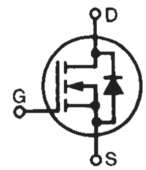
![IXYS]

HiPerFET™ Power MOSFETs

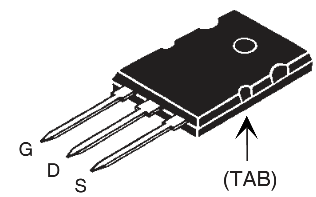
IXFK25N90 IXFX25N90
IXFK26N90 IXFX26N90

V_{DSS}	I_{D25}	$R_{DS(on)}$
900V	25A	330mΩ
900V	26A	300mΩ

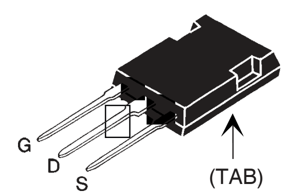
N-Channel Enhancement Mode
Avalanche Rated
Fast Intrinsic Diode



TO-264



PLUS247



G = Gate D = Drain
S = Source TAB = Drain

Symbol	Test Conditions		Maximum Ratings	
V_{DSS}	T_J = 25°C to 150°C		900	V
V_{DGR}	T_J = 25°C to 150°C, R_{GS} = 1MΩ		900	V
V_{GSS}	Continuous		± 20	V
V_{GSM}	Transient		± 30	V
I_{D25}	T_C = 25°C	25N90	25	A
I_{DM}	T_C = 25°C, pulse width limited by T_{JM}	25N90	100	A
I_{D25}	T_C = 25°C	26N90	26	A
I_{DM}	T_C = 25°C, pulse width limited by T_{JM}	26N90	104	A
I_A	T_C = 25°C	25N90	25	A
		26N90	26	A
E_{AS}	T_C = 25°C		3	J
dV/dt	$I_S \le I_{DM}$, $V_{DD} \le V_{DSS}$, $T_J \le 150°C$		5	V/ns
P_D	T_C = 25°C		560	W
T_J			-55 ... +150	°C
T_{JM}			150	°C
T_{stg}			-55 ... +150	°C
T_L	1.6mm (0.062 in.) from case for 10s		300	°C
T_{SOLD}	Plastic body for 10s		260	°C
M_d	Mounting torque (IXFK)		1.13/10	Nm/lb.in.
F_C	Mounting force (IXFX)		20..120 /4.5..27	N/lb.
Weight	TO-264		10	g
	TO-247		6	g

Symbol	Test Conditions		Characteristic Values (T_J = 25°C unless otherwise specified) Min.	Typ.	Max.	
BV_{DSS}	V_{GS} = 0V, I_D = 3mA		900			V
$V_{GS(th)}$	V_{DS} = V_{GS}, I_D = 8mA		3.0		5.0	V
I_{GSS}	V_{GS} = ± 20V, V_{DS} = 0V				± 200	nA
I_{DSS}	V_{DS} = 0.8 • V_{DSS}				100	µA
	V_{GS} = 0V	T_J = 125°C			2	mA
$R_{DS(on)}$	V_{GS} = 10V, I_D = 0.5 • I_{D25}, Note 1		25N90		330	mΩ
			26N90		300	mΩ

Features

- International standard packages
- Avalanche Rated
- Low package inductance
- Low $R_{DS(ON)}$ HDMOS Process
- Fast intrinsic diode

Advantages

- Easy to mount
- Space savings
- High power density

Applications:

- Switched-mode and resonant-mode power supplies
- DC-DC Converters
- Battery chargers
- DC choppers
- AC motor drives
- Temperature & lighting controls

