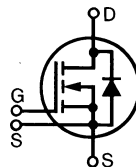


## CoolMOS Power MOSFET

IXKN 40N60C

$V_{DSS}$	$I_{D25}$	$R_{DS(on)}$
600 V	40 A	70 m $\Omega$

N-Channel Enhancement Mode  
Low  $R_{DS(on)}$ , High  $V_{DSS}$  MOSFET

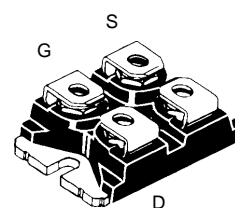


**COOLMOS**  
Power Semiconductors

Symbol	Conditions	Maximum Ratings	
$V_{DSS}$	$T_J = 25^\circ\text{C}$ to $150^\circ\text{C}$	600	V
$V_{GS}$		$\pm 20$	V
$I_{D25}$	$T_C = 25^\circ\text{C}$	40	A
$I_{D90}$	$T_C = 90^\circ\text{C}$	27	A
$E_{AR}$	$I_D = 20\text{ A}$ , $L = 5\ \mu\text{H}$ , $T_{VJ} = 25^\circ\text{C}$ , repetitive	1	mJ
$E_{AS}$	$I_D = 10\text{ A}$ , $L = 36\text{ mH}$ , $T_{VJ} = 25^\circ\text{C}$ , non repetitive	1.8	J
$dv/dt$	$V_{DS} \leq V_{DSS}$ , $I_S = 47\text{ A}$ , $di_S/dt = 100\text{ A}/\mu\text{s}$ , $T_J = T_{JM}$	6	V/ns
$P_D$	$T_C = 25^\circ\text{C}$	290	W
$T_J$		$-40 \dots +150$	$^\circ\text{C}$
$T_{JM}$		150	$^\circ\text{C}$
$T_{stg}$		$-40 \dots +150$	$^\circ\text{C}$
$V_{ISOL}$	50/60 Hz, RMS $I_{ISOL} \leq 1\text{ mA}$	2500	V~
$M_d$	Mounting torque	1.5/13	Nm/lb.in.
	Terminal connection torque (M4)	1.5/13	Nm/lb.in.

miniBLOC, SOT-227 B

E72873



G = Gate  
S = Source  
D = Drain

Either source terminal at miniBLOC can be used as main or kelvin source

## Features

- miniBLOC package
  - Electrically isolated copper base
  - Low coupling capacitance to the heatsink for reduced EMI
  - High power dissipation due to AlN ceramic substrate
  - International standard package SOT-227
  - Easy screw assembly
- Fast CoolMOS power MOSFET
  - High blocking capability
  - Low on resistance
  - Avalanche rated for unclamped inductive switching (UIS)
  - Low thermal resistance due to reduced chip thickness
- Enhanced total power density

## Applications

- Switched mode power supplies (SMPS)
- Uninterruptible power supplies (UPS)
- Power factor correction (PFC)
- Welding
- Inductive heating

## MOSFET

Symbol	Conditions	Characteristic Values ( $T_J = 25^\circ\text{C}$ , unless otherwise specified)		
		min.	typ.	max.
$V_{DSS}$	$V_{GS} = 0\text{ V}$ , $I_D = 1\text{ mA}$	600		V
$I_{DSS}$	$V_{DS} = 0.8 \cdot V_{DSS}$ $V_{GS} = 0\text{ V}$		$T_J = 25^\circ\text{C}$ $T_J = 125^\circ\text{C}$	0.5 50 $\mu\text{A}$
$R_{DS(on)}$	$V_{GS} = 10\text{ V}$ , $I_D = 0.5 \cdot I_{D25}$			70 m $\Omega$
$V_{GS(th)}$	$V_{DS} = V_{GS}$ , $I_D = 2.5\text{ mA}$	3.5		5.5 V
$I_{GSS}$	$V_{GS} = \pm 20\text{ V}_{DC}$ , $V_{DS} = 0$			$\pm 100\text{ nA}$

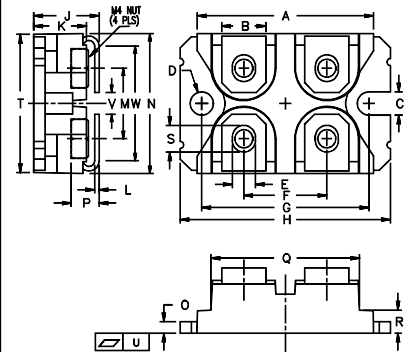
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Infineon Technologies AG.

Symbol	Conditions	Characteristic Values		
		(T <sub>J</sub> = 25°C, unless otherwise specified)		
		min.	typ.	max.
<b>g<sub>fs</sub></b>	V <sub>DS</sub> = 10 V; I <sub>D</sub> = 0.5 • I <sub>D25</sub>		30	S
<b>C<sub>iss</sub></b>	V <sub>GS</sub> = 0 V, V <sub>DS</sub> = 25 V, f = 1 MHz		8.8	nF
<b>C<sub>oss</sub></b>			3.15	nF
<b>C<sub>rss</sub></b>			36	pF
<b>Q<sub>g(on)</sub></b>	V <sub>GS</sub> = 10 V, V <sub>DS</sub> = 350 V, I <sub>D</sub> = I <sub>D25</sub>		220	nC
<b>Q<sub>gs</sub></b>			56	nC
<b>Q<sub>gd</sub></b>			123	nC
<b>t<sub>d(on)</sub></b>	V <sub>GS</sub> = 10 V, V <sub>DS</sub> = 350 V, I <sub>D</sub> = 0.5 • I <sub>D25</sub> R <sub>G</sub> = 1.8 Ω (External)		28	ns
<b>t<sub>r</sub></b>			95	ns
<b>t<sub>d(off)</sub></b>			100	ns
<b>t<sub>f</sub></b>			10	ns
<b>R<sub>thJC</sub></b>			0.43	K/W
<b>R<sub>thCK</sub></b>		0.05		K/W

Symbol	Conditions	Characteristic Values		
		(T <sub>J</sub> = 25°C, unless otherwise specified)		
		min.	typ.	max.
<b>V<sub>SD</sub></b>	I <sub>F</sub> = 0.5 • I <sub>D25</sub> , V <sub>GS</sub> = 0 V		0.9	1.1 V
<b>t<sub>rr</sub></b>	I <sub>F</sub> = 47 A, -di/dt = 100 A/μs, V <sub>R</sub> = 350 V, T <sub>J</sub> = 25°C		650	ns
<b>I<sub>RM</sub></b>			110	A

Symbol	Conditions	Characteristic Values		
		min.	typ.	max.
<b>Package</b>				
<b>Weight</b>			30	g

### miniBLOC, SOT-227 B



M4 screws (4x) supplied

Dim.	Millimeter		Inches	
	Min.	Max.	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	37.80	38.20	1.489	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
V	3.30	4.57	0.130	0.180
W	0.780	0.830	0.031	0.033