

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

$$V_{DSS} = 600 \text{ V}$$

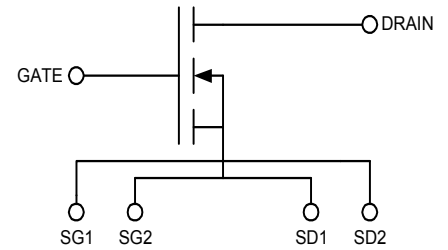
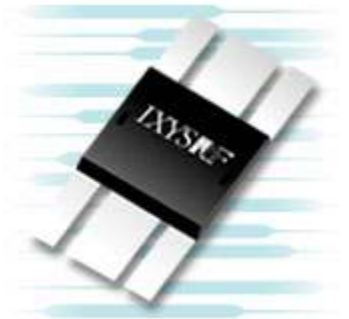
$$I_{D25} = 18 \text{ A}$$

$$R_{DS(on)} \leq 0.47 \Omega$$

$$P_{DC} = 880 \text{ W}$$

Symbol	Test Conditions	Maximum Ratings	
V_{DSS}	$T_J = 25^\circ\text{C to } 150^\circ\text{C}$	600	V
V_{DGR}	$T_J = 25^\circ\text{C to } 150^\circ\text{C}; R_{GS} = 1 \text{ M}\Omega$	600	V
V_{GS}	Continuous	± 20	V
V_{GSM}	Transient	± 30	V
I_{D25}	$T_c = 25^\circ\text{C}$	18	A
I_{DM}	$T_c = 25^\circ\text{C}$, pulse width limited by T_{JM}	90	A
I_{AR}	$T_c = 25^\circ\text{C}$	18	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}	$T_c = 25^\circ\text{C}$, Derate $4.4 \text{ W}/^\circ\text{C}$ above 25°C	440	W
P_{DAMB}	$T_c = 25^\circ\text{C}$	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}	$V_{GS} = 0 \text{ V}$, $I_D = 4 \text{ mA}$	600		V
$V_{GS(th)}$	$V_{DS} = V_{GS}$, $I_D = 250 \mu\text{A}$	3.2	4.0	5.5 V
I_{GSS}	$V_{GS} = \pm 20 \text{ V}_{DC}$, $V_{DS} = 0$			$\pm 100 \text{ nA}$
I_{DSS}	$V_{DS} = 0.8 V_{DSS}$, $V_{GS} = 0$			$50 \mu\text{A}$ 1 mA
$R_{DS(on)}$	$V_{GS} = 15 \text{ V}$, $I_D = 0.5 I_{D25}$ Pulse test, $t \leq 300 \mu\text{s}$, duty cycle $d \leq 2\%$		0.44	0.47 Ω
g_{fs}	$V_{DS} = 50 \text{ V}$, $I_D = 0.5 I_{D25}$, pulse test	4.0	5.2	S
T_J		-55		+175 $^\circ\text{C}$
T_{JM}			175	$^\circ\text{C}$
T_{stg}		-55		+ 175 $^\circ\text{C}$
T_L	1.6mm(0.063 in) from case for 10 s		300	$^\circ\text{C}$
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

Symbol	Test Conditions	Characteristic Values ($T_J = 25^\circ\text{C}$ unless otherwise specified)		
		min.	typ.	max.
R_G				1 Ω
C_{iss}			1930	pF
C_{oss}	$V_{GS} = 0\text{ V}$, $V_{DS} = 0.8 V_{DSS(max)}$, $f = 1\text{ MHz}$		160	pF
C_{rss}			16	pF
C_{stray}	Back Metal to any Pin		33	pF
$T_{d(on)}$			4	ns
T_{on}	$V_{GS} = 15\text{ V}$, $V_{DS} = 0.8 V_{DSS}$ $I_D = 0.5 I_{DM}$		4	ns
$T_{d(off)}$	$R_G = 1\text{ }\Omega$ (External)		4	ns
T_{off}			6	ns

Source-Drain Diode
Characteristic Values

($T_J = 25^\circ\text{C}$ unless otherwise specified)

Symbol	Test Conditions	min.	typ.	max.
I_S	$V_{GS} = 0\text{ V}$			18 A
I_{SM}	Repetitive; pulse width limited by T_{JM}			108 A
V_{SD}	$I_F = I_S$, $V_{GS} = 0\text{ V}$, Pulse test, $t \leq 300\mu\text{s}$, duty cycle $\leq 2\%$			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					

