

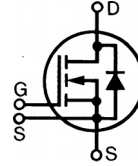
# CoolMOS Power MOSFET

IXKN 75N60C

$V_{DSS}$	$I_{D25}$	$R_{DS(on)}$
600 V	75 A	35 mΩ

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

Preliminary



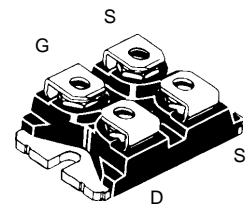
**COOLMOS**  
Power Semiconductors

## MOSFET

Symbol	Conditions	Maximum Ratings	
$V_{DSS}$	$T_{VJ} = 25^{\circ}\text{C}$ to $150^{\circ}\text{C}$	600	V
$V_{GS}$		$\pm 20$	V
$I_{D25}$	$T_C = 25^{\circ}\text{C}$	75	A
$I_{D90}$	$T_C = 90^{\circ}\text{C}$	50	A
$dv/dt$	$V_{DS} < V_{DSS}$ ; $I_F \leq 100\text{A}$ ; $ di_F/dt  \leq 200\text{A}/\mu\text{s}$ $T_{VJ} = 150^{\circ}\text{C}$	6	V/ns
$E_{AS}$	$I_D = 10\text{A}$ ; $L = 36\text{mH}$ ; $T_C = 25^{\circ}\text{C}$	1.8	J
$E_{AR}$	$I_D = 20\text{A}$ ; $L = 5\mu\text{H}$ ; $T_C = 25^{\circ}\text{C}$	1	mJ

miniBLOC, SOT-227 B

E72873



G = Gate  
S = Source

D = Drain

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

Symbol	Conditions	Characteristic Values ( $T_{VJ} = 25^{\circ}\text{C}$ , unless otherwise specified)		
		min.	typ.	max.
$R_{DS(on)}$	$V_{GS} = 10\text{V}$ ; $I_D = I_{D90}$		30	35 mΩ
$V_{GS(th)}$	$V_{DS} = 20\text{V}$ ; $I_D = 5\text{mA}$	3.5		5.5 V
$I_{DSS}$	$V_{DS} = V_{DSS}$ ; $V_{GS} = 0\text{V}$ ; $T_{VJ} = 25^{\circ}\text{C}$ $T_{VJ} = 125^{\circ}\text{C}$		0.1	0.05 mA mA
$I_{GSS}$	$V_{GS} = \pm 20\text{V}$ ; $V_{DS} = 0\text{V}$			200 nA
$Q_g$ $Q_{gs}$ $Q_{gd}$	$V_{GS} = 10\text{V}$ ; $V_{DS} = 350\text{V}$ ; $I_D = 100\text{A}$		440	nC
			112	nC
			246	nC
$t_{d(on)}$ $t_r$ $t_{d(off)}$ $t_f$	$V_{GS} = 10\text{V}$ ; $V_{DS} = 380\text{V}$ ; $I_D = 50\text{A}$ ; $R_G = 1\Omega$		30	ns
			95	ns
			100	ns
			10	ns
$V_F$	(reverse conduction) $I_F = 37.5\text{A}$ ; $V_{GS} = 0\text{V}$	0.9	1.1	V
$R_{thJC}$				0.22 K/W

### 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 - 2<sup>nd</sup> generation
  - 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

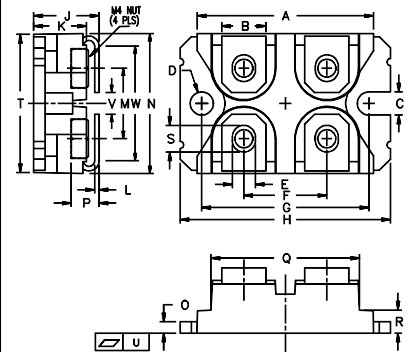
- Switched mode power supplies (SMPS)
- Uninterruptible power supplies (UPS)
- Power factor correction (PFC)
- Welding
- Inductive heating

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**Component**

Symbol	Conditions	Maximum Ratings	
$V_{ISOL}$	$I_{ISOL} \leq 1 \text{ mA}; 50/60 \text{ Hz}$	2500	V~
$T_{VJ}$		-40...+150	°C
$T_{stg}$		-40...+125	°C
$M_d$	mounting torque	1.5	Nm
	terminal connection torque (M4)	1.5	Nm

Symbol	Conditions	Characteristic Values		
		min.	typ.	max.
$R_{thCH}$	with heatsink compound		0.1	K/W
<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

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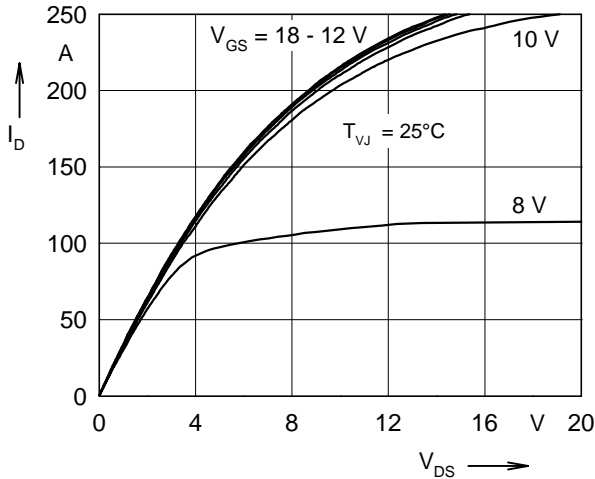


