

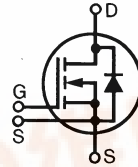


CoolMOS Power MOSFET

IXKN 40N60C

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

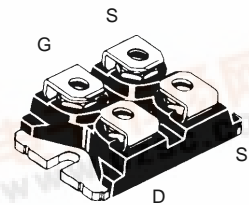
N-Channel Enhancement Mode
Low $R_{DS(on)}$, High V_{DSS} MOSFET



COOLMOS
Power Semiconductors

Symbol	Conditions	Maximum Ratings	
V_{DSS}	$T_J = 25^\circ\text{C}$ to 150°C	600	V
V_{GS}		± 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 ... +150	$^\circ\text{C}$
T_{JM}		150	$^\circ\text{C}$
T_{stg}		-40 ... +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 25 50 μA μA
$R_{DS(on)}$	$V_{GS} = 10\text{ V}$, $I_D = 0.5 \cdot I_{D25}$			70 $\text{m}\Omega$
$V_{GS(th)}$	$V_{DS} = V_{GS}$, $I_D = 2.5\text{ mA}$	3.5		5.5 V
I_{GSS}	$V_{GS} = \pm 20\text{ V}_{DC}$, $V_{DS} = 0$			± 100 nA

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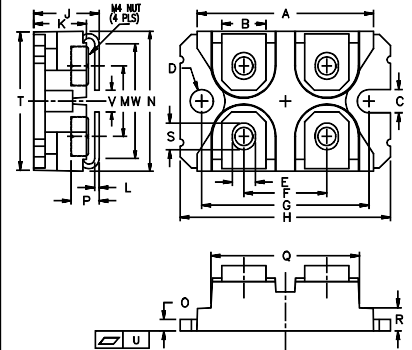


Symbol	Conditions	Characteristic Values		
		(T _J = 25°C, unless otherwise specified)		
		min.	typ.	max.
g_{fs}	V _{DS} = 10 V; I _D = 0.5 • I _{D25}		30	S
C_{iss}	V _{GS} = 0 V, V _{DS} = 25 V, f = 1 MHz		8.8	nF
C_{oss}			3.15	nF
C_{rss}			36	pF
Q_{g(on)}	V _{GS} = 10 V, V _{DS} = 350 V, I _D = I _{D25}		220	nC
Q_{gs}			56	nC
Q_{gd}			123	nC
t_{d(on)}	V _{GS} = 10 V, V _{DS} = 350 V, I _D = 0.5 • I _{D25} R _G = 1.8 Ω (External)		28	ns
t_r			95	ns
t_{d(off)}			100	ns
t_f			10	ns
R_{thJC}			0.43	K/W
R_{thCK}		0.05		K/W

Symbol	Conditions	Characteristic Values		
		(T _J = 25°C, unless otherwise specified)		
		min.	typ.	max.
V_{SD}	I _F = 0.5 • I _{D25} , V _{GS} = 0 V		0.9	1.1 V
t_{rr}	I _F = 47 A, -di/dt = 100 A/μs, V _R = 350 V, T _J = 25°C		650	ns
I_{RM}			110	A

Symbol	Conditions	Characteristic Values		
		min.	typ.	max.
Package				
Weight			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