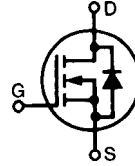


# CoolMOS Power MOSFET in ISOPLUS247™ Package

**IXKR 40N60C**

$V_{DSS}$	$I_{D25}$	$R_{DS(on)}$
<b>600 V</b>	<b>38 A</b>	<b>70 mΩ</b>

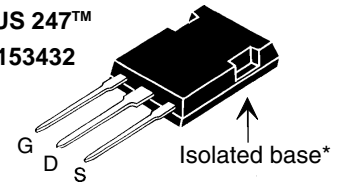
N-Channel Enhancement Mode  
Low  $R_{DS(on)}$ , High  $V_{DSS}$  MOSFET  
Package with Electrically Isolated Base



**COOLMOS**  
Power Semiconductors

MOSFET			
Symbol	Conditions	Maximum Ratings	
$V_{DSS}$	$T_{VJ} = 25^{\circ}\text{C}$ to $150^{\circ}\text{C}$	600	V
$V_{GS}$		±20	V
$I_{D25}$	$T_C = 25^{\circ}\text{C}$	38	A
$I_{D90}$	$T_C = 90^{\circ}\text{C}$	25	A
$dv/dt$	$V_{DS} < V_{DSS}$ ; $I_F \leq 50\text{A}$ ; $ 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

ISOPLUS 247™  
E153432



G = Gate    D = Drain    S = Source  
\* Patent pending

Symbol	Conditions	Characteristic Values ( $T_{VJ} = 25^{\circ}\text{C}$ , unless otherwise specified)		
		min.	typ.	max.
$R_{DS(on)}$	$V_{GS} = 10\text{V}$ ; $I_D = I_{D90}$			70 mΩ
$V_{GS(th)}$	$V_{DS} = 20\text{V}$ ; $I_D = 3\text{mA}$	3.5		5.5 V
$I_{DSS}$	$V_{DS} = V_{DSS}$ ; $V_{GS} = 0\text{V}$ ; $T_{VJ} = 25^{\circ}\text{C}$ $T_{VJ} = 125^{\circ}\text{C}$		60	25 μA μA
$I_{GSS}$	$V_{GS} = \pm 20\text{V}$ ; $V_{DS} = 0\text{V}$			100 nA
$Q_g$ $Q_{gs}$ $Q_{gd}$	} $V_{GS} = 10\text{V}$ ; $V_{DS} = 350\text{V}$ ; $I_D = 50\text{A}$		220	nC
			55	nC
			125	nC
$t_{d(on)}$ $t_r$ $t_{d(off)}$ $t_f$	} $V_{GS} = 10\text{V}$ ; $V_{DS} = 380\text{V}$ ; $I_D = 25\text{A}$ ; $R_G = 1.8\Omega$		30	ns
			95	ns
			100	ns
			10	ns
$V_F$	(reverse conduction) $I_F = 20\text{A}$ ; $V_{GS} = 0\text{V}$	0.9	1.1	V
$R_{thJC}$				0.45 K/W

### Features

- ISOPLUS247 package with DCB Base
  - Electrical isolation towards the heatsink
  - Low coupling capacitance to the heatsink for reduced EMI
  - High power dissipation
  - High temperature cycling capability of chip on DCB
  - JEDEC TO247AD compatible
  - Easy clip 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

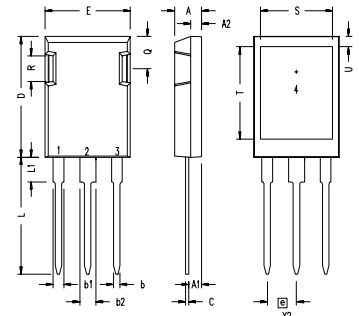
CoolMOS is a trademark of  
Infineon Technologies AG.

### 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
$T_L$	1.6 mm from case for 10 s	300	°C
$F_C$	mounting force with clip	20 ... 120	N

Symbol	Conditions	Characteristic Values		
		min.	typ.	max.
$R_{thCH}$	with heatsink compound		0.25	K/W
<b>Weight</b>			6	g

### ISOPLUS 247 OUTLINE



- 1 Gate, 2 Drain (Collector)
- 3 Source (Emitter)
- 4 no connection

Dim.	Millimeter		Inches	
	Min.	Max.	Min.	Max.
A	4.83	5.21	.190	.205
A <sub>1</sub>	2.29	2.54	.090	.100
A <sub>2</sub>	1.91	2.16	.075	.085
b	1.14	1.40	.045	.055
b <sub>1</sub>	1.91	2.13	.075	.084
b <sub>2</sub>	2.92	3.12	.115	.123
C	0.61	0.80	.024	.031
D	20.80	21.34	.819	.840
E	15.75	16.13	.620	.635
e	5.45 BSC		.215 BSC	
L	19.81	20.32	.780	.800
L1	3.81	4.32	.150	.170
Q	5.59	6.20	.220	.244
R	4.32	4.83	.170	.190