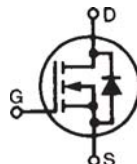


HiPerFET™ Power MOSFETs

IXFK33N50 IXFX35N50

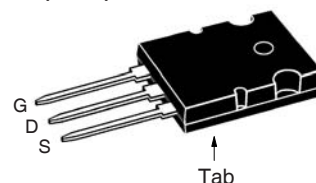
V_{DSS}	I_{D25}	$R_{DS(on)}$
500V	33A	160mΩ
	35A	150mΩ

N-Channel Enhancement Mode
Avalanche Rated
High dv/dt, Low t_{rr}

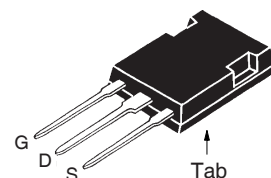


Symbol	Test Conditions	Maximum Ratings		
V_{DSS}	$T_J = 25^\circ\text{C}$ to 150°C	500		V
V_{DGR}	$T_J = 25^\circ\text{C}$ to 150°C , $R_{GS} = 1\text{M}\Omega$	500		V
V_{GSS}	Continuous	± 20		V
V_{GSM}	Transient	± 30		V
I_{D25}	$T_C = 25^\circ\text{C}$	33N50	33	A
		35N50	35	A
I_{DM}	$T_C = 25^\circ\text{C}$, Pulse Width Limited by T_{JM}	33N50	132	A
		35N50	140	A
I_A E_{AS}	$T_C = 25^\circ\text{C}$		33	A
	$T_C = 25^\circ\text{C}$		2.5	J
dv/dt	$I_S \leq I_{DM}$, $V_{DD} \leq V_{DSS}$, $T_J \leq 150^\circ\text{C}$	5		V/ns
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		$^\circ\text{C}$
T_L	Maximum Lead Temperature for Soldering	300		$^\circ\text{C}$
T_{SOLD}	1.6 mm (0.062in.) from Case for 10s	260		$^\circ\text{C}$
M_d	Mounting Torque (TO-264)	1.13/10		Nm/lb.in
F_C	Mounting Force (PLUS247)	20..120 /4.5..27		N/lb
Weight	TO-264	10		g
	PLUS247	6		g

TO-264 (IXFK)



PLUS247 (IXFX)



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

Features

- International Standard Packages
- Avalanche Rated
- Low Intrinsic Gate Resistance
- Low Package Inductance
- Fast Intrinsic Rectifier
- Molding epoxies meet UL 94 V-0 flammability classification
- Low $R_{DS(on)}$ HDMOS™ process

Advantages

- High Power Density
- Easy to Mount
- Space Savings

Applications

- DC-DC Converters
- Battery Chargers
- Synchronous rectification
- Switch-Mode and Resonant-Mode Power Supplies
- DC Choppers
- Temperature and Lighting Controls

Symbol	Test Conditions ($T_J = 25^\circ\text{C}$ Unless Otherwise Specified)	Characteristic Values		
		Min.	Typ.	Max.
BV_{DSS}	$V_{GS} = 0\text{V}$, $I_D = 1\text{mA}$	500		V
	V_{DSS} Temperature Coefficient		0.102	%/K
$V_{GS(th)}$	$V_{DS} = V_{GS}$, $I_D = 4\text{mA}$	2.0		4.5 V
	$V_{GS(th)}$ Temperature Coefficient		-0.206	%/K
I_{GSS}	$V_{GS} = \pm 20\text{V}$, $V_{DS} = 0\text{V}$			± 200 nA
I_{DSS}	$V_{DS} = 0.8 \cdot V_{DSS}$, $V_{GS} = 0\text{V}$ $T_J = 125^\circ\text{C}$			200 μA
				2 mA
$R_{DS(on)}$	$V_{GS} = 10\text{V}$, $I_D = 0.5 \cdot I_{DSS}$, Note 1	33N50		160 mΩ
		35N50		150 mΩ