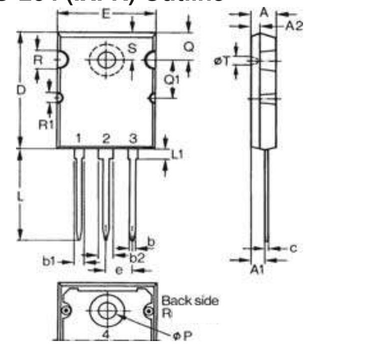
Symbol	Test Conditions (T_J = 25°C unless otherwise specified)	Characteristic Values Min.	Typ.	Max.	
g_{fs}	V_{DS}= 10V, I_D = 0.5 • I_{D25}, Note 1	18	28		S
C_{iss}	V_{GS} = 0V, V_{DS} = 25V, f = 1MHz		8.7	10.8	nF
C_{oss}			800	1000	pF
C_{rss}			300	375	pF
$t_{d(on)}$	**Resistive Switching Times**		60		ns
t_r	V_{GS} = 10V, V_{DS} = 0.5 • V_{DSS}, I_D = 0.5 • I_{D25}		35		ns
$t_{d(off)}$	R_G = 1Ω (External)		130		ns
t_f			24		ns
$Q_{g(on)}$	V_{GS} = 10V, V_{DS} = 0.5 • V_{DSS}, I_D = 0.5 • I_{D25}		260		nC
Q_{gs}			70		nC
Q_{gd}			100		nC
R_{thJC}				0.22	°C/W
R_{thCS}			0.15		°C/W

Source-Drain Diode

Symbol	Test Conditions (T_J = 25°C unless otherwise specified)	Characteristic Values Min.	Typ.	Max.	
I_S	V_{GS} = 0V	25N90		25	A
I_{SM}	Repetitive, pulse width limited by T_{JM}	25N90		100	A
I_S	V_{GS} = 0V	26N90		26	A
I_{SM}	Repetitive, pulse width limited by T_{JM}	26N90		104	A
V_{SD}	I_F = I_S, V_{GS} = 0V, Note 1			1.5	V
t_{rr}	I_F = I_S, -di/dt = 100A/µs			250	ns
Q_{RM}	V_R = 100V, V_{GS} = 0V		1.4		µC
I_{RM}			10		A

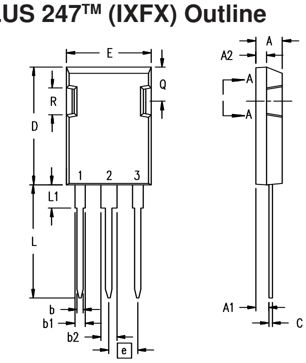
Note 1: Pulse test, t ≤ 300µs; duty cycle, d ≤ 2%.

TO-264 (IXFK) Outline



Dim.	Millimeter Min.	Max.	Inches 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

PLUS 247™ (IXFX) Outline



Terminals: 1 - Gate
2 - Drain (Collector)
3 - Source (Emitter)

Dim.	Millimeter Min.	Max.	Inches Min.	Max.
A	4.83	5.21	.190	.205
A_1	2.29	2.54	.090	.100
A_2	1.91	2.16	.075	.085
b	1.14	1.40	.045	.055
b_1	1.91	2.13	.075	.084
b_2	2.92	3.12	.115	.123
C	0.61	0.80	.024	.031
D	20.80	21.34	.819	.840
E	15.75	16.13	.620	.635
e	5.45 BSC		.215 BSC	
L	19.81	20.32	.780	.800
L1	3.81	4.32	.150	.170
Q	5.59	6.20	.220	0.244
R	4.32	4.83	.170	.190

