

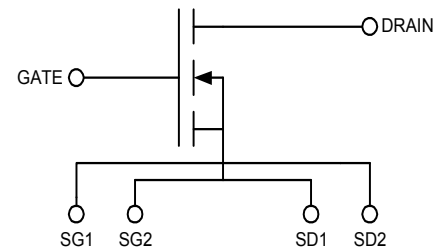
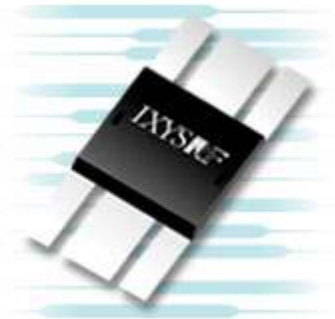


IXZ316N60 Z-MOS RF Power MOSFET

N-Channel Enhancement Mode Switch Mode RF MOSFET
Low Capacitance Z-MOS™ MOSFET Process
Optimized for RF Operation
Ideal for Class C, D, & E Applications

V_{DSS} = 600 V
I_{D25} = 18 A
R_{DS(on)} ≤ 0.47 Ω
P_{DC} = 880 W

Symbol	Test Conditions	Maximum Ratings	
V_{DSS}	T _J = 25°C to 150°C	600	V
V_{DGR}	T _J = 25°C to 150°C; R _{GS} = 1 MΩ	600	V
V_{GS}	Continuous	±20	V
V_{GSM}	Transient	±30	V
I_{D25}	T _c = 25°C	18	A
I_{DM}	T _c = 25°C, pulse width limited by T _{JM}	90	A
I_{AR}	T _c = 25°C	18	A
E_{AR}	T _c = 25°C	TBD	mJ
dv/dt	I _S ≤ I _{DM} , di/dt ≤ 100A/μs, V _{DD} ≤ V _{DSS} , T _J ≤ 150°C, R _G = 0.2Ω	5	V/ns
	I _S = 0	>200	V/ns
P_{DC}		880	W
P_{DHS}	T _c = 25°C, Derate 4.4W/°C above 25°C	440	W
P_{DAMB}	T _c = 25°C	3.0	W
R_{thJC}		0.17	C/W
R_{thJHS}		0.34	C/W



Features

- Isolated Substrate
 - high isolation voltage (>2500V)
 - excellent thermal transfer
 - Increased temperature and power cycling capability
- IXYS advanced Z-MOS process
- Low gate charge and capacitances
 - easier to drive
 - faster switching
- Low R_{DS(on)}
- Very low insertion inductance (<2nH)
- No beryllium oxide (BeO) or other hazardous materials

Advantages

- Optimized for RF and high speed
- Easy to mount—no insulators needed
- High power density

Symbol	Test Conditions	Characteristic Values (T _J = 25°C unless otherwise specified)		
		min.	typ.	max.
V_{DSS}	V _{GS} = 0 V, I _D = 4 ma	600		V
V_{GS(th)}	V _{DS} = V _{GS} , I _D = 250μA	3.2	4.0	5.5 V
I_{GSS}	V _{GS} = ±20 V _{DC} , V _{DS} = 0			±100 nA
I_{DSS}	V _{DS} = 0.8V _{DSS} V _{GS} = 0	T _J = 25°C		50 μA
		T _J = 125°C		1 mA
R_{DS(on)}	V _{GS} = 15 V, I _D = 0.5I _{D25} Pulse test, t ≤ 300μs, duty cycle d ≤ 2%		0.44	0.47 Ω
g_{fs}	V _{DS} = 50V, I _D = 0.5I _{D25} , pulse test	4.0	5.2	S
T_J		-55		+175 °C
T_{JM}			175	°C
T_{stg}		-55		+ 175 °C
T_L	1.6mm(0.063 in) from case for 10 s		300	°C
Weight			3.5	g

