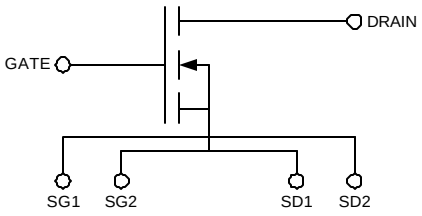
# IXZ215N12L
# RF Power MOSFET

N-Channel Enhancement Mode Linear 175MHz RF MOSFET
Low Capacitance Z-MOS$_{TM}$ MOSFET Process
Optimized for Linear Operation
Ideal for Class AB & C, Broadcast & Communications Applications

$V_{DSS}$ = 125 V
$I_{D25}$ = 15 A
$R_{DS(on)}$ = 0.3 Ω
$P_{DC}$ = TBD W

## PRELIMINARY

| Symbol | Test Conditions | Maximum Ratings | |
|---|---|---|---|
| $V_{DSS}$ | $T_J$ = 25°C to 150°C | 125 | V |
| $V_{DGR}$ | $T_J$ = 25°C to 150°C; $R_{GS}$ = 1 MΩ | 125 | V |
| $V_{GS}$ | Continuous | ±20 | V |
| $V_{GSM}$ | Transient | ±30 | V |
| $I_{D25}$ | $T_c$ = 25°C | 15 | A |
| $I_{DM}$ | $T_c$ = 25°C, pulse width limited by $T_{JM}$ | 60 | A |
| $I_{AR}$ | $T_c$ = 25°C | 16 | A |
| $E_{AR}$ | $T_c$ = 25°C | TBD | mJ |
| dv/dt | $I_S \le I_{DM}$, di/dt ≤ 100A/µs, $V_{DD} \le V_{DSS}$, $T_j \le 150°C$, $R_G$ = 0.2Ω | 5 | V/ns |
| | $I_S$ = 0 | >200 | V/ns |
| $P_{DC}$ | | | W |
| $P_{DHS}$ | $T_c$ = 25°C, Derate 6.0W/°C above 25°C | TBD | W |
| $P_{DAMB}$ | $T_c$ = 25°C | 6.0 | W |


| | | min. | typ. | max. | |
|---|---|---|---|---|---|
| $V_{DSS}$ | $V_{GS}$ = 0 V, $I_D$ = 4 ma | 125 | | | V |
| $V_{GS(th)}$ | $V_{DS} = V_{GS}$, $I_D$ = 250µA | 3.5 | | 6.5 | V |
| $I_{GSS}$ | $V_{GS}$ = ±20 $V_{DC}$, $V_{DS}$ = 0 | | | ± | 1µA |
| $I_{DSS}$ | $V_{DS}$ = 50 $T_J$ = 25°C | | | | 5µA |
| $R_{DS(on)}$ | $V_{GS}$ = 15 V, $I_D = 0.5I_{D25}$ Pulse test, t ≤ 300µS, duty cycle d ≤ 2% | | 0.30 | | Ω |
| $g_{fs}$ | $V_{DS}$ = 15 V, $I_D = 0.5I_{D25}$, pulse test | | 5.4 | | 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** | | | 4 | | g |

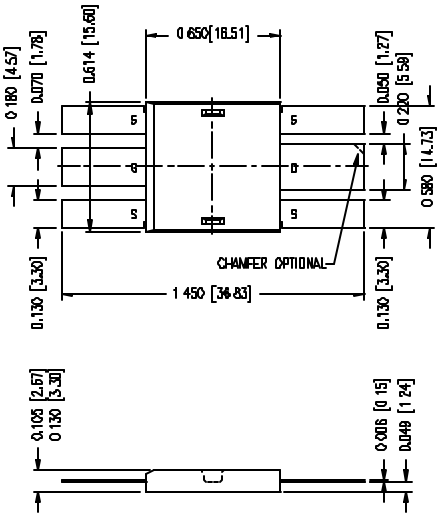
**Features**

- Isolated Substrate
  - high isolation voltage (>2500V)
  - excellent thermal transfer
  - Increased temperature and power cycling capability
- IXYS RF Low CapacitanceZ-MOS Process
- Very low insertion inductance (<2nH)
- No beryllium oxide (BeO) or other hazardous materials