Figure 1. Output Characteristics at 25°C

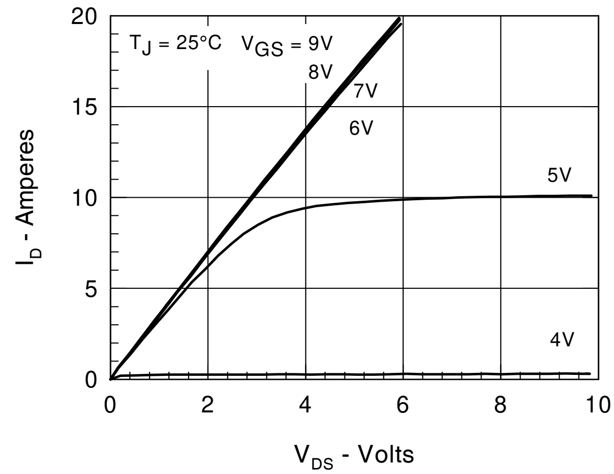


Figure 2. Extended Output Characteristics at 125°C

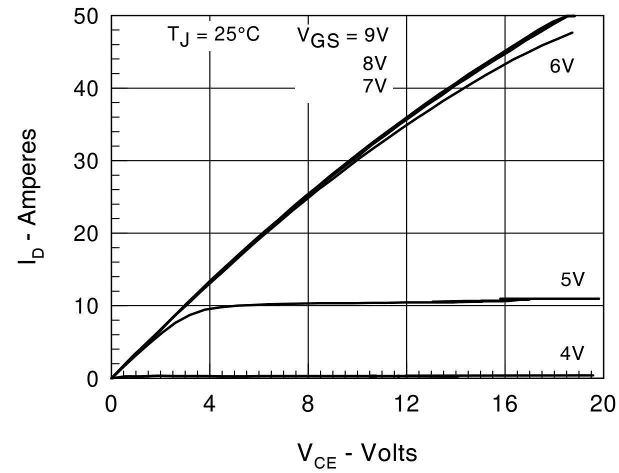


Figure 3. $R_{DS(on)}$ normalized to 0.5 I_{D25} value vs. I_D

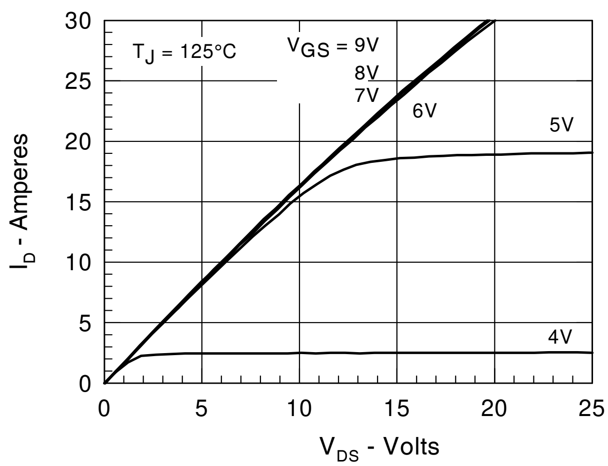


Figure 4. Admittance Curves

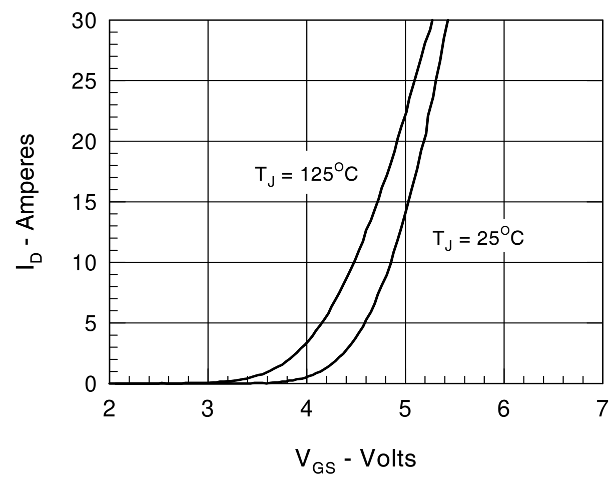