Fig. 1: typ. Output Characteristics

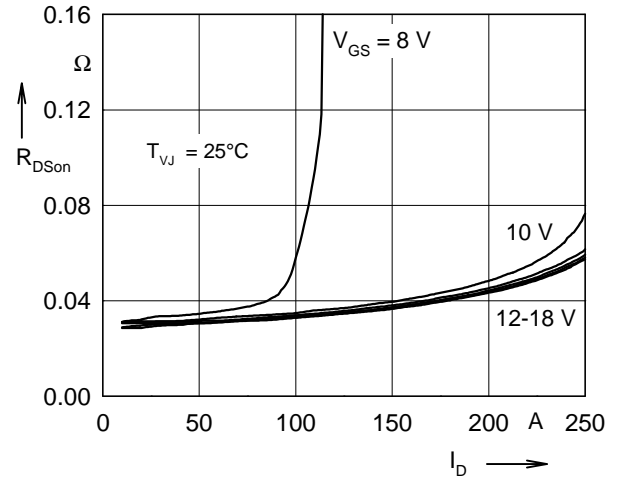


Fig. 2: typ.  $R_{DS(on)}$  vs. Drain Current

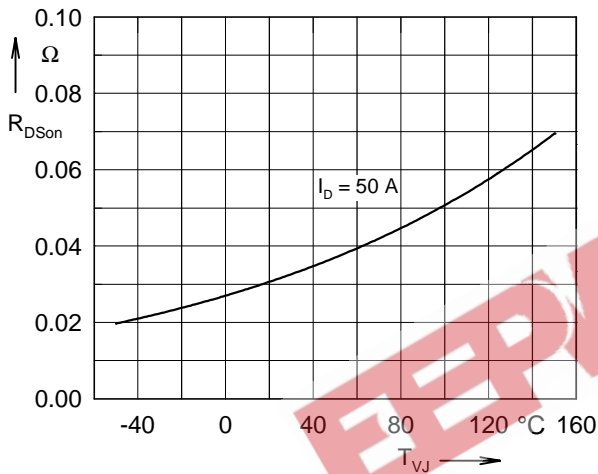


Fig. 3: typ.  $R_{DS(on)}$  vs. Junction Temperature

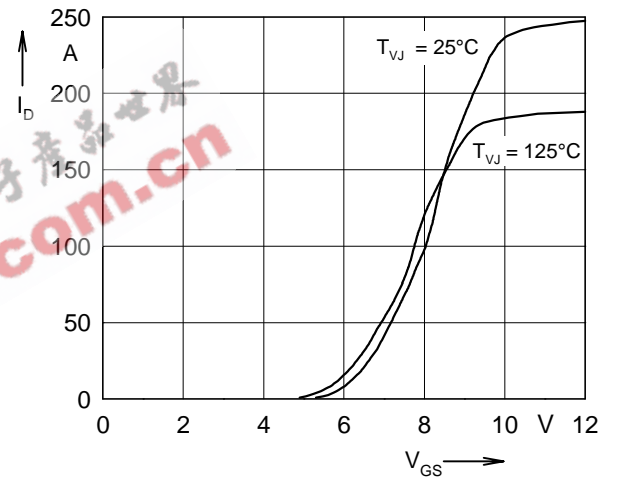


Fig. 4: typ. Input Admittance

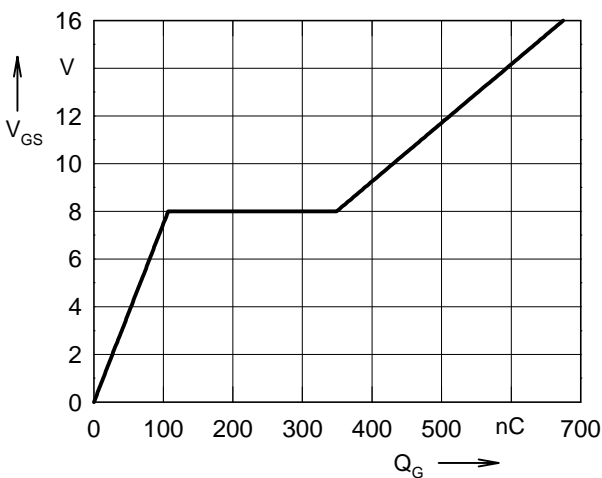


Fig. 5: typ. Gate Charge Characteristic Curve

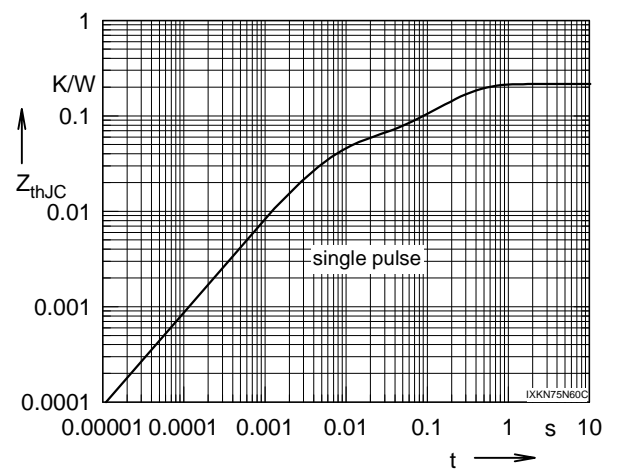


Fig. 6: typ. Transient Thermal Impedance