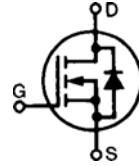


High Current MegaMOS™ FET

IXTK 180N15

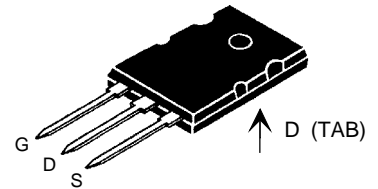
$$\begin{aligned} V_{DSS} &= 150 \text{ V} \\ I_{D25} &= 180 \text{ A} \\ R_{DS(on)} &= 9 \text{ m}\Omega \end{aligned}$$

N-Channel Enhancement Mode



Symbol	Test conditions	Maximum ratings	
V_{DSS}	$T_J = 25^\circ\text{C to } 150^\circ\text{C}$	150	V
V_{DGR}	$T_J = 25^\circ\text{C to } 150^\circ\text{C}; R_{GS} = 1.0 \text{ M}\Omega$	150	V
V_{GS}	Continuous	± 20	V
V_{GSM}	Transient	± 30	V
I_{D25}	$T_C = 25^\circ\text{C}$ MOSFET chip capability	180	A
$I_{D(RMS)}$	External lead current limit	75	A
I_{DM}	$T_C = 25^\circ\text{C}$, pulse width limited by T_{JM}	720	A
I_{AR}	$T_C = 25^\circ\text{C}$	90	A
E_{AR}	$T_C = 25^\circ\text{C}$	64	mJ
E_{AS}	$T_C = 25^\circ\text{C}$	3.0	J
dv/dt	$I_S \leq I_{DM}$, $di/dt \leq 100 \text{ A}/\mu\text{s}$, $V_{DD} \leq V_{DSS}$ $T_J \leq 150^\circ\text{C}$, $R_G = 2 \Omega$	5	V/ns
P_D	$T_C = 25^\circ\text{C}$	730	W
T_J		-55 ... +150	$^\circ\text{C}$
T_{JM}		150	$^\circ\text{C}$
T_{stg}		-55 ... +150	$^\circ\text{C}$
T_L	1.6 mm (0.063 in.) from case for 10 s	300	$^\circ\text{C}$
M_d	Mounting torque	0.7/6	Nm/lb.in.
Weight	TO-264	10	g

TO-264 AA (IXTK)



G = Gate D = Drain
S = Source Tab = Drain

Features

- Low $R_{DS(on)}$ HDMOS™ process
- Rugged polysilicon gate cell structure
- International standard package
- Fast switching times

Applications

- Motor controls
- DC choppers
- Switched-mode power supplies

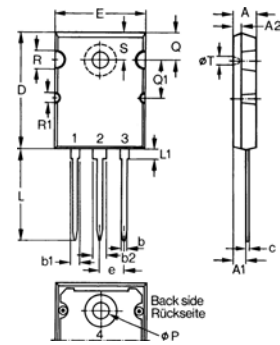
Advantages

- Easy to mount with one screw (isolated mounting screw hole)
- Space savings
- High power density

Symbol	Test Conditions ($T_J = 25^\circ\text{C}$ unless otherwise specified)	Characteristic Values		
		Min.	Typ.	Max.
V_{DSS}	$V_{GS} = 0 \text{ V}$, $I_D = 1 \text{ mA}$	150		V
$V_{GS(th)}$	$V_{DS} = V_{GS}$, $I_D = 250 \mu\text{A}$	2.0		V
I_{GSS}	$V_{GS} = \pm 20 \text{ V DC}$, $V_{DS} = 0$			$\pm 200 \text{ nA}$
I_{DSS}	$V_{DS} = V_{DSS}$, $V_{GS} = 0 \text{ V}$ $T_J = 25^\circ\text{C}$ $T_J = 125^\circ\text{C}$			50 μA 3 mA
$R_{DS(on)}$	$V_{GS} = 10 \text{ V}$, $I_D = 0.5 I_{D25}$ Pulse test, $t \leq 300 \text{ ms}$, duty cycle $d \leq 2\%$			9 m Ω

Symbol	Test Conditions	Characteristic values		
		Min.	Typ.	Max.
g_{fs}	$V_{DS} = 10 V; I_D = 0.5 I_{D25}$, pulse test	65	110	S
C_{iss}	$V_{GS} = 0 V, V_{DS} = 25 V, f = 1 MHz$		9200	pF
C_{oss}			2525	pF
C_{rss}			950	pF
$t_{d(on)}$	$V_{GS} = 10 V, V_{DS} = 0.5 V_{DSS}, I_D = 0.5 I_{D25}$ $R_G = 1.0 \Omega$ (External)		30	ns
t_r			40	ns
$t_{d(off)}$			120	ns
t_f			35	ns
$Q_{g(on)}$	$V_{GS} = 10 V, V_{DS} = 0.5 V_{DSS}, I_D = 0.5 I_{D25}$		390	nC
Q_{gs}			60	nC
Q_{gd}			170	nC
R_{thJC}				0.17 K/W
R_{thCK}		0.15		K/W

TO-264 AA Outline



Dim.	Millimeter		Inches	
	Min.	Max.	Min.	Max.
A	4.82	5.13	.190	.202
A1	2.54	2.89	.100	.114
A2	2.00	2.10	.079	.083
b	1.12	1.42	.044	.066
b1	2.39	2.69	.094	.106
b2	2.90	3.09	.114	.122
c	0.53	0.83	.021	.033
D	25.91	26.16	1.020	1.030
E	19.81	19.96	.780	.786
e	5.46 BSC		.215 BSC	
J	0.00	0.25	.000	.010
K	0.00	0.25	.000	.010
L	20.32	20.83	.800	.820
L1	2.29	2.59	.090	.102
P	3.17	3.66	.125	.144
Q	6.07	6.27	.239	.247
Q1	8.38	8.69	.330	.342
R	3.81	4.32	.150	.170
R1	1.78	2.29	.070	.090
S	6.04	6.30	.238	.248
T	1.57	1.83	.062	.072

Source-Drain Diode

Ratings and Characteristics

($T_J = 25^\circ C$ unless otherwise specified)

Symbol	Test Conditions	Min.	Typ.	Max.
I_S	$V_{GS} = 0V$			180 A
I_{SM}	Repetitive; pulse width limited by T_{JM}			720 A
V_{SD}	$I_F = I_S, V_{GS} = 0V$, Pulse test, $t \leq 300 \mu s$, duty cycle $d \leq 2\%$			1.5 V
t_{rr}	$I_F = 25A, -di/dt = 100 A/\mu s, V_R = 100V$		200	ns
Q_{rr}			3	μC

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

IXYS MOSFETs and IGBTs are covered by one or more of the following U.S. patents:

4,835,592 4,881,106 5,017,508 5,049,961 5,187,117 5,486,715 6,306,728B1 6,259,123B1 6,306,728B1
4,850,072 4,931,844 5,034,796 5,063,307 5,237,481 5,381,025 6,404,065B1 6,162,665 6,534,343