Figure 5. $R_{DS(on)}$ normalized to 0.5 I_{D25} value vs. I_D

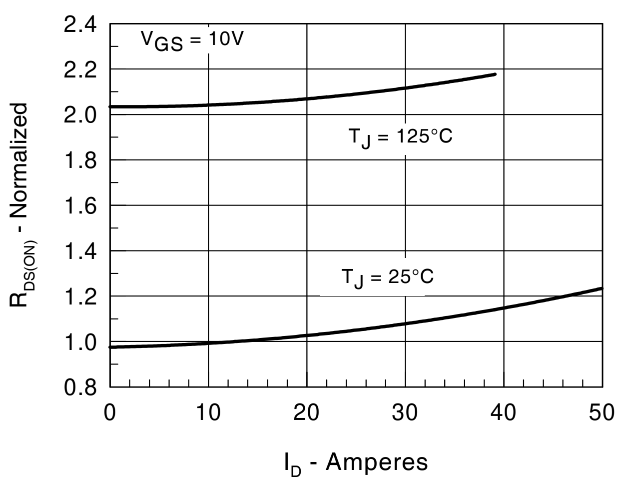


Fig. 6. $R_{DS(on)}$ Normalized to 0.5 I_{D25} Value vs. Junction Temperature

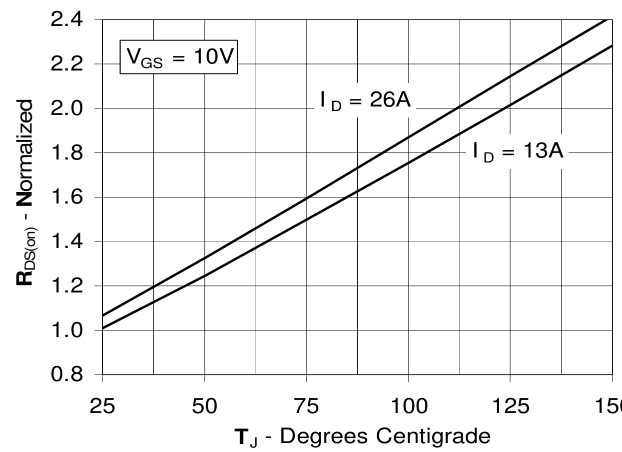


Figure 7. Gate Charge

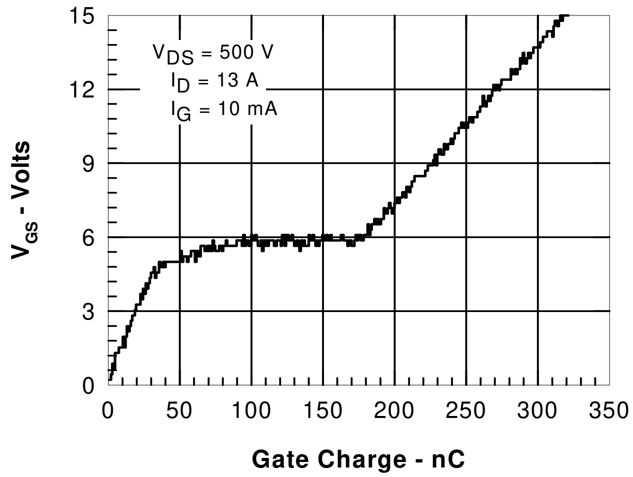
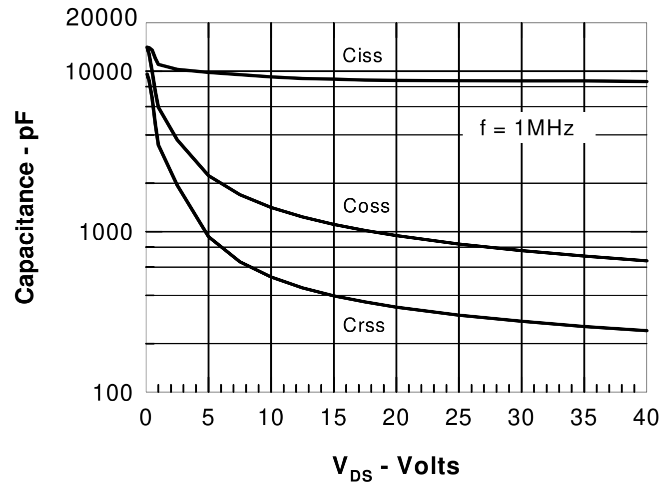
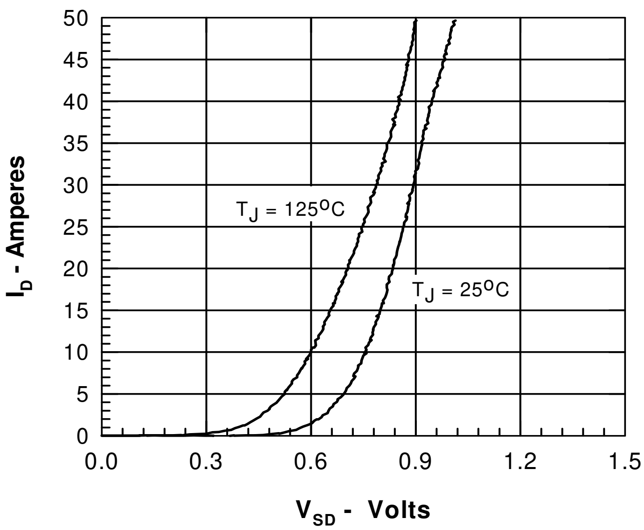
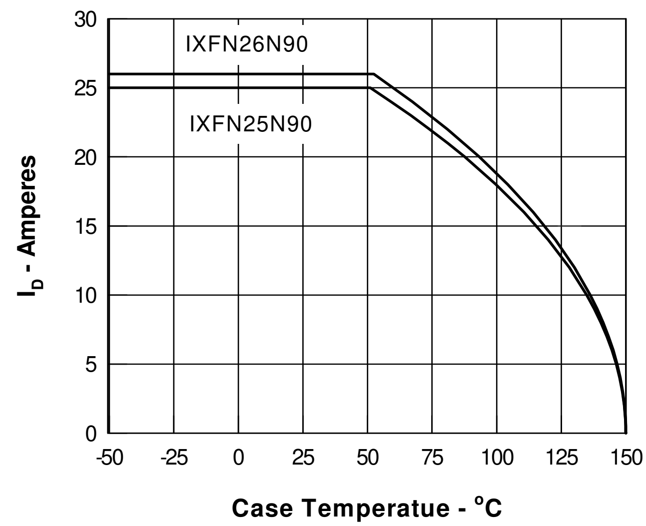


