

# CoolMOS™ Power MOSFET IXKG 25N80C ISO264™

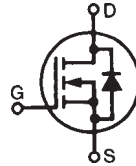
## Electrically Isolated Back Surface

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

$$V_{DSS} = 800 \text{ V}$$

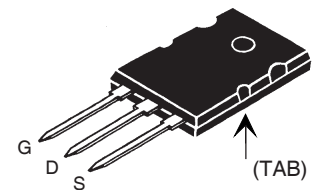
$$I_{D25} = 25 \text{ A}$$

$$R_{DS(on)} = 150 \text{ m}\Omega$$



Symbol	Test Conditions	Maximum Ratings	
$V_{DSS}$	$T_J = 25^\circ\text{C to } 150^\circ\text{C}$	800	V
$V_{GS}$	Continuous	$\pm 20$	V
$I_{D25}$	$T_C = 25^\circ\text{C}$	25	A
$I_{D90}$	$T_C = 90^\circ\text{C}$	9	A
$I_{D(RMS)}$	Package lead current limit	45	A
$E_{AS}$	$I_o = 10\text{A}, T_C = 25^\circ\text{C}$	690	mJ
$E_{AR}$	$I_o = 20\text{A}$	0.5	mJ
$dv/dt$	$V_{DS} < V_{DSS}, I_F \leq 17 \text{ A}, T_{VJ} = 150^\circ\text{C}$ $dI_F/dt = 100 \text{ A}/\mu\text{s}$	6	V/ns
$P_D$	$T_C = 25^\circ\text{C}$	250	W
$T_J$		-55 ... +150	$^\circ\text{C}$
$T_{JM}$		150	$^\circ\text{C}$
$T_{stg}$		-55 ... +125	$^\circ\text{C}$
$T_L$	1.6 mm (0.062 in.) from case for 10 s	300	$^\circ\text{C}$
$V_{ISOL}$	RMS leads-to-tab, 50/60 Hz, $t = 1$ minute	2500	V~
$M_d$	Mounting torque	0.9 / 6	Nm/lb-in
<b>Weight</b>		8	g

### ISO264™



G = Gate, D = Drain,  
S = Source

\* Patent pending

### Features

- Silicon chip on Direct-Copper-Bond substrate
- High power dissipation
- Isolated mounting surface
- 2500V electrical isolation
- 3<sup>RD</sup> generation CoolMOS power MOSFET
- High blocking capability
- Low on resistance
- Avalanche rated for unclamped inductive switching (UIS)
- Low thermal resistance due to reduced chip thickness
- Low drain to tab capacitance (<40pF)

### Applications

- Switched Mode Power Supplies (SMPS)
- Uninterruptible Power Supplies (UPS)
- Power Factor Correction (PFC)
- Welding
- Inductive Heating

### Advantages

- Easy assembly
- Space savings
- High power density

Symbol	Test Conditions	Characteristic Values ( $T_J = 25^\circ\text{C}$ , unless otherwise specified)		
		min.	typ.	max.
$R_{DS(on)}$	$V_{GS} = 10 \text{ V}, I_D = I_{D90}$ , Note 1 $V_{GS} = 10 \text{ V}, I_D = I_{D90}$ , Note 1 $T_J = 125^\circ\text{C}$		126 297	150 m $\Omega$ m $\Omega$
$V_{GS(th)}$	$V_{DS} = V_{GS}, I_D = 2 \text{ mA}$	2		4 V
$I_{DSS}$	$V_{DS} = V_{DSS}$ $V_{GS} = 0 \text{ V}$	$T_J = 25^\circ\text{C}$ $T_J = 125^\circ\text{C}$	10	50 $\mu\text{A}$ $\mu\text{A}$
$I_{GSS}$	$V_{GS} = \pm 20 \text{ V}_{DC}, V_{DS} = 0$			$\pm 200 \text{ nA}$

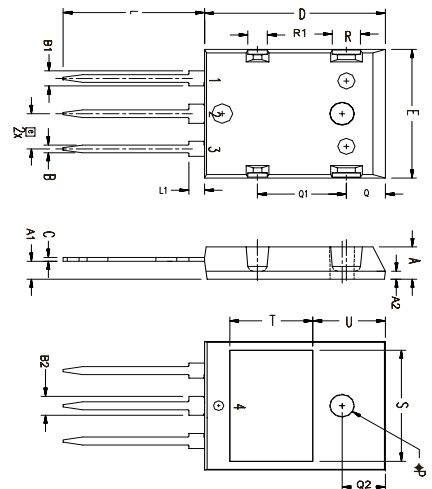
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Symbol	Test Conditions	Characteristic Values ( $T_J = 25^\circ\text{C}$ , unless otherwise specified)		
		min.	typ.	max.
$Q_{g(\text{on})}$	$V_{GS} = 10\text{ V}, V_{DS} = 640\text{ V}, I_D = 17\text{ A}$		166	nC
$Q_{gs}$			18	nC
$Q_{gd}$			84	nC
$t_{d(\text{on})}$	$V_{GS} = 10\text{ V}, V_{DS} = 640\text{ V}$ $I_D = 35\text{ A}, R_G = 2.2\ \Omega$		25	ns
$t_r$			25	ns
$t_{d(\text{off})}$			75	ns
$t_f$			10	ns
$R_{thJC}$			0.5	K/W
$R_{thCH}$		0.30		K/W

Symbol	Test Conditions	Characteristic Values ( $T_J = 25^\circ\text{C}$ , unless otherwise specified)		
		min.	typ.	max.
$V_{SD}$	$I_F = 12.5\text{ A}, V_{GS} = 0\text{ V}$ Note 1		1	1.2 V

Note: 1. Pulse test,  $t \leq 300\ \mu\text{s}$ , duty cycle  $d \leq 2\%$

### ISO264 OUTLINE



- 1 - Gate
- 2 - Drain (Collector)
- 3 - Source (Emitter)
- 4 - No Connection

SYM	INCHES		MILLIMETERS	
	MIN	MAX	MIN	MAX
A	.190	.205	4.83	5.21
A1	.102	.118	2.59	3.00
A2	.046	.055	1.17	1.40
b	.045	.055	1.14	1.40
b1	.087	.102	2.21	2.59
b2	.111	.126	2.82	3.20
c	.020	.029	0.51	0.74
D	1.020	1.040	25.91	26.42
E	.770	.799	19.56	20.29
e	.215 BSC		5.45 BSC	
L	.780	.820	19.81	20.83
L1	.080	.102	2.03	2.59
P	.130	.145	3.30	3.68
Q	.210	.235	5.33	5.97
Q1	.490	.513	12.45	13.03
Q2	.235	.255	5.96	6.48
R	.150	.180	3.81	4.57
R1	.100	.130	2.54	3.30
S	.668	.690	16.97	17.53
T	.460	.480	11.68	12.19
U	.400	.420	10.16	10.67

IXYS reserves the right to change limits, test conditions, and dimensions.

IXYS MOSFETs and IGBTs are covered by one or more	4,835,592	4,881,106	5,017,508	5,049,961	5,187,117	5,486,715	6,306,728B1	6,259,123B1
	4,850,072	4,931,844	5,034,796	5,063,307	5,237,481	5,381,025	6,404,065B1	6,162,665