

HiPerFET™ Power MOSFETs

IXFK25N90 IXFX25N90 IXFK26N90 IXFX26N90

20..120 /4.5..27

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N-Channel Enhancement Mode Avalanche Rated Fast Intrinsic Diode

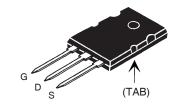


				l s
Symbol	Test Conditions	Maxim	ium F	Ratings
V _{DSS} V _{DGR}	T_J = 25°C to 150°C T_J = 25°C to 150°C, R_{GS} = 1M Ω		00	V V
V _{GSS} V _{GSM}	Continuous Transient		20 30	V V
I _{D25} I _{DM} I _{D25}	$T_{\rm C} = 25^{\circ}{\rm C}$ $T_{\rm C} = 25^{\circ}{\rm C}$, pulse width limited by $T_{\rm JM}$ $T_{\rm C} = 25^{\circ}{\rm C}$ $T_{\rm C} = 25^{\circ}{\rm C}$, pulse width limited by $T_{\rm JM}$	25N90 1 26N90	25 00 26 04	A A A
I _A	$T_{c} = 25^{\circ}C$ $T_{c} = 25^{\circ}C$	25N90 26N90	25 26 3	A A J
dV/dt	$I_{s} \le I_{DM}, V_{DD} \le V_{DSS}, T_{J} \le 150^{\circ}C$		5	V/ns
P _D	T _C = 25°C	5	60	W
T _J T _{JM} T _{stg}		-55 +1 1 -55 +1	50	0° 0° 0°
T _L T _{SOLD}	1.6mm (0.062 in.) from case for 10s Plastic body for 10s		00 160	°C °C
M_d	Mounting torque (IXFK)	1.13/	′10	Nm/lb.in.

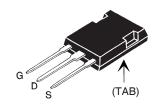
Symbol	Test Conditions	Characteristic Values $(T_J = 25^{\circ}\text{C unless otherwise specified})$ Min. Typ. Max.			
BV _{DSS}	$V_{GS} = 0V, I_{D} = 3mA$	900			V
V _{GS(th)}	$V_{DS} = V_{GS}, I_{D} = 8mA$	3.0		5.0	V
l _{gss}	$V_{GS} = \pm 20V, V_{DS} = 0V$			± 200	nA
I _{DSS}	$V_{DS} = 0.8 \bullet V_{DSS}$ $V_{GS} = 0V$ $T_{J} =$	125°C		100	μA mA
R _{DS(on)}	$V_{GS} = 10V, I_{D} = 0.5 \bullet I_{D25}, Note 1$	25N90 26N90		330 300	mΩ mΩ

$\mathbf{V}_{\mathtt{DSS}}$	I _{D25}	R _{DS(on)}
900V	25A	$330 \mathrm{m}\Omega$
900V	26A	300mΩ

TO-264



PLUS247



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

Features

N/lb.

g

g

- 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

Mounting force

TO-264

TO-247

Weight

(IXFX)



IXFK25N90 IXFX25N90 IXFK26N90

Symbo		Test Conditions		racterist		5
$(1_J = 23$	o C ui	nless otherwise specified)	Min.	Тур.	Max.	
g _{fs}		$V_{DS} = 10V, I_{D} = 0.5 \bullet I_{D25}, Note 1$	18	28		S
\mathbf{C}_{iss})			8.7	10.8	nF
\mathbf{C}_{oss}	}	$V_{GS} = 0V, V_{DS} = 25V, f = 1MHz$		800	1000	pF
C _{rss}	<u> </u>			300	375	pF
t _{d(on)})	Resistive Switching Times		60		ns
t,		$V_{GS} = 10V$, $V_{DS} = 0.5 \cdot V_{DSS}$, $I_{D} = 0.5 \cdot I_{D25}$		35		ns
$\mathbf{t}_{d(off)}$		$R_{_{G}} = 1\Omega$ (External)		130		ns
t,	J			24		ns
$\mathbf{Q}_{\mathrm{g(on)}}$)			260		nC
\mathbf{Q}_{gs}	}	$V_{\rm GS} = 10 \text{V}, V_{\rm DS} = 0.5 \bullet V_{\rm DSS}, I_{\rm D} = 0.5 \bullet I_{\rm D25}$		70		nC
Q _{gd}				100		nC
R _{thJC}					0.22	°C/W
$\mathbf{R}_{\mathrm{thCS}}$				0.15		°C/W

Source-Drain Diode

Characteristic Values

 $T_1 = 25^{\circ}C$ unless otherwise specified)

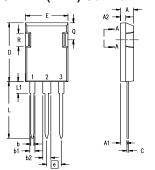
Symbol	Test Conditions	Min.	Тур.	Max.	
I _s	$V_{GS} = 0V$	25N90		25	Α
I _{SM}	Repetitive, pulse width limited by T	25N90		100	Α
I _s	$V_{GS} = 0V$	26N90		26	Α
I _{sm}	Repetitive, pulse width limited by $T_{_{\rm JM}}$	26N90		104	Α
V _{SD}	$I_F = I_S$, $V_{GS} = 0V$, Note 1			1.5	V
$\left\{ egin{array}{ll} \mathbf{t}_{rr} & & \\ \mathbf{Q}_{RM} & & \\ \mathbf{I}_{RM} & & \end{array} ight\}$	$I_F = I_S$, $-di/dt = 100A/\mu s$ $V_R = 100V$, $V_{GS} = 0V$		1.4 10	250	ns μC A

Note 1: Pulse test, $t \le 300 \mu s$; duty cycle, $d \le 2\%$.

