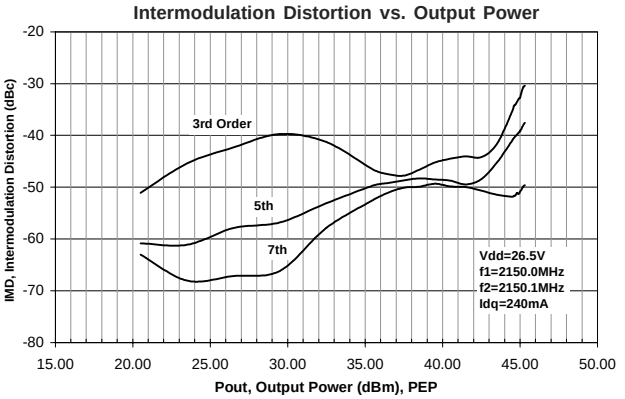
Advance Data Sheet

## Product Description

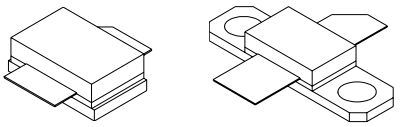
The SL-2522 is Stanford Microdevices' high-linearity 25W LDMOS transistor designed for base station applications at or near 2200 MHz. Rated for minimum output power of 25W, it is ideal for CDMA, TDMA, GSM, FM, Single or Multi-Carrier Power Amplifiers in Class A or AB operation.

Patented LDMOS Technology is used to achieve high performance and reliability at a low cost. Dual nitride passivation and gold metallization ensure excellent device performance and reliability.




# SL-2522

## 2200 MHz 25W 26.5V RF Power N-Channel Enhancement Mode LDMOS



Model SL-25221 Model SL-25222

Available in pill or flange ceramic packages

## Product Features

- **Patented, High Reliability LDMOS Technology**
- **Low intermodulation distortion: –30dBc at 25W (PEP).**
- **Industry Standard Packages**
- **Gold Metalization, Gold Bond Wires**

## Applications

- **CDMA, TDMA, GSM, FM**
- **Single/Multi-Carrier Applications in Class A or AB operation**

**RF and Functional Tests**
**(Tc=25C unless otherwise specified, Stanford Microdevices broadband fixture)**

| Symbol | Rating | Unit | Min | Typ | Max |
|---|---|---|---|---|---|
| Gplin | Linear Power Gain, Single Tone (CW)<br>(Vds=26.5V, Idq=225mA, Pout=5W, f=2170 MHz) | dB | 8.5 | 11.0 | - |
| Gps | Compressed Power Gain, Single Tone (CW)<br>(Vds=26.5V, Idq=225mA, Pout=25W, f=2170 MHz) | dB | 8.0 | 10.3 | - |
| η | Drain Efficiency, Single Tone (CW)<br>(Vds=26.5V, Idq=225mA, Pout=25W, f=2170 MHz) | % | 40 | 45 | - |
| IMD | Intermodulation Distortion, Two Tone<br>(Vds=26.5V, Idq=225mA, Pout=25W PEP,<br>f1=2150 MHz, f2=2150.1 MHz) | dBc | - | -35 | -30 |
| VSWR | Load Mismatch Survivability<br>(Vds= 26.5V, Idq= 225mA, Pout=25W, f=2170 MHz) | - | 10:1 | - | - |



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http://www.LDMOS.com

## SL-2522 25W, 26.5V N-Channel Enhancement Mode LDMOS

### *AC Characteristics*

| Symbol | Rating | Unit | Min | Typ | Max |
|---|---|---|---|---|---|
| Coss | Output Capacitance (Vds=26V, Vgs=0V, f=1MHz) | pF | - | 26 | - |
| Crss | Feedback Capacitance (Vds=26V, Vgs=0V, f=1MHz) | pF | - | 1.2 | - |