Figure 8. Capacitance Curves







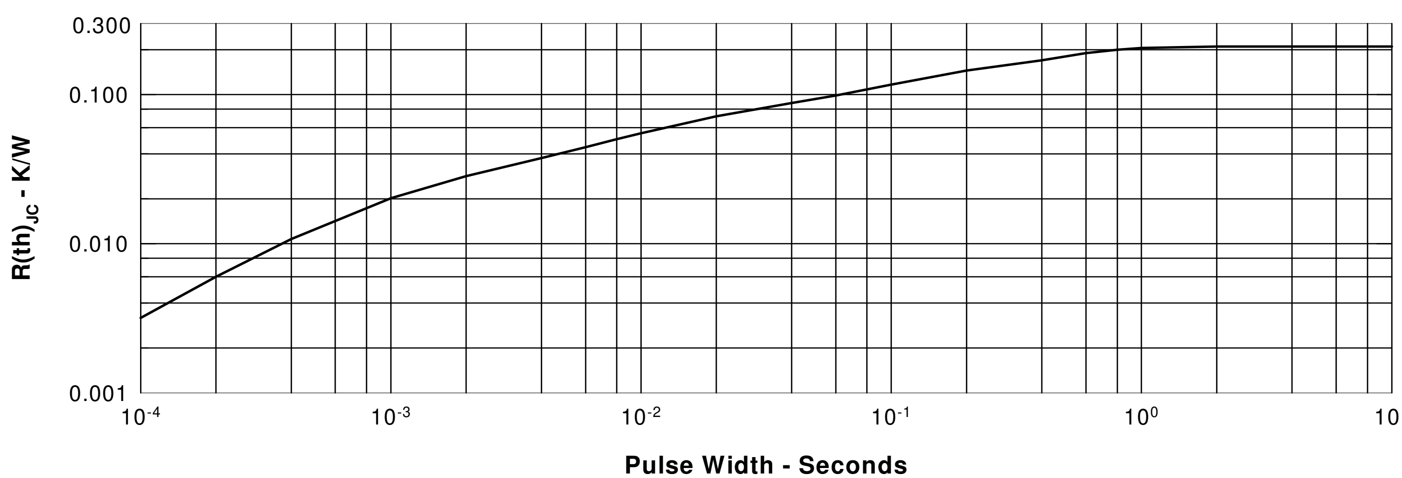


Figure 11. Transient Thermal Resistance

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A Littelfuse Technology