**Advantages**

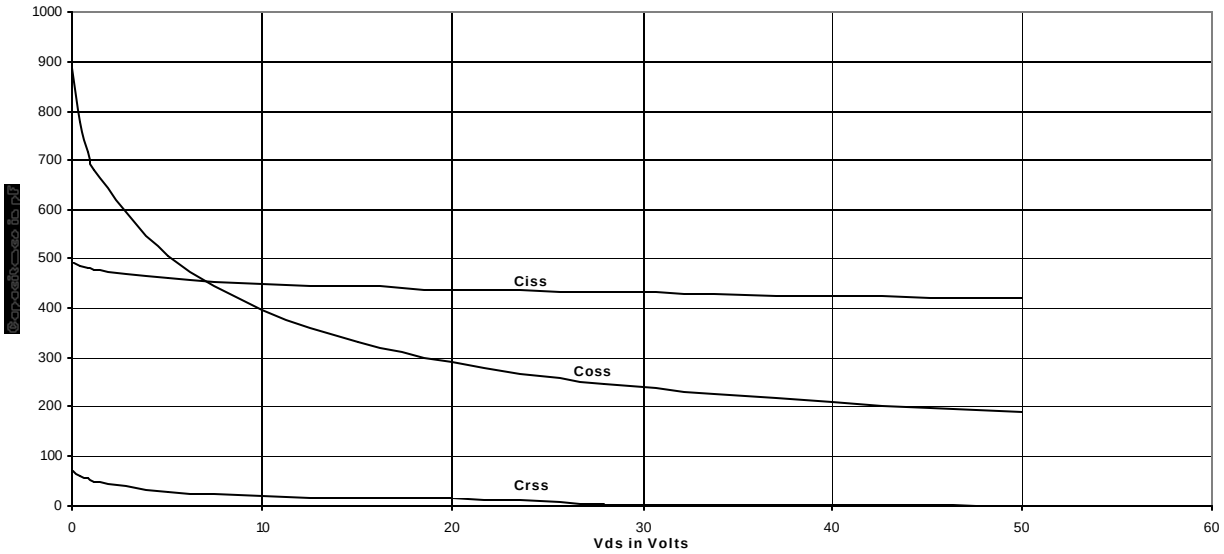
- High Performance RF Package
- Easy to mount—no insulators needed

| Symbol | Test Conditions ($T_J$ = 25°C unless otherwise specified) | Characteristic Values min. | typ. | max. | |
|---|---|---|---|---|---|
| $C_{iss}$ | | | 425 | | pF |
| $C_{oss}$ | $V_{GS}$ = 0 V, $V_{DS}$ = 40V, f = 1 MHz | | 211 | | pF |
| $C_{rss}$ | | | 2 | | pF |
| $C_{stray}$ | Back Metal to any Pin | | 21 | | pF |
| $T_{d(on)}$ | | | 4 | | ns |
| $T_{on}$ | $V_{GS}$ = 15 V, $V_{DS}$ = 0.8 $V_{DSS}$ | | 3 | | ns |
| $T_{d(off)}$ | $I_D$ = 0.5 $I_{DM}$ $R_G$ = 1 Ω (External) | | 4 | | ns |
| $T_{off}$ | | | 5 | | ns |

