



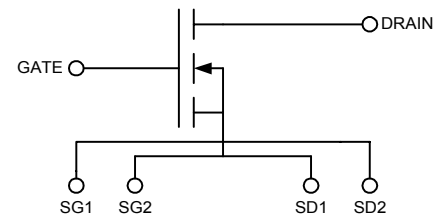
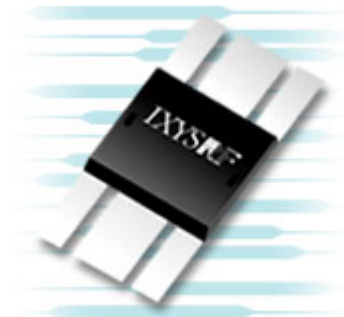
# IXZ316N60

## 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

$$\begin{aligned} V_{DSS} &= 600 \text{ V} \\ I_{D25} &= 18.0 \text{ A} \\ R_{DS(on)} &= 0.44 \Omega \\ P_{DC} &= 880 \text{ W} \end{aligned}$$

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	$\pm 20$	V
$V_{GSM}$	Transient	$\pm 30$	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 $25^\circ\text{C}$	440	W
$P_{DAMB}$	$T_c = 25^\circ\text{C}$	3.0	W
$R_{thJC}$		0.17	$\text{C}/\text{W}$
$R_{thJHS}$		0.34	$\text{C}/\text{W}$



### 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

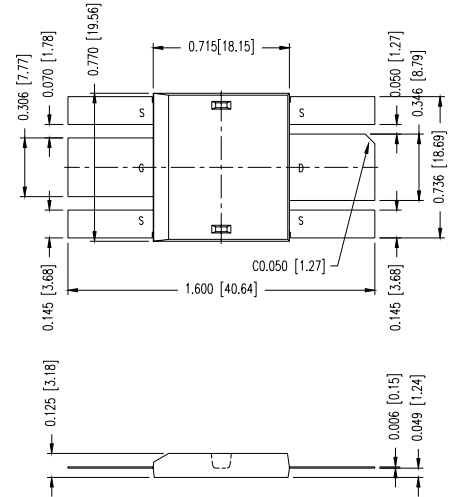
www.DataSheet4U.com

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
$V_{GS(th)}$	$V_{DS} = V_{GS}$ , $I_D = 250 \mu\text{A}$	3.5	4.25	6.5 V
$I_{GSS}$	$V_{GS} = \pm 20 V_{DC}$ , $V_{DS} = 0$			$\pm 100 \text{ nA}$
$I_{DSS}$	$V_{DS} = 0.8 V_{DSS}$ $V_{GS} = 0$	$T_J = 25^\circ\text{C}$ $T_J = 125^\circ\text{C}$		50 $\mu\text{A}$
				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 $d \leq 2\%$		0.437	$\Omega$
$g_{fs}$	$V_{DS} = 50 \text{ V}$ , $I_D = 0.5 I_{D25}$ , pulse test		15.2	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	$^\circ\text{C}$
<b>Weight</b>			3.5	g

# PRELIMINARY

**Symbol    Test Conditions    Characteristic Values**  
( $T_J = 25^\circ\text{C}$  unless otherwise specified)

		min.	typ.	max.	
$R_G$				1	$\Omega$
$C_{iss}$			1930		pF
$C_{oss}$	$V_{GS} = 0\text{ V}, V_{DS} = 0.8 V_{DSS(max)}, f = 1\text{ MHz}$		125		pF
$C_{rss}$			17.8		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
$T_{d(off)}$	$R_G = 1\ \Omega$ (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
$T_{rr}$			TBD		ns

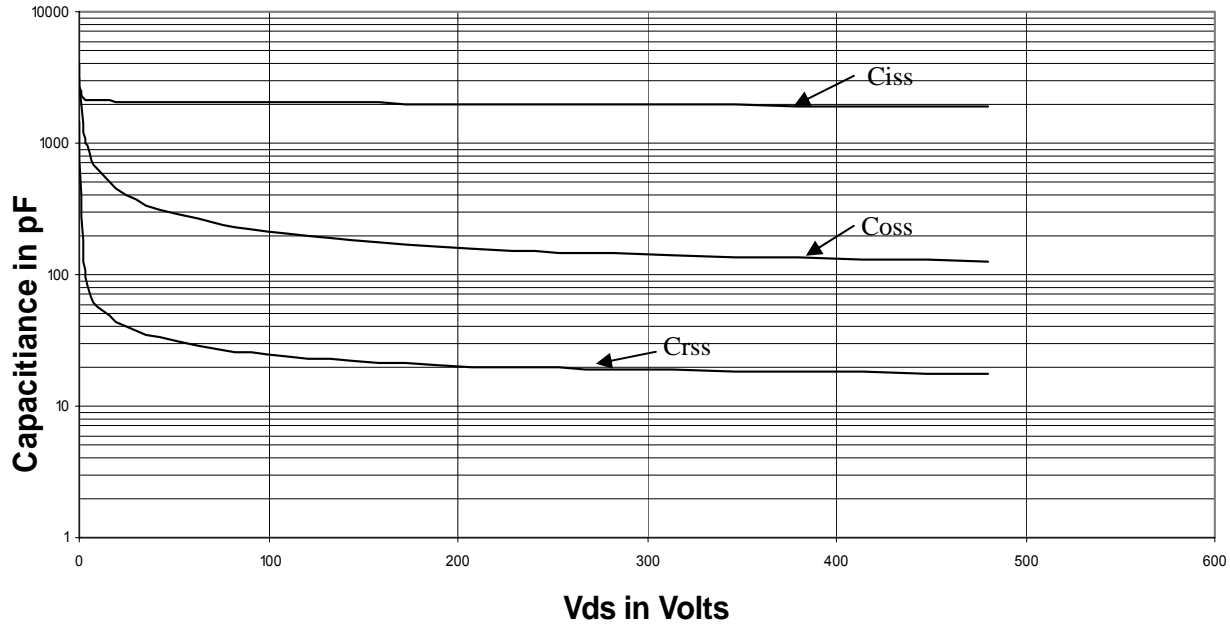
For detailed device mounting and installation instructions, see the “*DE-Series MOSFET Mounting Instructions*” technical note on IXYS RF’s web site at [www.ixysrf.com/Technical\\_Support/App\\_notes.html](http://www.ixysrf.com/Technical_Support/App_notes.html)

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					

# PRELIMINARY



**IXZ316N60 Capacitances verses Vds**