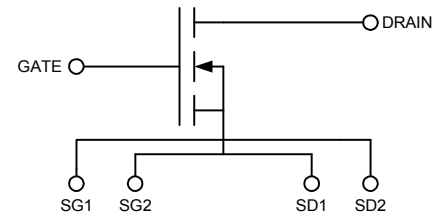
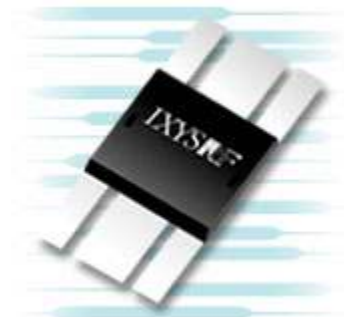


N-Channel Enhancement Mode Switch Mode RF MOSFET
 Low Capacitance Z-MOS™ MOSFET Process
 Optimized for RF Operation
 Ideal for Class C, D, & E Applications

$V_{DSS} = 500 \text{ V}$
 $I_{D25} = 19 \text{ A}$
 $R_{DS(on)} \leq 0.34 \Omega$
 $P_{DC} = 880 \text{ W}$

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_{GS}	Continuous	± 20	V
V_{GSM}	Transient	± 30	V
I_{D25}	$T_c = 25^\circ\text{C}$	19	A
I_{DM}	$T_c = 25^\circ\text{C}$, pulse width limited by T_{JM}	95	A
I_{AR}	$T_c = 25^\circ\text{C}$	19	A
E_{AR}	$T_c = 25^\circ\text{C}$	TBD	mJ
dv/dt	$I_S \leq I_{DM}$, $di/dt \leq 100 \text{ A}/\mu\text{s}$, $V_{DD} \leq V_{DSS}$, $T_J \leq 150^\circ\text{C}$, $R_G = 0.2 \Omega$	5	V/ns
	$I_S = 0$	>200	V/ns
P_{DC}		880	W
P_{DHS}	$T_c = 25^\circ\text{C}$	440	W
P_{DAMB}	$T_{amb} = 25^\circ\text{C}$	3.0	W
R_{thJC}		0.17	C/W
R_{thJHS}		0.34	C/W

Symbol	Test Conditions	Characteristic Values		
		$(T_J = 25^\circ\text{C}$ unless otherwise specified)		
		min.	typ.	max.
V_{DSS}	$V_{GS} = 0 \text{ V}$, $I_D = 4 \text{ ma}$	500		
$V_{GS(th)}$	$V_{DS} = V_{GS}$, $I_D = 250 \mu\text{A}$	3.5	4.9	6.5
I_{GSS}	$V_{GS} = \pm 20 \text{ V}_{DC}$, $V_{DS} = 0$			± 100
I_{DSS}	$V_{DS} = 0.8 V_{DSS}$ $V_{GS} = 0$	$T_J = 25^\circ\text{C}$		50 μA
		$T_J = 125^\circ\text{C}$		1 mA
$R_{DS(on)}$	$V_{GS} = 20 \text{ V}$, $I_D = 0.5 I_{D25}$ Pulse test, $t \leq 300 \mu\text{s}$, duty cycle $d \leq 2\%$.32	.34
g_{fs}	$V_{DS} = 50 \text{ V}$, $I_D = 0.5 I_{D25}$, pulse test	5.0	5.4	6.0
T_J		-55		+175
T_{JM}			175	
T_{stg}		-55		+175
T_L	1.6mm(0.063 in) from case for 10 s		300	
Weight			3.5	g



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



IXZ318N50
Z-MOS RF Power MOSFET

Symbol	Test Conditions	Characteristic Values		
		(T _J = 25°C unless otherwise specified)		
		min.	typ.	max.
R _G				1 Ω
C _{iss}			1950	pF
C _{oss}	V _{GS} = 0 V, V _{DS} = 0.8 V _{DSS(max)} , f = 1 MHz		175	pF
C _{rss}			17	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)		5	ns
T _{off}			6	ns

Symbol	Test Conditions	Characteristic Values		
		(T _J = 25°C unless otherwise specified)		
		min.	typ.	max.
I _S	V _{GS} = 0 V			19 A
I _{SM}	Repetitive; pulse width limited by T _{JM}			114 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				