TO-264 (IXFK) Outline R R Back side R P Back side

Dim.	Millimeter		Inches		
Diiii.	Min.	Max.	Min.	Max.	
Α	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	
С	0.53	0.83	.021	.033	
D	25.91	26.16	1.020	1.030	
Е	19.81	19.96	.780	.786	
е	5.46	BSC	.215 BSC		
7	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	
Р	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	
Т	1.57	1.83	.062	.072	

PLUS 247™ (IXFX) Outline



Terminals:

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

Dim.	Millir	neter	Inches	
	Min.	Max.	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
е	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

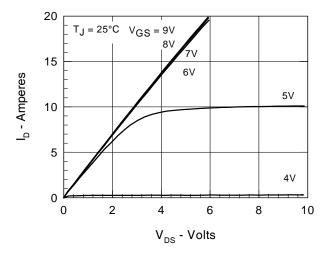


Figure 3. $\rm R_{\rm DS(on)}$ normalized to 0.5 $\rm ~I_{\rm D25}~$ value vs. $\rm I_{\rm D}$

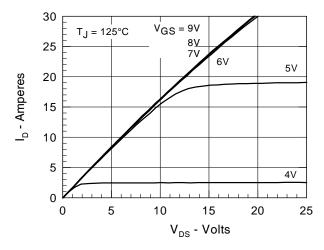


Figure 5. $R_{DS(on)}$ normalized to 0.5 I_{D25} value vs. I_{D}

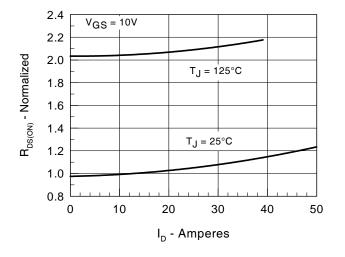


Figure 2. Extended Output Characteristics at 125°C

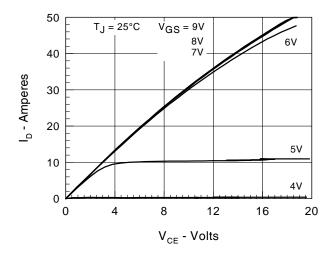


Figure 4. Admittance Curves

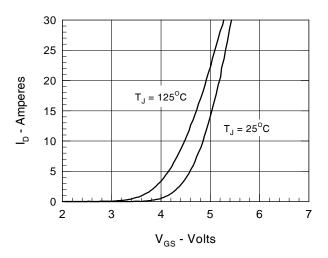
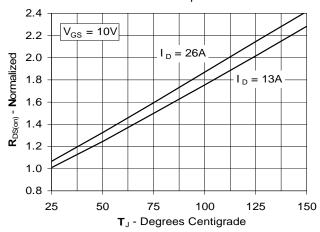


Fig. 6. $R_{DS(on)}$ Normalized to 0.5 I_{D25} Value vs. Junction Temperature





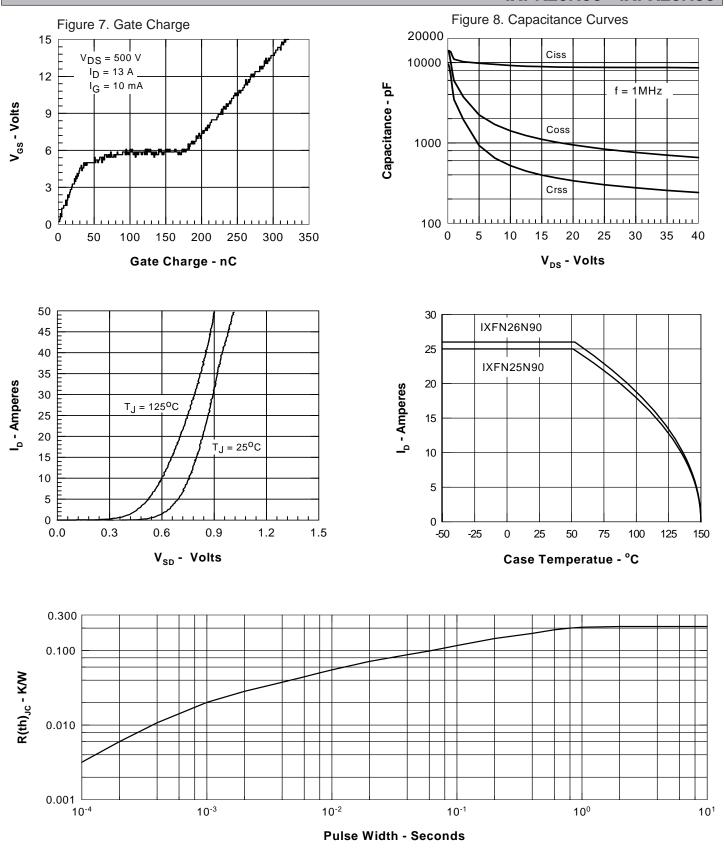


Figure 11. Transient Thermal Resistance

IXYS reserves the right to change limits, test conditions, and dimensions.