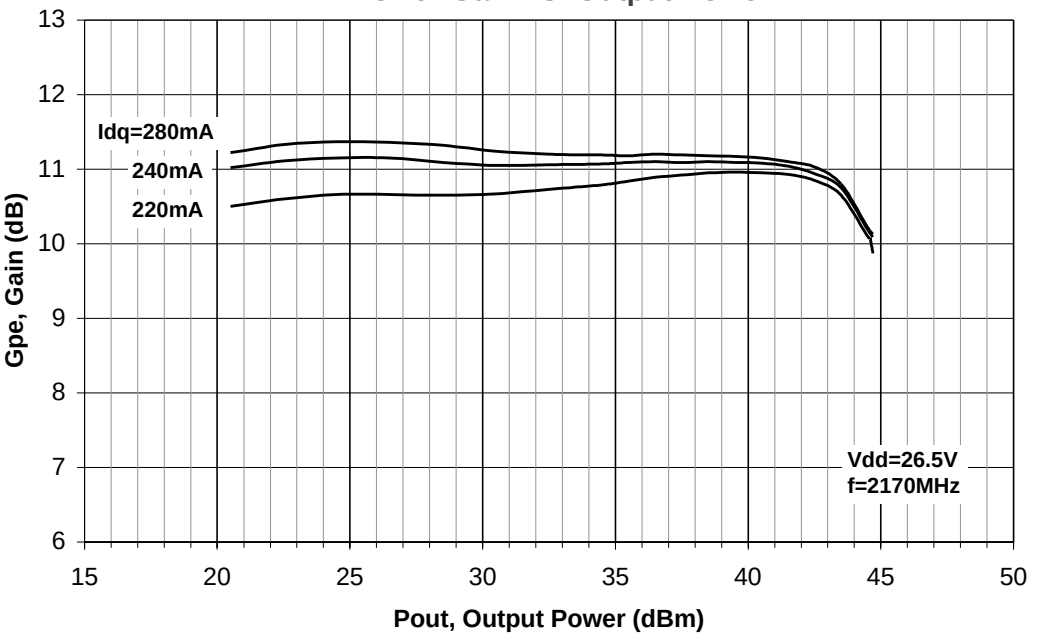
### *Electrical DC Characteristics(Tc=25°C unless otherwise specified)*

| Symbol | Characteristics | Unit | Min | Typ | Max |
|---|---|---|---|---|---|
| BVdss | Drain to Source Voltage, gate connected to source (Vgs=0V, Ids=1mA) | Volts | 65 | - | - |
| Idss | Drain to Source Leakage Current (Vds=28V, Vgs=0) | mA | - | - | 1.0 |
| Igss | Gate to Source Leakage Current (Vgs=20V, Vds=0) | uA | - | - | 1.0 |
| Vth | Threshold Voltage (Vds=10V, Ids=1mA) | Volts | 3.0 | 3.5 | 5.0 |
| Vgs (on) | Gate Quiescent Voltage (Vds=26V, Ids=200mA) | Volts | 3.0 | 4.0 | 6.0 |
| Vds (on) | Drain to Source On Voltage (Vgs=10V, Ids=1A) | Volts | - | 0.28 | - |
| Gm | Forward Transconductance (Vds=10V, Ids=5A) | S | 1.4 | 1.8 | - |