Fig. 1

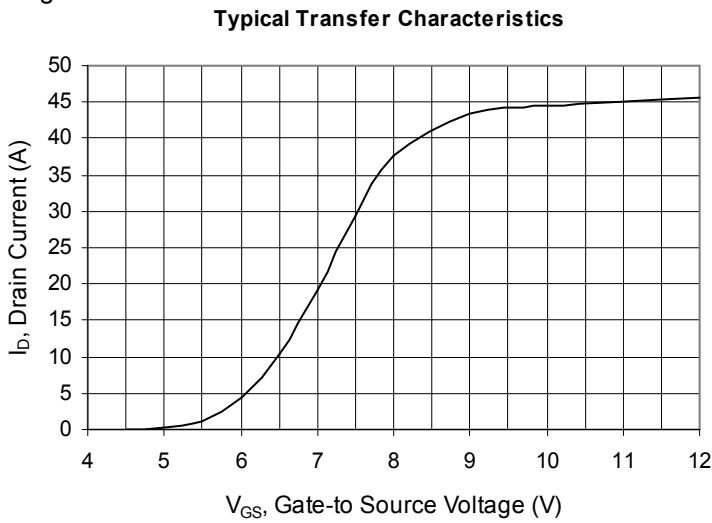


Fig. 2

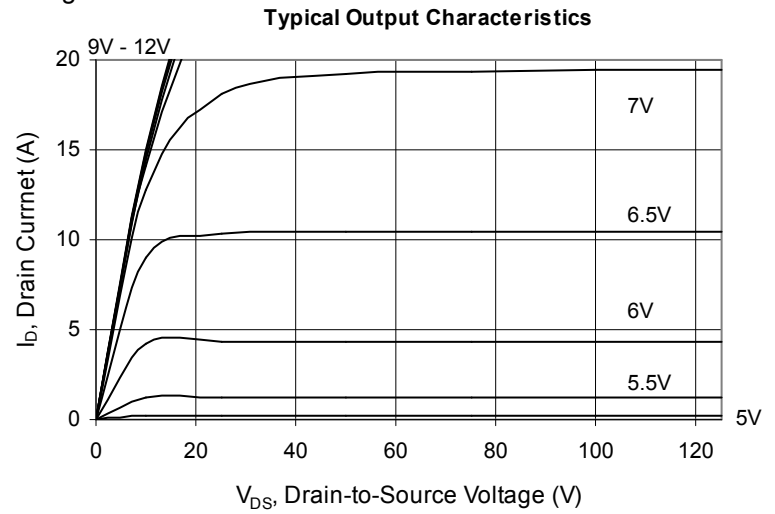


Fig. 3

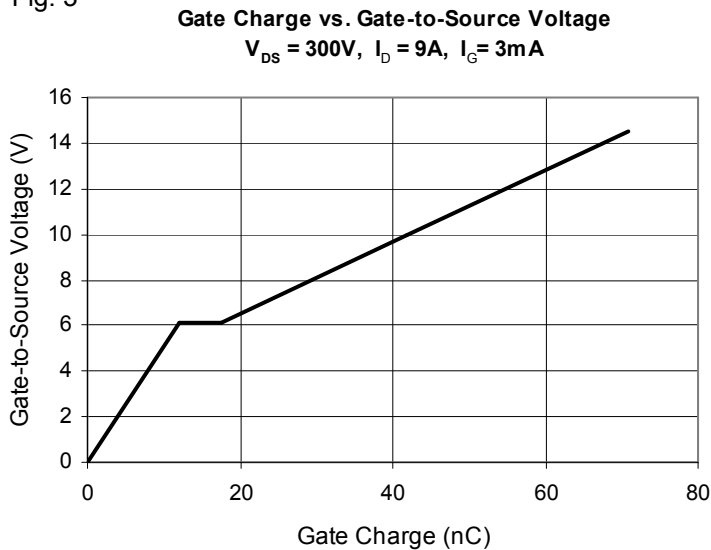


Fig. 4

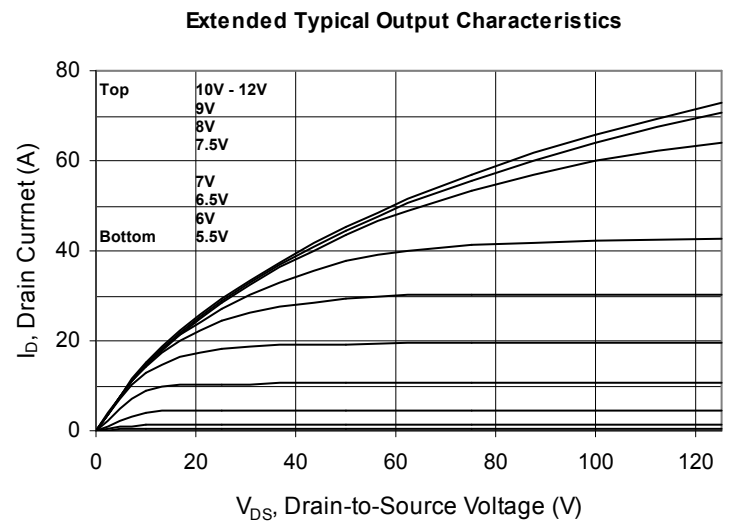