Symbol	Test Conditions	Characteristic Values		
		(T _J = 25°C unless otherwise specified)		
		min.	typ.	max.
R _G				1 Ω
C _{iss}			1930	pF
C _{oss}	V _{GS} = 0 V, V _{DS} = 0.8 V _{DSS(max)} , f = 1 MHz		160	pF
C _{rss}			16	pF
C _{stray}	Back Metal to any Pin		33	pF
T _{d(on)}			4	ns
T _{on}	V _{GS} = 15 V, V _{DS} = 0.8 V _{DSS} I _D = 0.5 I _{DM}		4	ns
T _{d(off)}	R _G = 1 Ω (External)		4	ns
T _{off}			6	ns

Source-Drain Diode		Characteristic Values		
		(T _J = 25°C unless otherwise specified)		
Symbol	Test Conditions	min.	typ.	max.
I _S	V _{GS} = 0 V			18 A
I _{SM}	Repetitive; pulse width limited by T _{JM}			108 A
V _{SD}	I _F = I _S , V _{GS} = 0 V, Pulse test, t ≤ 300 μs, duty cycle ≤ 2%			1.5 V
T _{rr}			200	ns

CAUTION: Operation at or above the Maximum Ratings values may impact device reliability or cause permanent damage to the device.

Information in this document is believed to be accurate and reliable. IXYSRF reserves the right to make changes to information published in this document at any time and without notice.

For detailed device mounting and installation instructions, see the “*Device Installation & Mounting Instructions*” technical note on the IXYSRF web site at;

http://www.ixysrf.com/pdf/switch_mode/appnotes/7de_series_mosfet_installation_instructions.pdf

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

IXYS RF MOSFETS are covered by one or more of the following U.S. patents:

4,835,592	4,860,072	4,881,106	4,891,686	4,931,844	5,017,508
5,034,796	5,049,961	5,063,307	5,187,117	5,237,481	5,486,715
5,381,025	5,640,045	6,404,065	6,583,505	6,710,463	6,727,585
6,731,002					



IXZ316N60 Z-MOS RF Power MOSFET

Fig. 1
Typical Transfer Characteristics

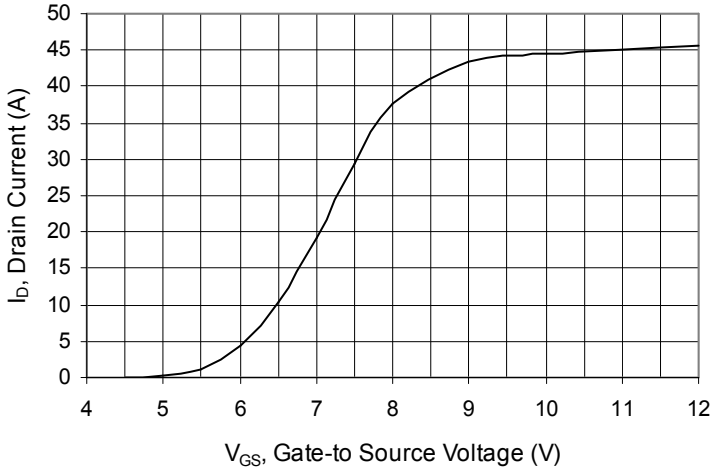


Fig. 2
Typical Output Characteristics

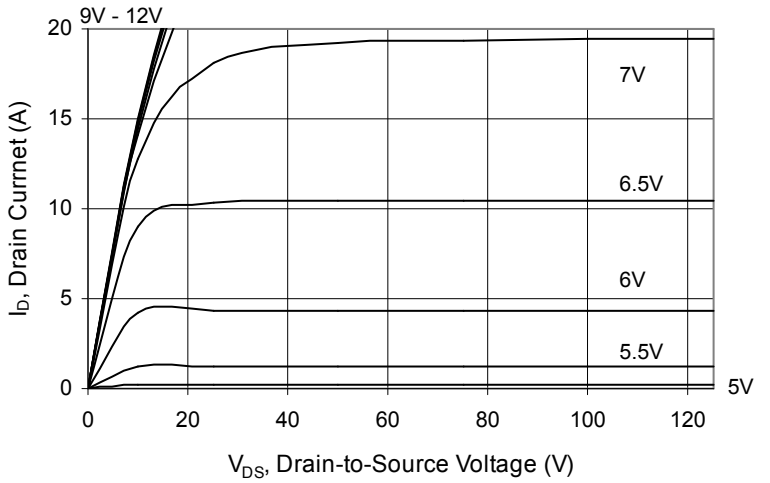


Fig. 3
Gate Charge vs. Gate-to-Source Voltage
 $V_{DS} = 300V, I_D = 9A, I_G = 3mA$