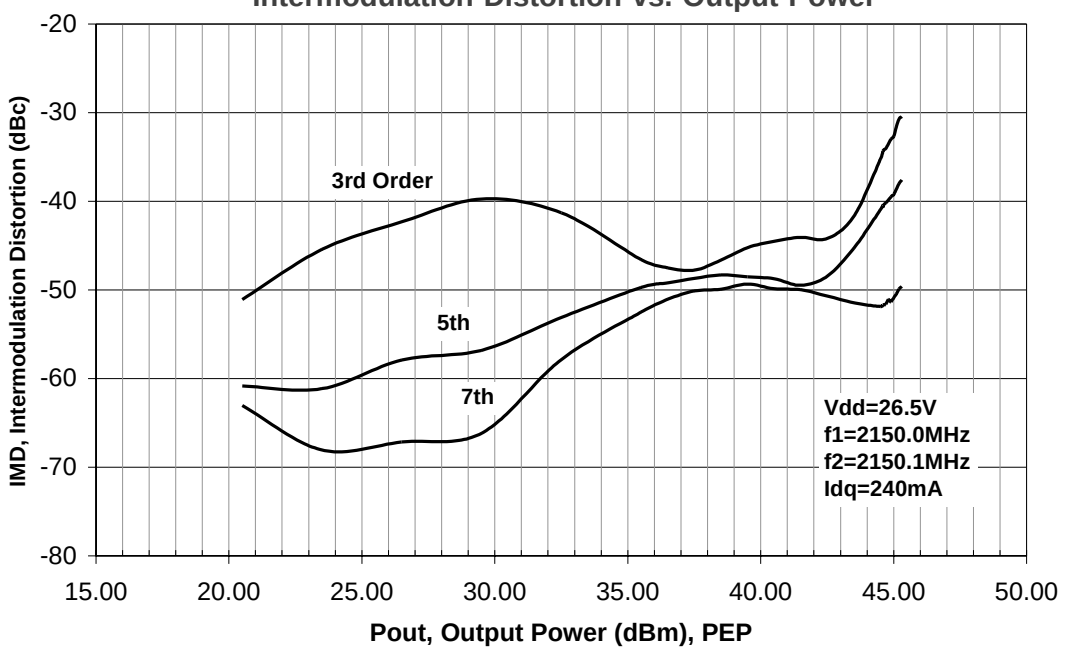
### *Thermal Characteristics*

| Symbol | Characteristics | Unit | Min | Typ | Max |
|---|---|---|---|---|---|
| Θjc | Thermal Resistance, Junction to Case | °C/W | - | - | 2.0 |