Fig. 5

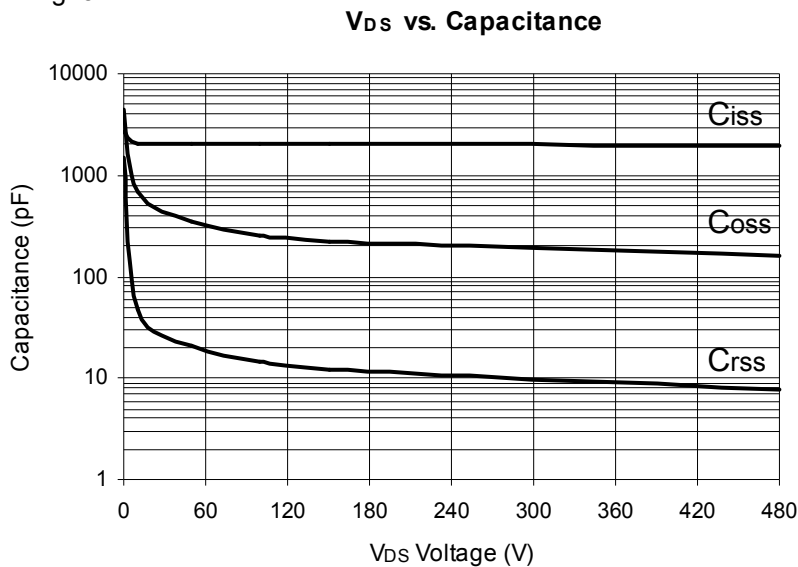
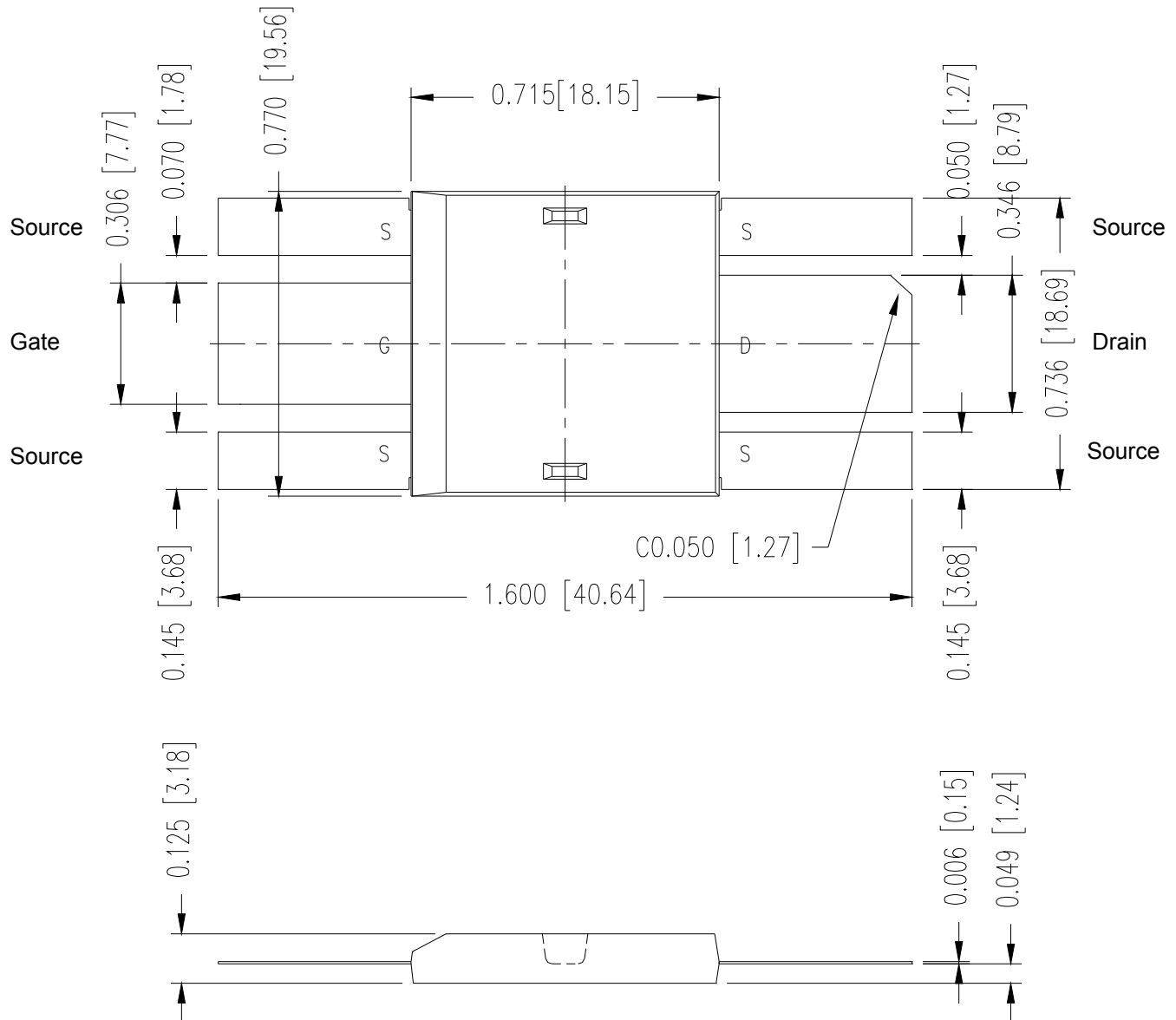


Fig. 6 Package Drawing



Doc #dsIXZ316N60 REV 08/09
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