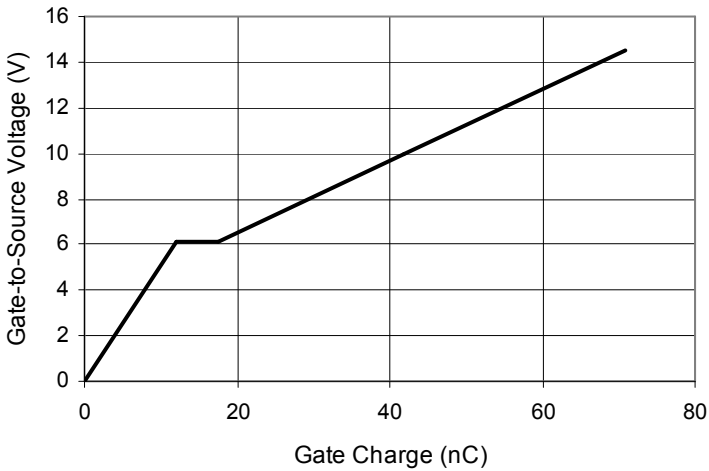


Fig. 4
Extended Typical Output Characteristics

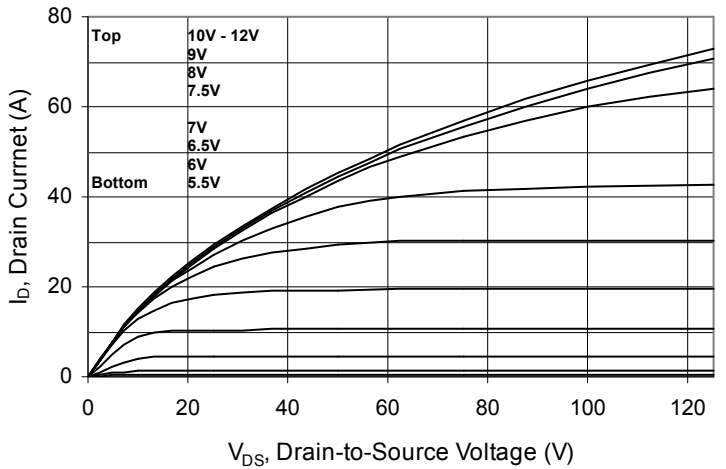


Fig. 5
VDS vs. Capacitance