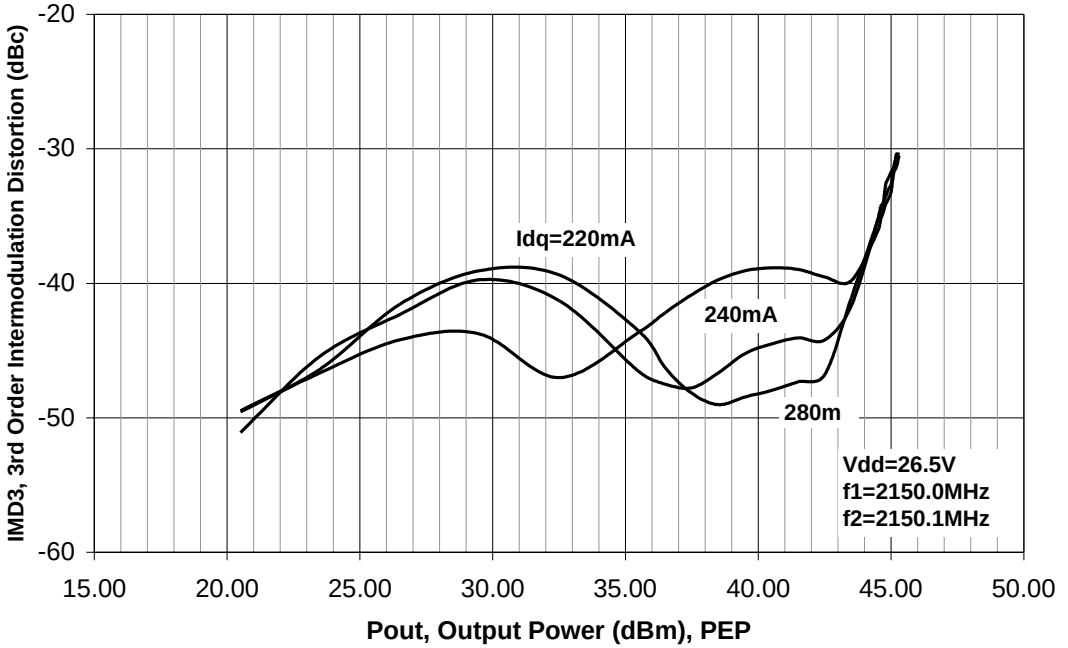
## Power Gain vs. Output Power



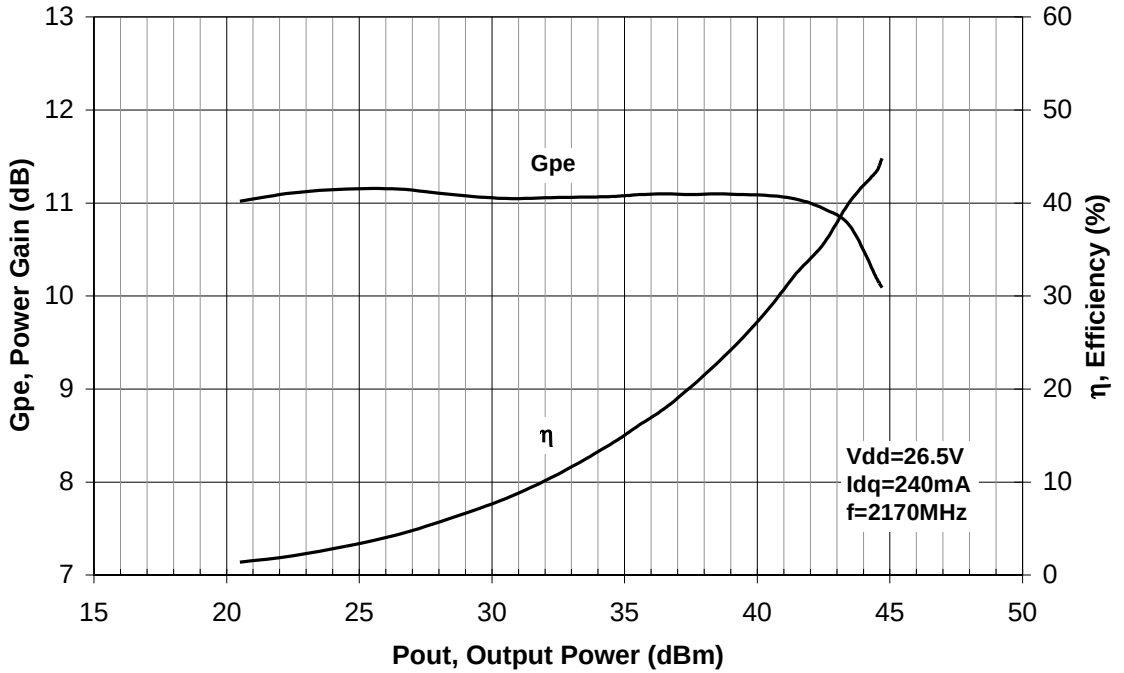

## Intermodulation Distortion vs. Output Power



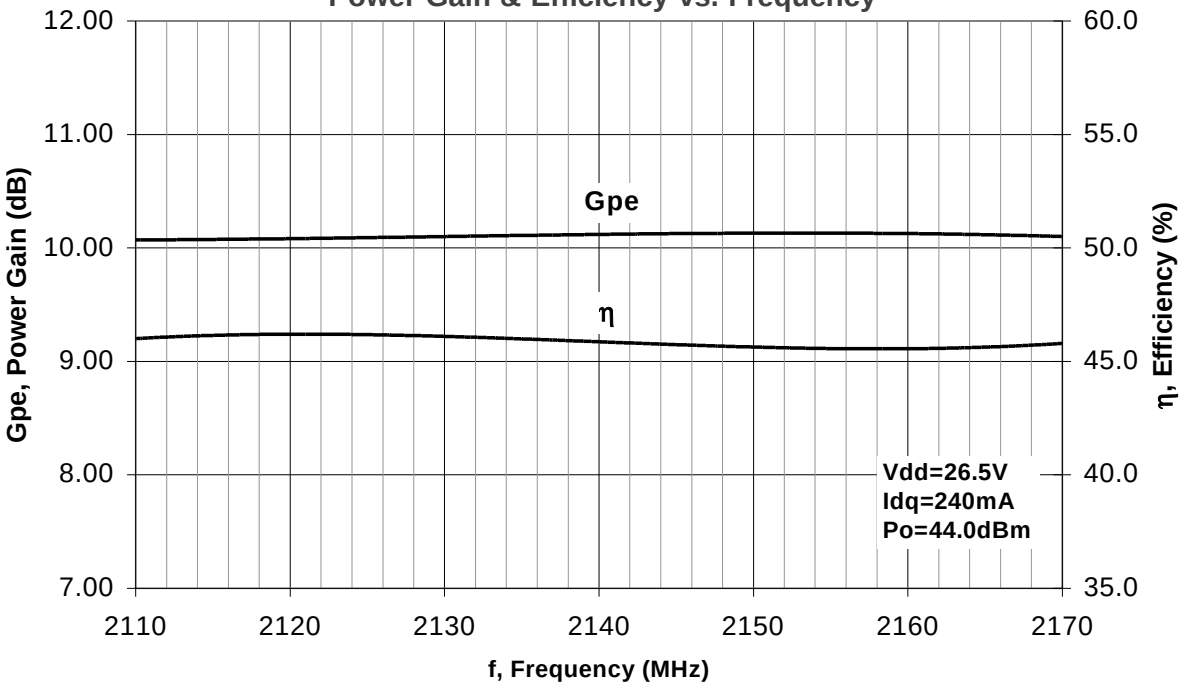
## Intermodulation Distortion vs. Output Power



