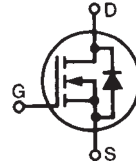
HiperFET™ Power MOSFET Q3-Class

IXFR32N80Q3

V_{DSS} = 800V
I_{D25} = 24A
$R_{DS(on)}$ ≤ 300mΩ
t_{rr} ≤ 300ns

(Electrically Isolated Tab)

N-Channel Enhancement Mode
Fast Intrinsic Rectifier
Avalanche Rated



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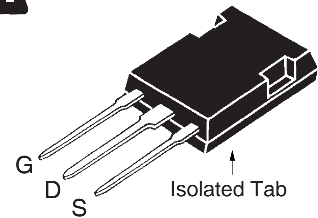

G = Gate D = Drain
S = Source

Symbol	Test Conditions	Maximum Ratings	
V_{DSS}	T_J = 25°C to 150°C	800	V
V_{DGR}	T_J = 25°C to 150°C, R_{GS} = 1MΩ	800	V
V_{GSS}	Continuous	±30	V
V_{GSM}	Transient	±40	V
I_{D25}	T_C = 25°C	24	A
I_{DM}	T_C = 25°C, Pulse Width Limited by T_{JM}	80	A
I_A	T_C = 25°C	32	A
E_{AS}	T_C = 25°C	3	J
dv/dt	I_S ≤ I_{DM}, V_{DD} ≤ V_{DSS}, T_J ≤ 150°C	50	V/ns
P_D	T_C = 25°C	500	W
T_J		-55 ... +150	°C
T_{JM}		150	°C
T_{stg}		-55 ... +150	°C
T_L	Maximum Lead Temperature for Soldering	300	°C
T_{SOLD}	Plastic Body for 10s	260	°C
V_{ISOL}	50/60 Hz, 1 Minute	2500	V~
F_C	Mounting Force	20..120/4.5..27	N/lb
Weight		5	g

Symbol	Test Conditions (T_J = 25°C Unless Otherwise Specified)	Characteristic Values Min.	Typ.	Max.	
BV_{DSS}	V_{GS} = 0V, I_D = 1mA	800			V
$V_{GS(th)}$	V_{DS} = V_{GS}, I_D = 4mA	3.0		6.0	V
I_{GSS}	V_{GS} = ±30V, V_{DS} = 0V			±200	nA
I_{DSS}	V_{DS} = 0.8 • V_{DSS}, V_{GS} = 0V			50	μA
	T_J = 125°C			2	mA
$R_{DS(on)}$	V_{GS} = 10V, I_D = 16A, Note 1			300	mΩ

Features

- Silicon Chip on Direct-Copper Bond (DCB) Substrate
- Isolated Mounting Surface
- Low Intrinsic Gate Resistance
- 2500V~ Electrical Isolation
- Fast Intrinsic Rectifier
- Avalanche Rated
- Low Package Inductance

Advantages

- High Power Density
- Easy to Mount
- Space Savings

Applications

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

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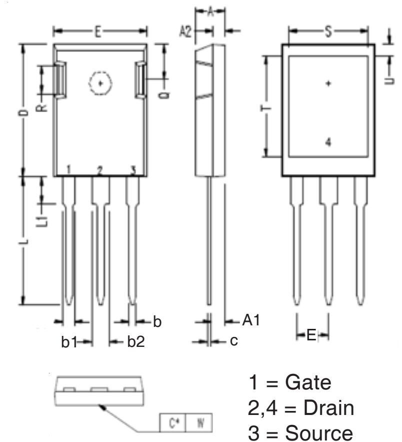
IXYS IXFR32N80Q3

Symbol	Test Conditions ($T_J = 25°C$ Unless Otherwise Specified)	Characteristic Values Min.	Typ.	Max.	
g_{fs}	$V_{DS} = 20V$, $I_D = 16A$, Note 1	16	26		S
C_{iss}	$V_{GS} = 0V$, $V_{DS} = 25V$, f = 1MHz		6940		pF
C_{oss}			700		pF
C_{rss}			63		pF
R_{Gi}	Gate Input Resistance		0.16		Ω
$t_{d(on)}$	**Resistive Switching Times** $V_{GS} = 10V$, $V_{DS} = 0.5 \bullet V_{DSS}$, $I_D = 16A$ $R_G = 1\Omega$ (External)		38		ns
t_r			13		ns
$t_{d(off)}$			45		ns
t_f			10		ns
$Q_{g(on)}$	$V_{GS} = 10V$, $V_{DS} = 0.5 \bullet V_{DSS}$, $I_D = 16A$		140		nC
Q_{gs}			48		nC
Q_{gd}			63		nC
R_{thJC}				0.25	°C/W
R_{thCS}			0.15		°C/W

