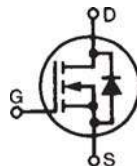


HiPerFET™ Power MOSFETs

IXFK33N50 IXFX35N50

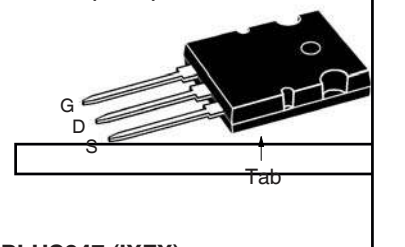
V_{DSS}	I_{D25}	$R_{DS(on)}$
500V	33A 35A	160mΩ 150mΩ

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

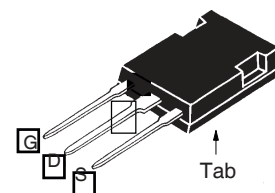


Symbol	Test Conditions	Maximum Ratings	
V_{DSS}	$T_J = 25^\circ\text{C}$ to 150°C	500	V
V_{DGR}	$T_J = 25^\circ\text{C}$ to 150°C , $R_{GS} = 1\text{M}\Omega$	500	V
V_{GSS}	Continuous	± 20	V
V_{GSM}	Transient	± 30	V
I_{D25}	$T_C = 25^\circ\text{C}$	33N50 33 35N50 35	A
I_{DM}	$T_C = 25^\circ\text{C}$, Pulse Width Limited by T_{JM}	33N50 132 35N50 140	A
I_A	$T_C = 25^\circ\text{C}$	33	A
E_{AS}	$T_C = 25^\circ\text{C}$	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}	$V_{GS} = 0\text{V}$, $I_D = 1\text{mA}$ V_{DSS} Temperature Coefficient	500	0.102	V %/K
$V_{GS(th)}$	$V_{DS} = V_{GS}$, $I_D = 4\text{mA}$ $V_{GS(th)}$ Temperature Coefficient	2.0	-0.206	V %/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 35N50		160 mΩ 150 mΩ

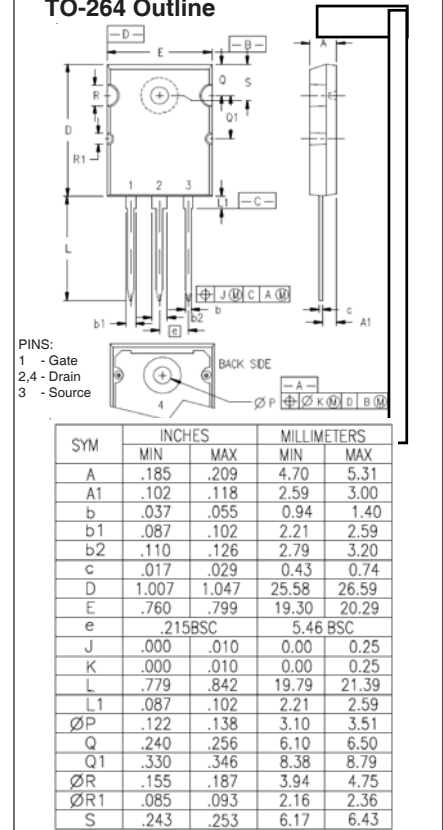
Symbol	Test Conditions ($T_J = 25^\circ\text{C}$, Unless Otherwise Specified)	Characteristic Values		
		Min.	Typ.	Max.
g_{fs}	$V_{DS} = 10\text{V}$, $I_D = 0.5 \cdot I_{DSS}$, Note 1	18	28	S
C_{iss}	$V_{GS} = 0\text{V}$, $V_{DS} = 25\text{V}$, $f = 1\text{MHz}$		5200	5700 nF
C_{oss}			640	750 pF
C_{rss}			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
$Q_{g(on)}$			227	nC
Q_{gs}	$V_{GS} = 10\text{V}$, $V_{DS} = 0.5 \cdot V_{DSS}$, $I_D = 0.5 \cdot I_{DSS}$		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

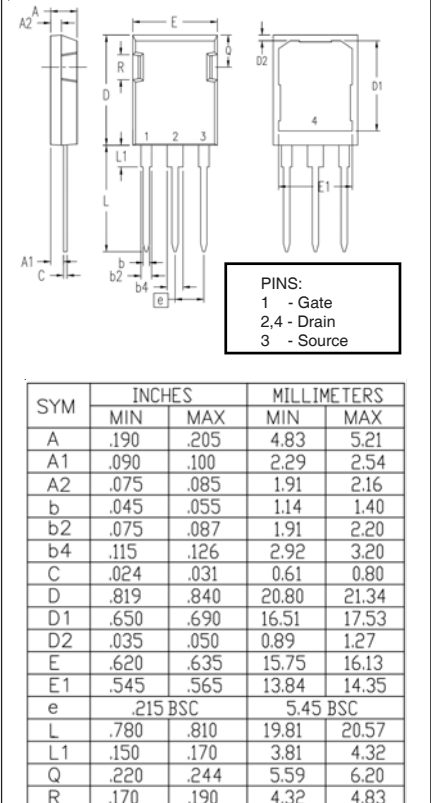
Symbol	Test Conditions ($T_J = 25^\circ\text{C}$, Unless Otherwise Specified)	Characteristic Values		
		Min.	Typ.	Max.
I_s	$V_{GS} = 0\text{V}$			33 A
I_{SM}	Repetitive, Pulse Width Limited by T_{JM}			132 A
V_{SD}	$I_F = I_s$, $V_{GS} = 0\text{V}$, Note 1			1.5 V
t_{rr}	$I_F = I_s$, $V_{GS} = 0\text{V}$ $-di/dt = 100\text{A}/\mu\text{s}$ $V_R = 100\text{V}$		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



PLUS247™ Outline





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