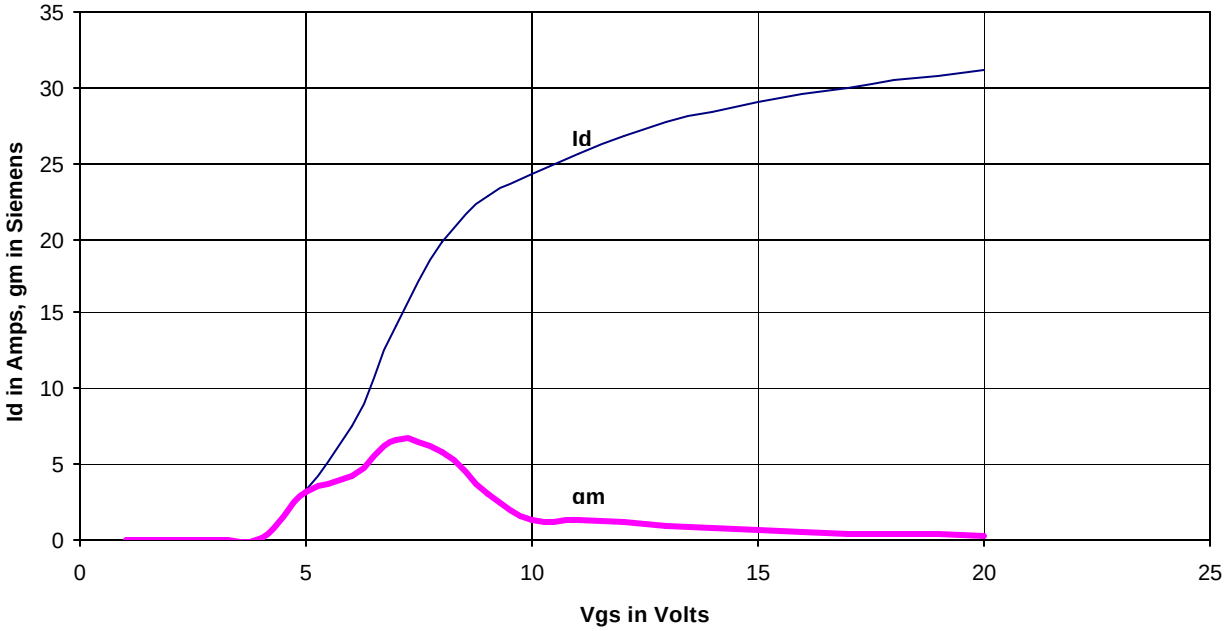



| VHF COMMUNICATIONS | | min. | typ. | max. | |
|---|---|---|---|---|---|
| Gps | VDD= 50V, Pout=200W, f=175MHz | | 12.7 | | db |
| Drain Efficiency | VDD= 50V, Pout=200W, f=175MHz | 50 | 60 | | |
| Load Mismatch | VDD= 150V, Pout=300W, f=175MHz | | | 5:1 | |

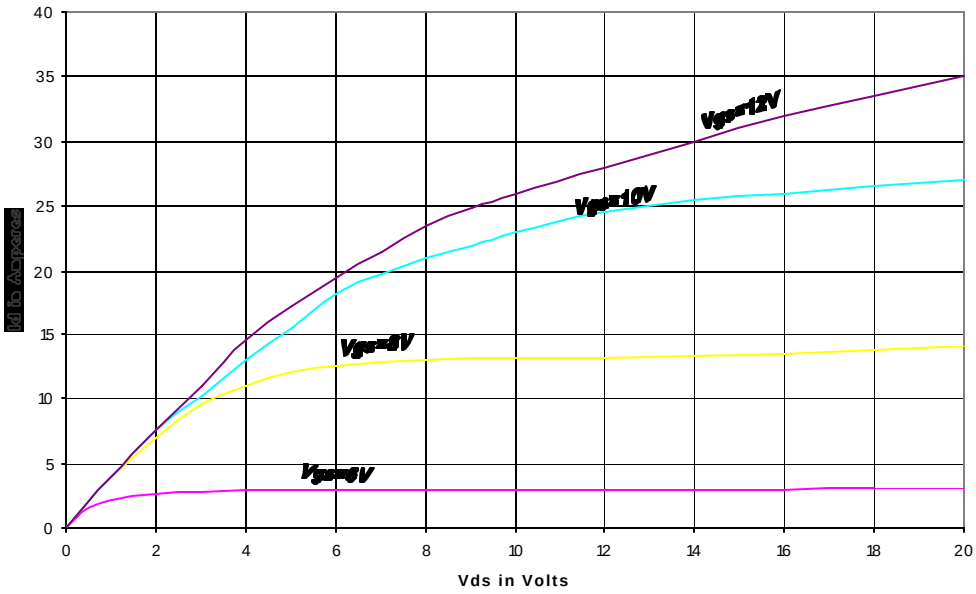
**Capacitance vs. Voltage**




**Id & gm verses Vgs**



**Vds Verses Id as a function of Vgs**

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