ISOPLUS247 (IXFR) Outline



SYM	INCHES MIN	INCHES MAX	MILLIMETERS MIN	MILLIMETERS 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
b1	.075	.085	1.91	2.15
b2	.115	.126	2.92	3.20
C	.024	.033	0.61	0.83
D	.819	.840	20.80	21.34
E	.620	.635	15.75	16.13
e	.215 BSC		5.45 BSC	
L	.780	.811	19.81	20.60
L1	.150	.172	3.81	4.38
Q	.220	.244	5.59	6.20
R	.170	.191	4.32	4.85
S	.520	.540	13.21	13.72
T	.620	.640	15.75	16.26
U	.065	.080	1.65	2.03
W	0	.004	0	0.10

Source-Drain Diode

Symbol	Test Conditions ($T_J = 25°C$ Unless Otherwise Specified)	Characteristic Values Min.	Typ.	Max.	
I_S	$V_{GS} = 0V$			32	A
I_{SM}	Repetitive, Pulse Width Limited by T_{JM}			128	A
V_{SD}	$I_F = I_S$, $V_{GS} = 0V$, Note 1			1.4	V
t_{rr}	$I_F = 16A$, -di/dt = 100A/μs $V_R = 100V$, $V_{GS} = 0V$			300	ns
Q_{RM}			1.4		μC
I_{RM}			12.0		A

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

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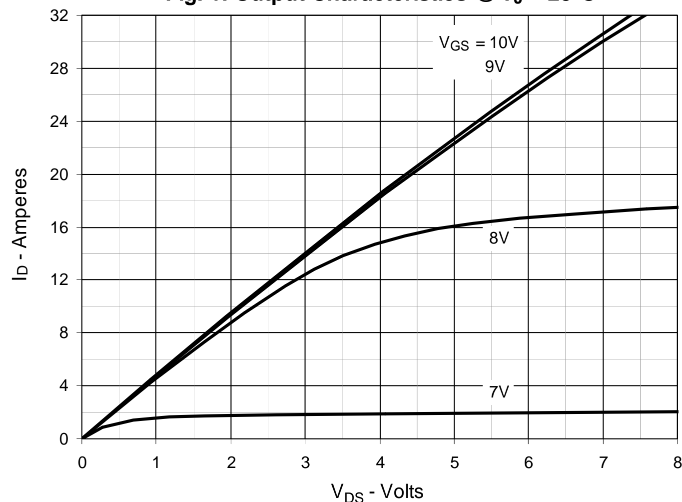
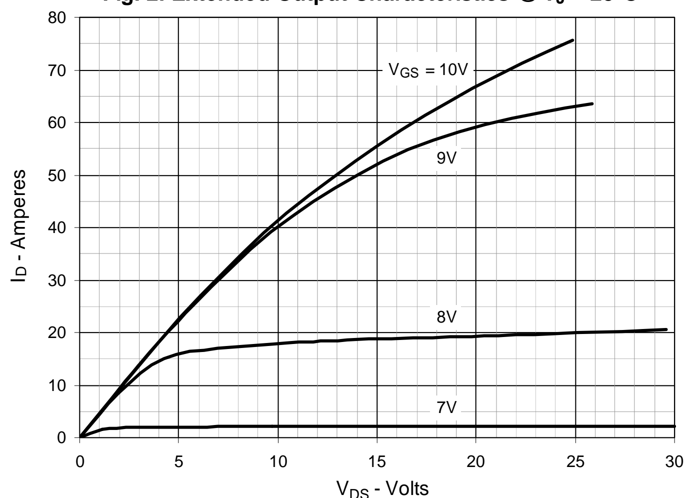
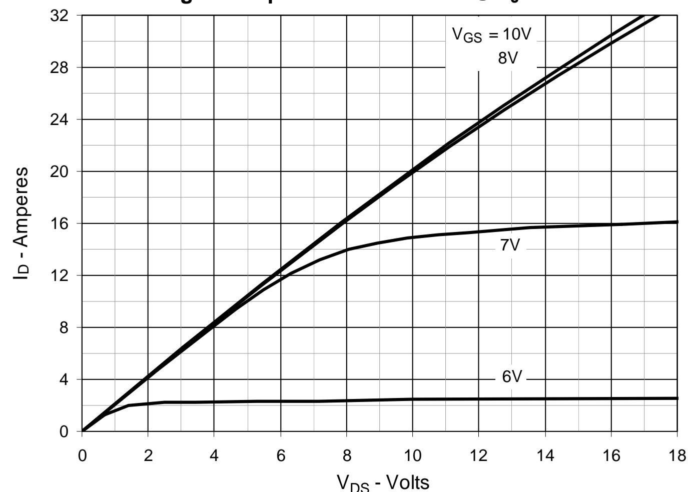
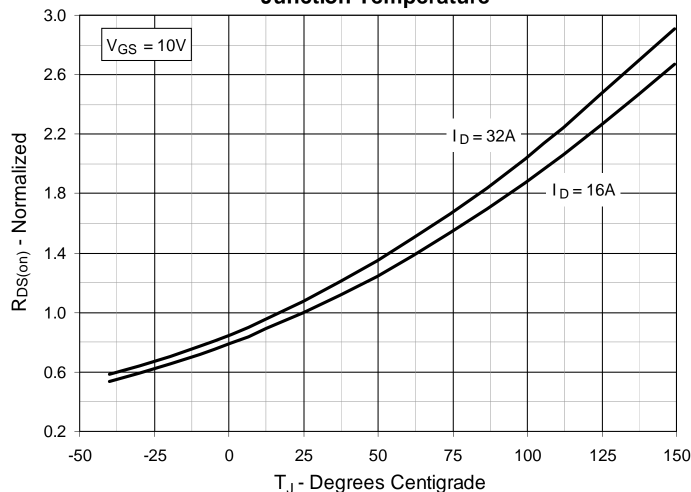
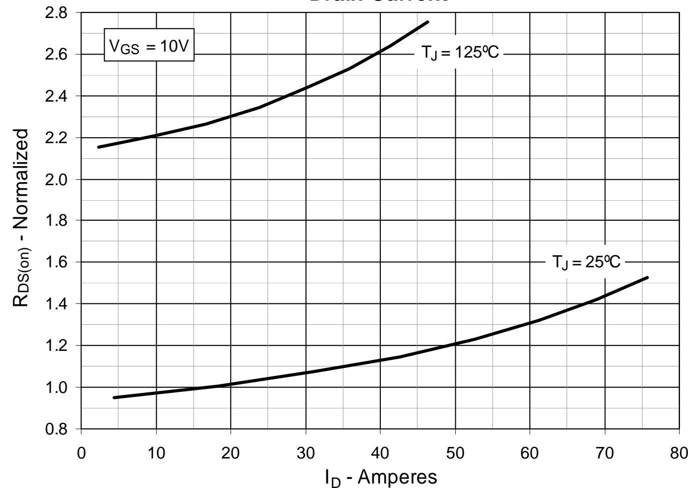
IXYS MOSFETs and IGBTs are covered by one or more of the following U.S. patents: 4,835,592 4,931,844 5,049,961 5,237,481 6,162,665 6,404,065 B1 6,683,344 6,727,585 7,005,734 B2 7,157,338B2 4,860,072 5,017,508 5,063,307 5,381,025 6,259,123 B1 6,534,343 6,710,405 B2 6,759,692 7,063,975 B2 4,881,106 5,034,796 5,187,117 5,486,715 6,306,728 B1 6,583,505 6,710,463 6,771,478 B2 7,071,537