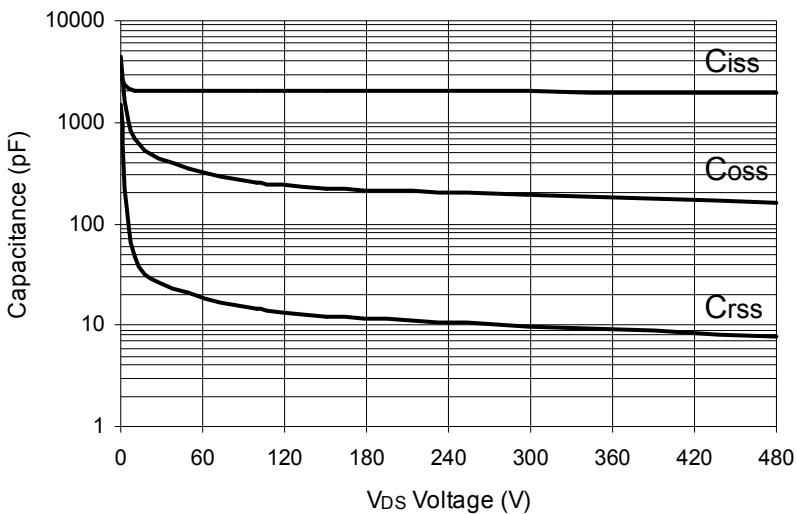
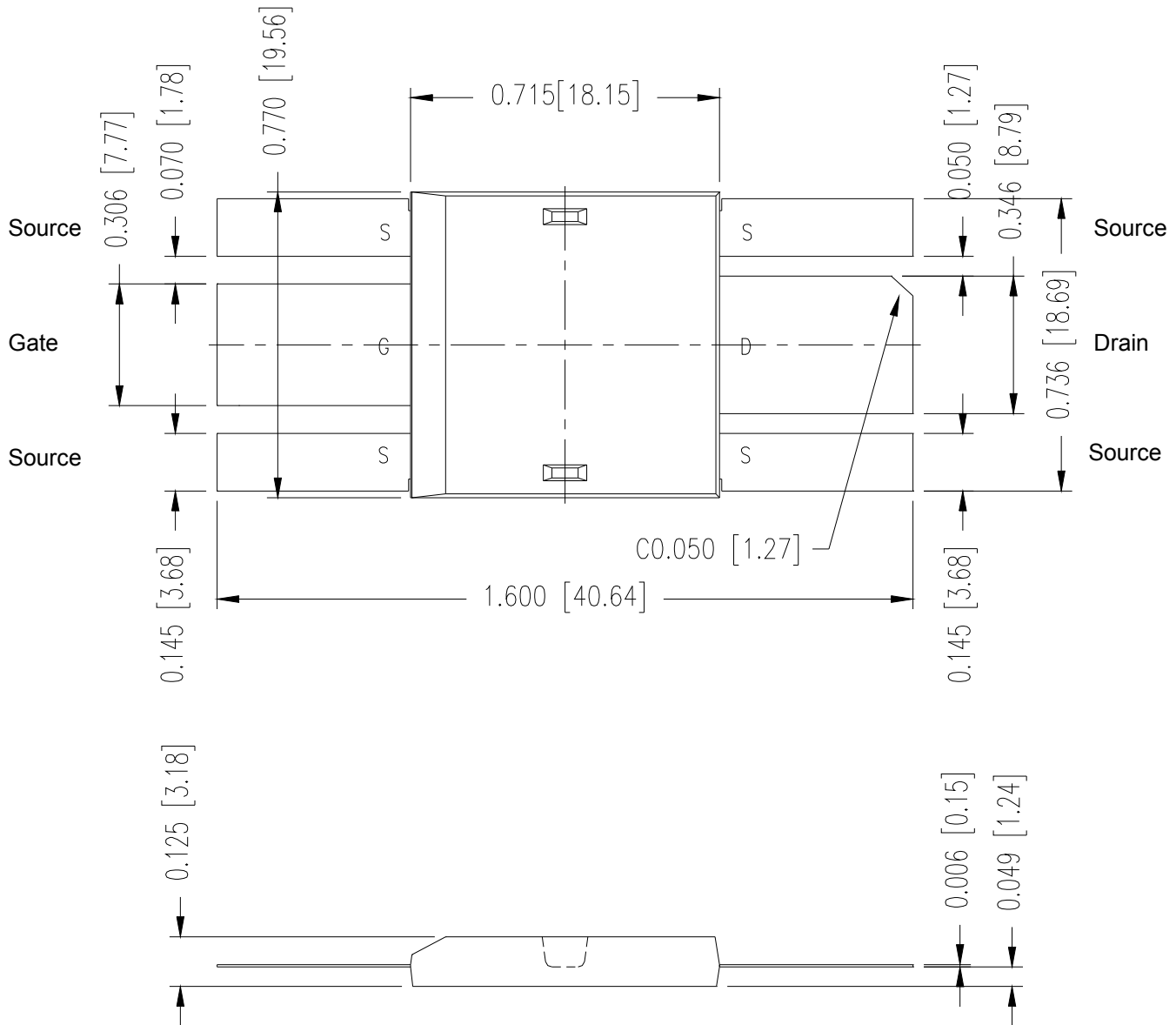


Fig. 6 Package Drawing



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