0.002	0.004

Source-Drain Diode **Ratings and Characteristics** (T_J = 25°C unless otherwise specified)

Symbol	Test Conditions	Min.	Typ.	Max.	
I_S	V_{GS} = 0 V			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			800	ns