Fig. 1

Typical Transfer Characteristics
 $V_{DS} = 50V, P.W. = 20\mu S$

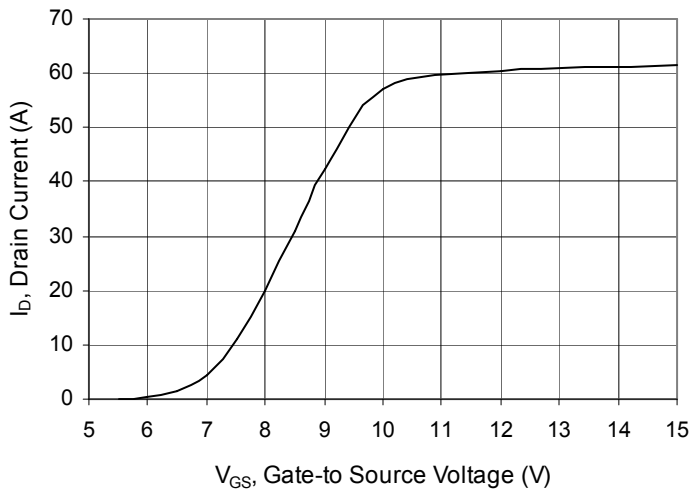


Fig. 2

Typical Output Characteristics

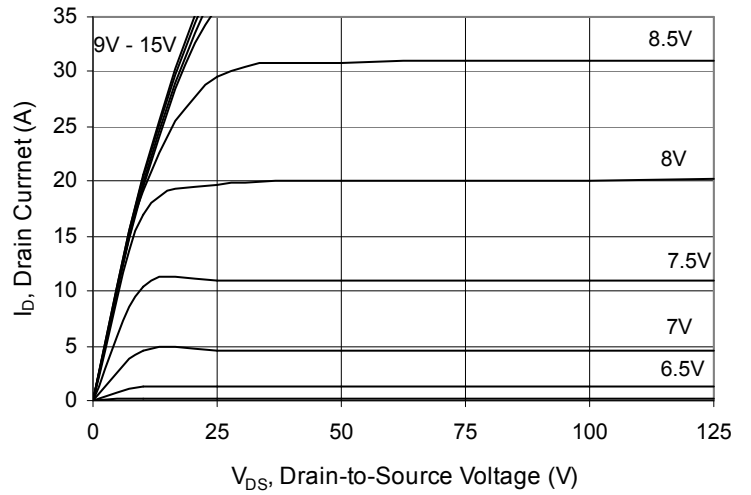


Fig. 3

Gate Charge vs. Gate-to-Source Voltage
 $V_{DS} = 250V, I_D = 9.5A, I_G = 3mA$

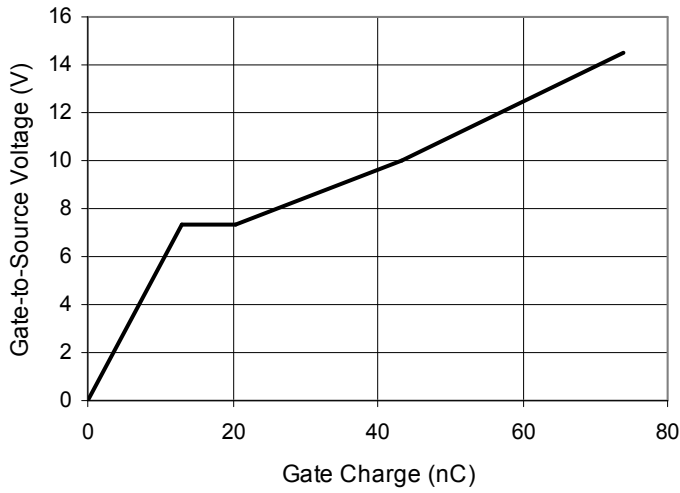


Fig. 4

Extended Typical Output Characteristics