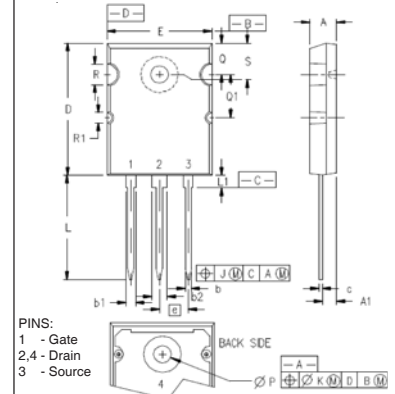
Symbol	Test Conditions ($T_J = 25^\circ\text{C}$, Unless Otherwise Specified)	Characteristic Values		
		Min.	Typ.	Max.
g_{fs}	$V_{DS} = 10\text{V}$, $I_D = 0.5 \cdot I_{DSS}$, Note 1	18	28	S
C_{iss}	$V_{GS} = 0\text{V}$, $V_{DS} = 25\text{V}$, $f = 1\text{MHz}$		5200	5700 nF
C_{oss}			640	750 pF
C_{rss}			240	310 pF
$t_{d(on)}$	Resistive Switching Times $V_{GS} = 10\text{V}$, $V_{DS} = 0.5 \cdot V_{DSS}$, $I_D = 0.5 \cdot I_{DSS}$ $R_G = 1\Omega$ (External)		35	45 ns
t_r			42	50 ns
$t_{d(off)}$			110	140 ns
t_f			23	35 ns
$Q_{g(on)}$		$V_{GS} = 10\text{V}$, $V_{DS} = 0.5 \cdot V_{DSS}$, $I_D = 0.5 \cdot I_{DSS}$		227	nC
Q_{gs}			29	nC
Q_{gd}			110	nC
R_{thJC}				0.30 $^\circ\text{C/W}$
R_{thCS}		0.15		$^\circ\text{C/W}$

Source-Drain Diode

Symbol	Test Conditions ($T_J = 25^\circ\text{C}$, Unless Otherwise Specified)	Characteristic Values		
		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}	$I_F = I_S$, $V_{GS} = 0\text{V}$, Note 1			1.5 V
t_{rr}	$I_F = I_S$, $V_{GS} = 0\text{V}$ $-di/dt = 100\text{A}/\mu\text{s}$ $V_R = 100\text{V}$		7	250 ns
I_{RM}				A
Q_{RM}			750	nC

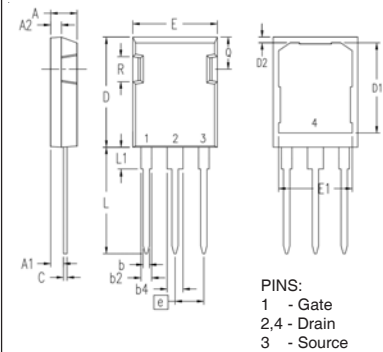
Note 1. Pulse test, $t \leq 300\mu\text{s}$, duty cycle, $d \leq 2\%$.

TO-264 Outline



SYM	INCHES		MILLIMETERS	
	MIN	MAX	MIN	MAX
A	.185	.209	4.70	5.31
A1	.102	.118	2.59	3.00
b	.037	.055	0.94	1.40
b1	.087	.102	2.21	2.59
b2	.110	.126	2.79	3.20
c	.017	.029	0.43	0.74
D	1.007	1.047	25.58	26.59
E	.760	.799	19.30	20.29
e	.215BSC		5.46 BSC	
J	.000	.010	0.00	0.25
K	.000	.010	0.00	0.25
L	.779	.842	19.79	21.39
L1	.087	.102	2.21	2.59
$\varnothing P$	.122	.138	3.10	3.51
Q	.240	.256	6.10	6.50
Q1	.330	.346	8.38	8.79
$\varnothing R$	.155	.187	3.94	4.75
$\varnothing R1$	.085	.093	2.16	2.36
S	.243	.253	6.17	6.43

PLUS247™ Outline



SYM	INCHES		MILLIMETERS	
	MIN	MAX	MIN	MAX
A	.190	.205	4.83	5.21
A1	.090	.100	2.29	2.54
A2	.075	.085	1.91	2.16
b	.045	.055	1.14	1.40
b2	.075	.087	1.91	2.20
b4	.115	.126	2.92	3.20
C	.024	.031	0.61	0.80
D	.819	.840	20.80	21.34
D1	.650	.690	16.51	17.53
D2	.035	.050	0.89	1.27
E	.620	.635	15.75	16.13
E1	.545	.565	13.84	14.35
e	.215 BSC		5.45 BSC	
L	.780	.810	19.81	20.57
L1	.150	.170	3.81	4.32
Q	.220	.244	5.59	6.20
R	.170	.190	4.32	4.83



Disclaimer Notice - Information furnished is believed to be accurate and reliable. However, users should independently evaluate the suitability of and test each product selected for their own applications. Littelfuse products are not designed for, and may not be used in, all applications. Read complete Disclaimer Notice at www.littelfuse.com/disclaimer-electronics.