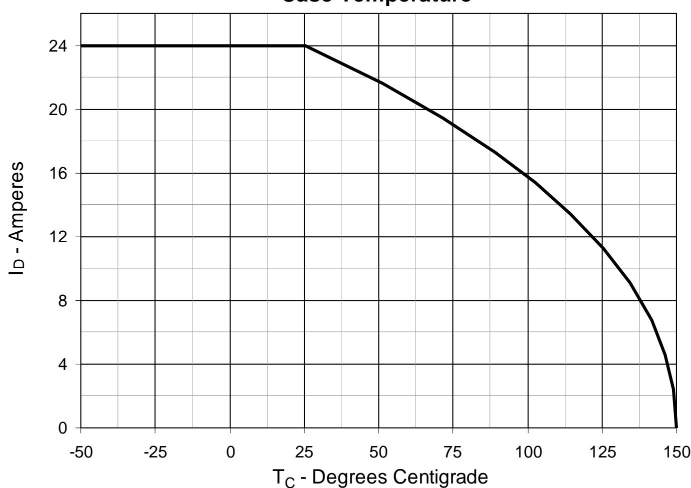












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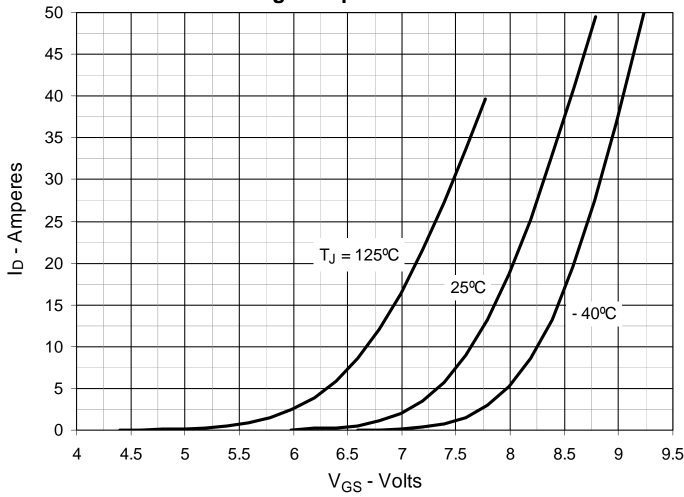

