



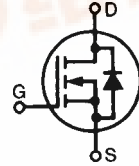
Advance Technical Information

# High Current MegaMOS™ FET

**IXTK 180N15**

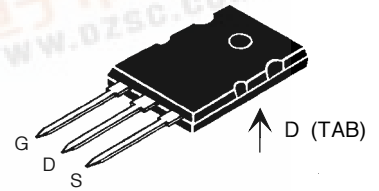
**V<sub>DSS</sub> = 150 V**  
**I<sub>D25</sub> = 180 A**  
**R<sub>DS(on)</sub> = 10 mΩ**

N-Channel Enhancement Mode



Symbol	Test conditions	Maximum ratings	
V <sub>DSS</sub>	T <sub>J</sub> = 25°C to 150°C	150	V
V <sub>DGR</sub>	T <sub>J</sub> = 25°C to 150°C; R <sub>GS</sub> = 1.0 MΩ	150	V
V <sub>GS</sub>	Continuous	±20	V
V <sub>GSM</sub>	Transient	±30	V
I <sub>D25</sub>	T <sub>C</sub> = 25°C MOSFET chip capability	180	A
I <sub>D(RMS)</sub>	External lead current limit	75	A
I <sub>DM</sub>	T <sub>C</sub> = 25°C, pulse width limited by T <sub>JM</sub>	720	A
I <sub>AR</sub>	T <sub>C</sub> = 25°C	90	A
E <sub>AR</sub>	T <sub>C</sub> = 25°C	64	mJ
E <sub>AS</sub>	T <sub>C</sub> = 25°C	3.0	J
dv/dt	I <sub>S</sub> ≤ I <sub>DM</sub> , di/dt ≤ 100 A/μs, V <sub>DD</sub> ≤ V <sub>DSS</sub> T <sub>J</sub> ≤ 150°C, R <sub>G</sub> = 2 Ω	5	V/ns
P <sub>D</sub>	T <sub>C</sub> = 25°C	560	W
T <sub>J</sub>		-55 ... +150	°C
T <sub>JM</sub>		150	°C
T <sub>stg</sub>		-55 ... +150	°C
T <sub>L</sub>	1.6 mm (0.063 in.) from case for 10 s	300	°C
M <sub>d</sub>	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<sub>DS(on)</sub> HDMOS™ process
- Rugged polysilicon gate cell structure
- International standard package
- Fast switching times

**Applications**

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

**Advantages**

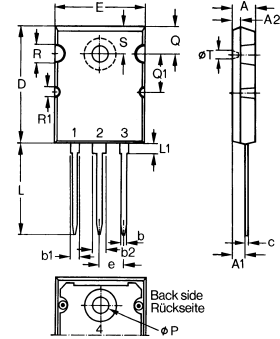
- Easy to mount with one screw (isolated mounting screw hole)
- Space savings
- High power density

Symbol	Test Conditions (T <sub>J</sub> = 25°C unless otherwise specified)	Characteristic Values		
		Min.	Typ.	Max.
V <sub>DSS</sub>	V <sub>GS</sub> = 0 V, I <sub>D</sub> = 1 mA	150		V
V <sub>GS(th)</sub>	V <sub>DS</sub> = V <sub>GS</sub> , I <sub>D</sub> = 250 μA	2.0		4.0 V
I <sub>GSS</sub>	V <sub>GS</sub> = ±20 V DC, V <sub>DS</sub> = 0			±200 nA
I <sub>DSS</sub>	V <sub>DS</sub> = V <sub>DSS</sub> V <sub>GS</sub> = 0 V			50 μA
				3 mA
	V <sub>GS</sub> = 10 V, I <sub>D</sub> = 0.5 I <sub>D25</sub> Pulse test, t ≤ 300 ms, duty cycle d ≤ 2%			10 mΩ



Symbol	Test Conditions ( $T_J = 25^\circ\text{C}$ unless otherwise specified)	Characteristic values		
		Min.	Typ.	Max.
$g_{fs}$	$V_{DS} = 10\text{ V}; I_D = 0.5 I_{D25}$ , pulse test	65	82	S
$C_{iss}$ $C_{oss}$ $C_{rss}$	$V_{GS} = 0\text{ V}, V_{DS} = 25\text{ V}, f = 1\text{ MHz}$		9200	pF
			2525	pF
			950	pF
$t_{d(on)}$ $t_r$ $t_{d(off)}$ $t_f$	$V_{GS} = 10\text{ V}, V_{DS} = 0.5 V_{DSS}, I_D = 0.5 I_{D25}$ $R_G = 1.5\ \Omega$ (External)		35	ns
			50	ns
			180	ns
			50	ns
$Q_{g(on)}$ $Q_{gs}$ $Q_{gd}$	$V_{GS} = 10\text{ V}, V_{DS} = 0.5 V_{DSS}, I_D = 0.5 I_{D25}$		400	nC
			70	nC
			155	nC
$R_{thJC}$ $R_{thCK}$			0.22	K/W
		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	2.69	.100	.114
A2	2.00	2.10	.079	.083
b	1.12	1.42	.044	.056
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

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

Symbol	Test Conditions	Ratings and Characteristics		
		Min.	Typ.	Max.
$I_S$	$V_{GS} = 0\text{ V}$			180 A
$I_{SM}$	Repetitive; pulse width limited by $T_{JM}$			720 A
$V_{SD}$	$I_F = I_S, V_{GS} = 0\text{ V}$ , Pulse test, $t \leq 300\ \mu\text{s}$ , duty cycle $d \leq 2\%$			1.5 V
$t_{rr}$	$I_F = 30\text{ A}, -di/dt = 100\text{ A}/\mu\text{s}, V_R = 100\text{ V}$		270	ns
$Q_{rr}$			6	$\mu\text{C}$