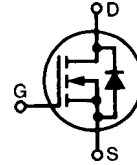


# High Current MegaMOS™ FET

**IXTK33N45**  
**IXTK33N50**

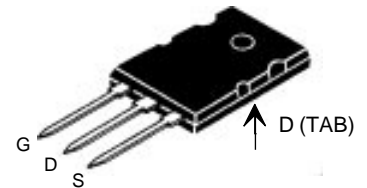
$V_{DSS}$	$I_{D25}$	$R_{DS(on)}$
<b>450 V</b>	<b>33 A</b>	<b>0.16 <math>\Omega</math></b>
<b>500 V</b>	<b>33 A</b>	<b>0.17 <math>\Omega</math></b>

N-Channel Enhancement Mode



Symbol	Test conditions	Maximum ratings		
$V_{DSS}$	$T_J = 25^\circ\text{C}$ to $150^\circ\text{C}$	33N50	500	V
		33N45	450	V
$V_{DGR}$	$T_J = 25^\circ\text{C}$ to $150^\circ\text{C}$ ; $R_{GS} = 1.0 \text{ M}\Omega$	33N50	500	V
		33N45	450	V
$V_{GS}$	Continuous		$\pm 20$	V
$V_{GSM}$	Transient		$\pm 30$	V
$I_{D25}$	$T_C = 25^\circ\text{C}$		33	A
$I_{DM}$	$T_C = 25^\circ\text{C}$ , pulse width limited by $T_{JM}$		132	A
$P_D$	$T_C = 25^\circ\text{C}$		416	W
$T_J$			-55 ... +150	$^\circ\text{C}$
$T_{JM}$			150	$^\circ\text{C}$
$T_{stg}$			-55 ... +150	$^\circ\text{C}$
$M_d$	Mounting torque		1.13/10	Nm/lb.in.
<b>Weight</b>			10	g
	Max lead temperature for soldering 1.6mm (0.062 in.) from case for 10 s		300	$^\circ\text{C}$

TO-264 AA



G = Gate  
S = Source

D = Drain  
TAB = Drain

Symbol	Test Conditions ( $T_J = 25^\circ\text{C}$ , unless otherwise specified)	Characteristic Values		
		min.	typ.	max.
$V_{DSS}$	$V_{GS} = 0 \text{ V}$ , $I_D = 5 \text{ mA}$	33N50 33N45	500 450	V V
	$BV_{DSS}$ temperature coefficient		.087	%/k
$V_{GS(th)}$	$V_{DS} = V_{GS}$ , $I_D = 250 \mu\text{A}$		2	V
	$V_{GS(th)}$ temperature coefficient		-0.25	%/k
$I_{GSS}$	$V_{GS} = \pm 20 \text{ V}_{DC}$ , $V_{DS} = 0$		$\pm 100$	nA
$I_{DSS}$	$V_{DS} = 0.8 \cdot V_{DSS}$ , $V_{GS} = 0 \text{ V}$	$T_J = 25^\circ\text{C}$ $T_J = 125^\circ\text{C}$		200 $\mu\text{A}$ 3 mA
$R_{DS(on)}$	$V_{GS} = 10 \text{ V}$ , $I_D = 0.5 I_{D25}$	33N50 33N45		0.17 $\Omega$ 0.16 $\Omega$

## Features

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

## Applications

- Motor controls
- DC choppers
- Uninterruptable Power Supplies (UPS)
- Switch-mode and resonant-mode

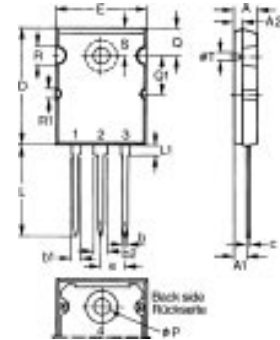
## Advantages

- 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.
$g_{fs}$	$V_{DS} = 10\text{ V}; I_D = 0.5 I_{D25}$ , pulse test	18	28	S
$C_{iss}$	$V_{GS} = 0\text{ V}, V_{DS} = 25\text{ V}, f = 1\text{ MHz}$		5680	pF
$C_{oss}$			635	pF
$C_{rss}$			240	pF
$t_{d(on)}$	$V_{GS} = 10\text{ V}, V_{DS} = 0.5 V_{DSS}, I_D = 0.5 I_{D25}$ $R_G = 1\ \Omega$ (External)		35	ns
$t_r$			42	ns
$t_{d(off)}$			110	ns
$t_f$			26	ns
$Q_{g(on)}$	$V_{GS} = 10\text{ V}, V_{DS} = 0.5 V_{DSS}, I_D = 0.5 I_{D25}$		227	nC
$Q_{gs}$			29	nC
$Q_{gd}$			110	nC
$R_{thJC}$			0.30	K/W
$R_{thCK}$		0.15		K/W

**Source-Drain Diode**
**Ratings and Characteristics**  
 ( $T_J = 25^\circ\text{C}$  unless otherwise specified)

Symbol	Test Conditions	Min.	Typ.	Max.
$I_S$	$V_{GS} = 0\text{ V}$			33 A
$I_{SM}$	Repetitive; pulse width limited by $T_{JM}$			132 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
$t_{rr}$	$I_F = I_S, -di/dt = 100\text{ A}/\mu\text{s}, V_R = 100\text{ V}$		850	ns

**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	.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