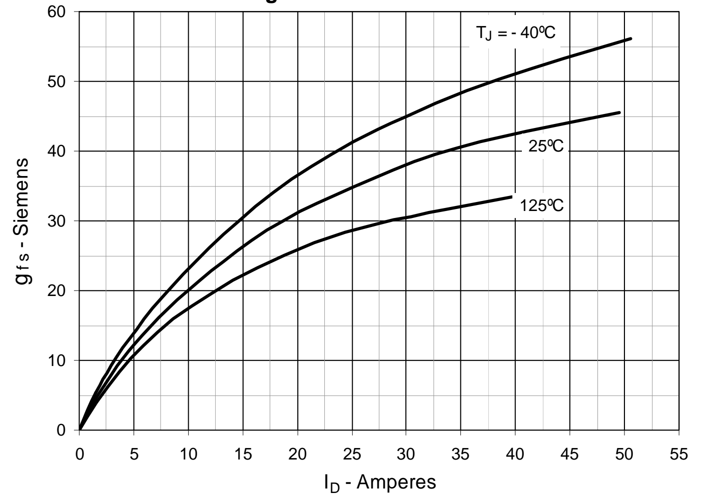

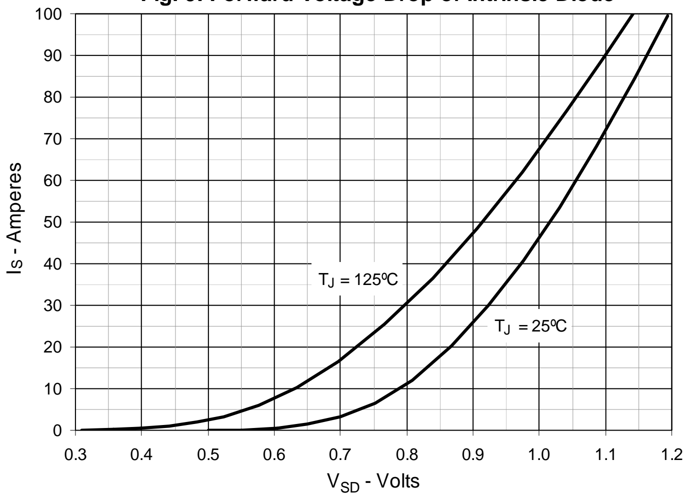

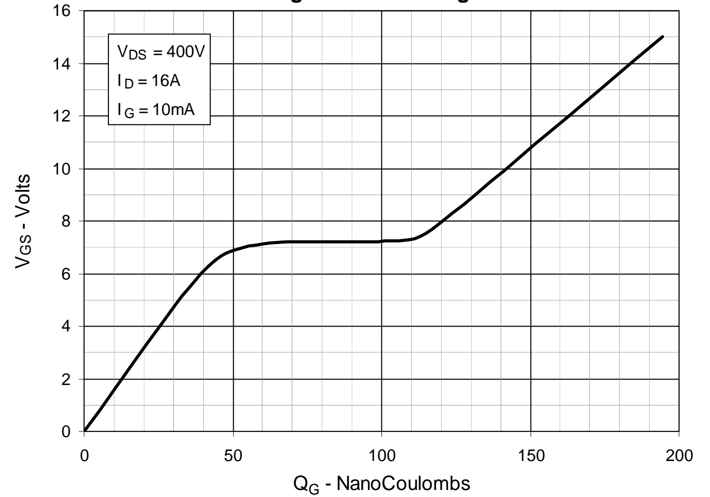

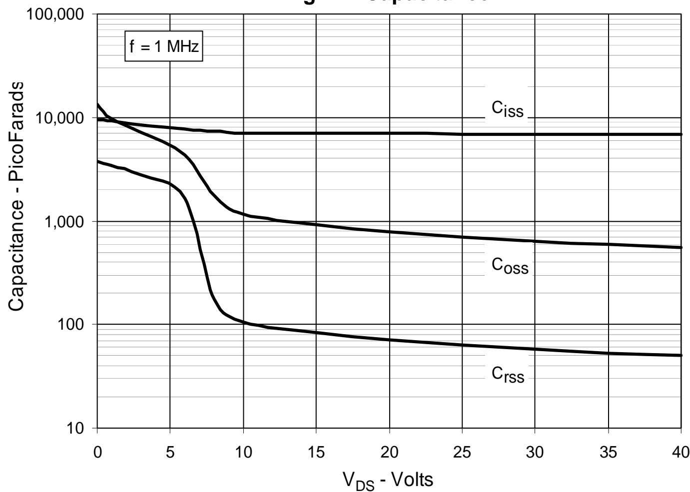