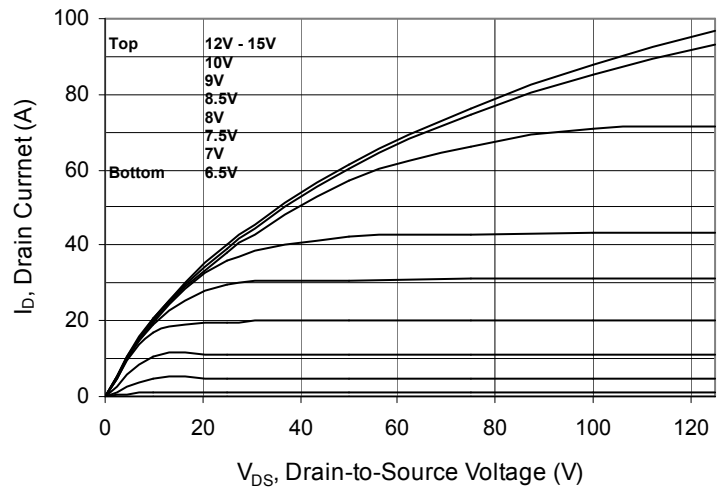


Fig. 5

V_{DS} vs. Capacitance

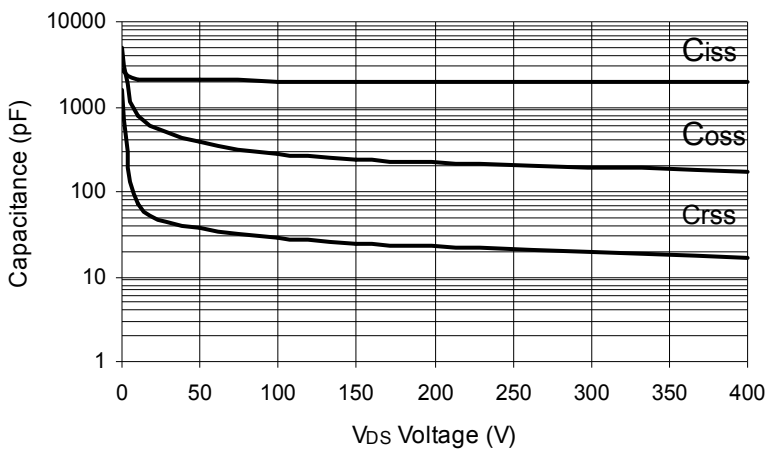
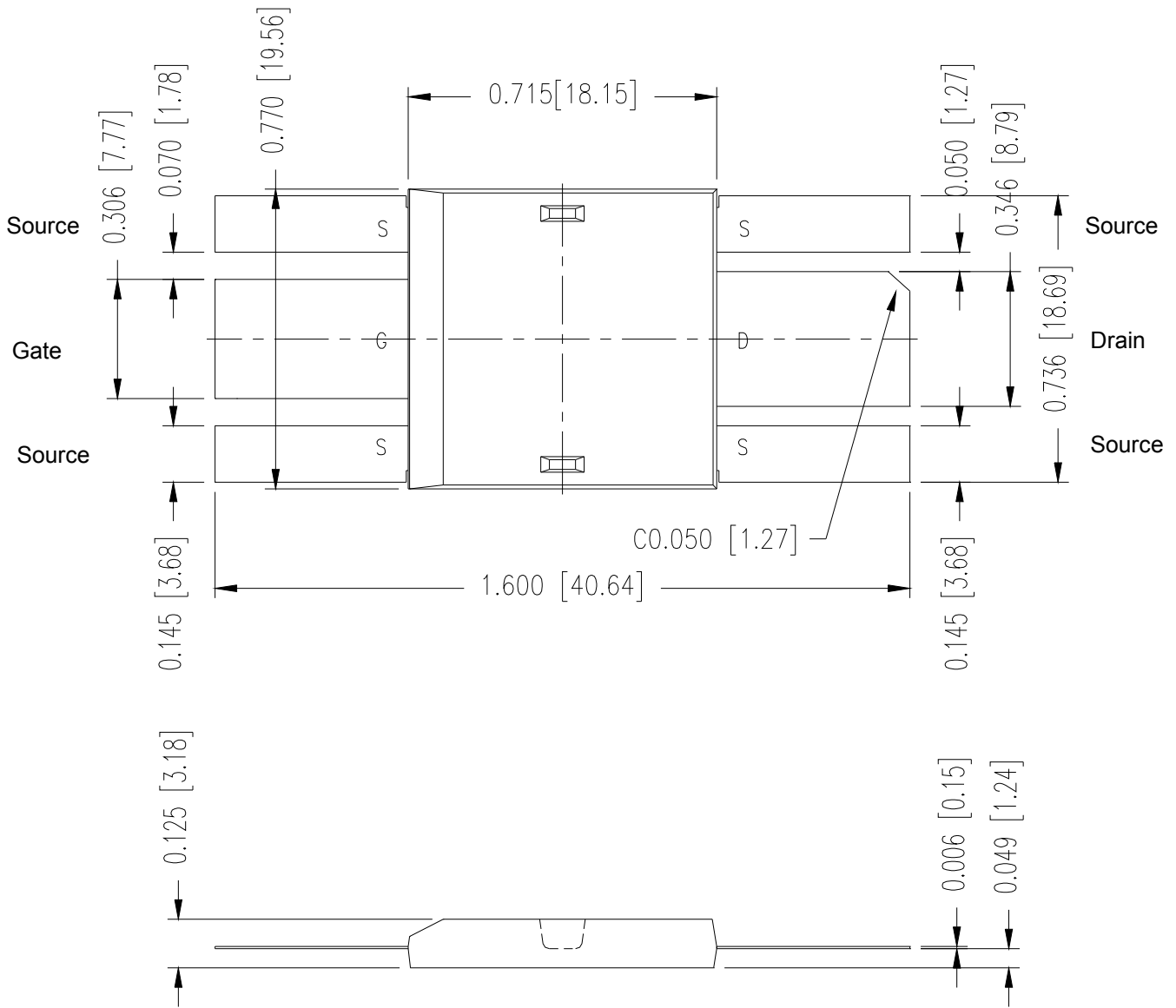


Fig. 6 Package Drawing



Doc #dsIXZ318N50 REV 07/09
 © 2009 IXYS RF



An IXYS Company
 2401 Research Blvd., Suite 108
 Fort Collins, CO USA 80526
 970-493-1901 Fax: 970-493-1903
 Email: sales@ixyscolorado.com
 Web: http://www.ixyscolorado.com