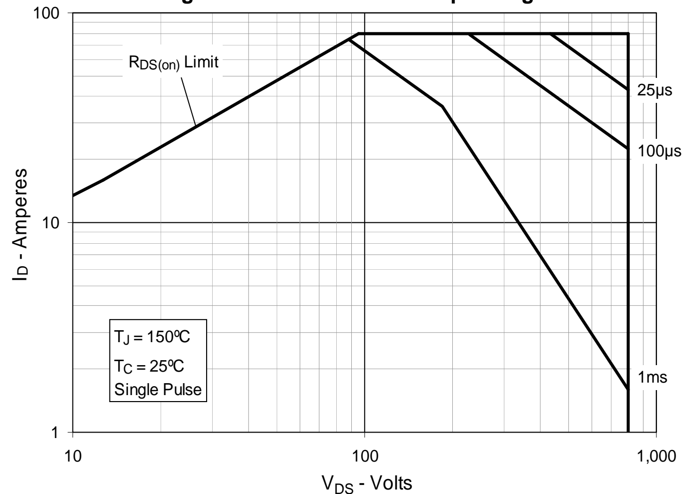

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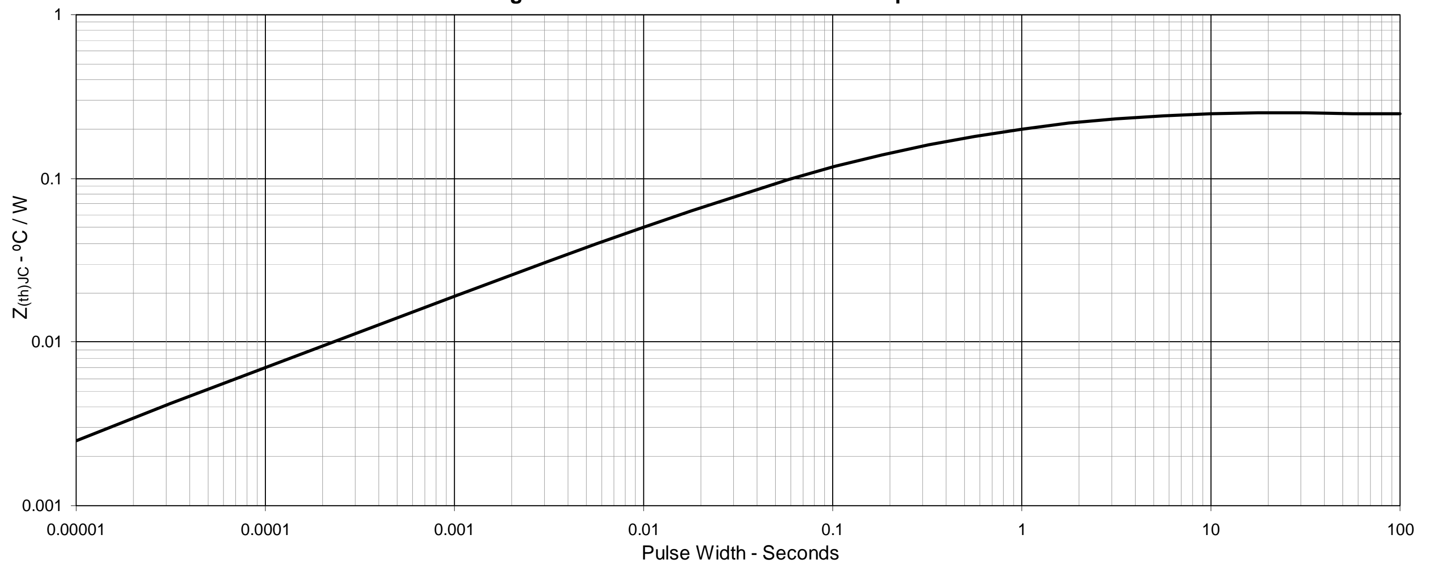

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