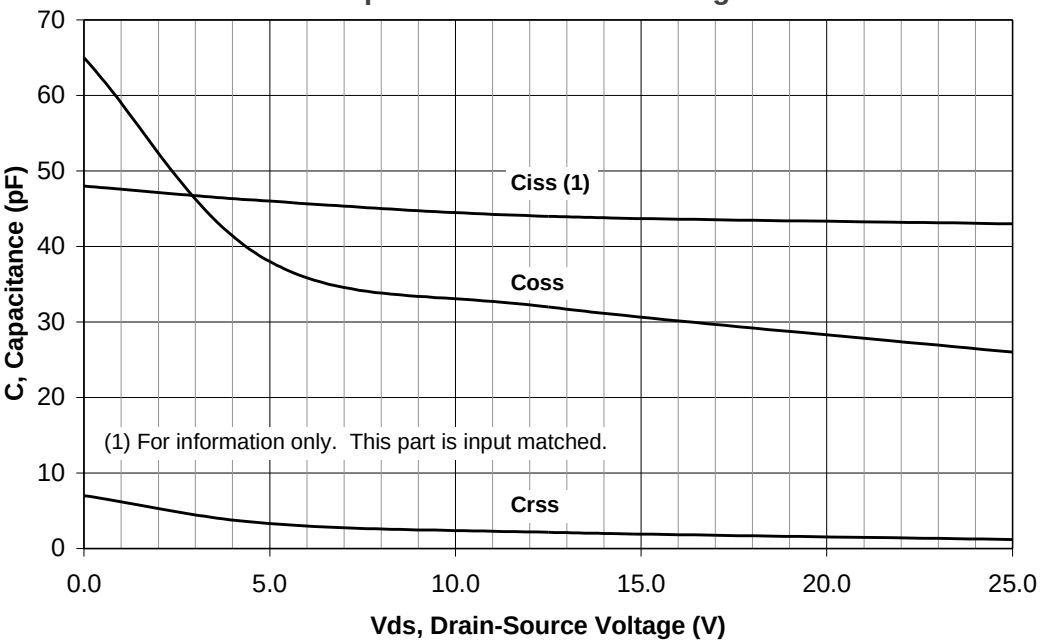

## Power Gain & Efficiency vs. Output Power



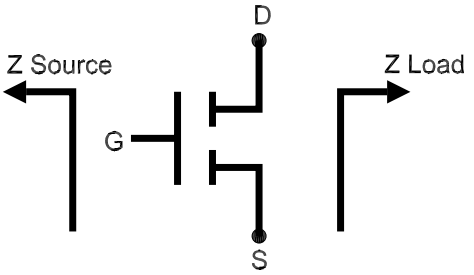
## Power Gain & Efficiency vs. Frequency




## Capacitance vs. Drain Voltage

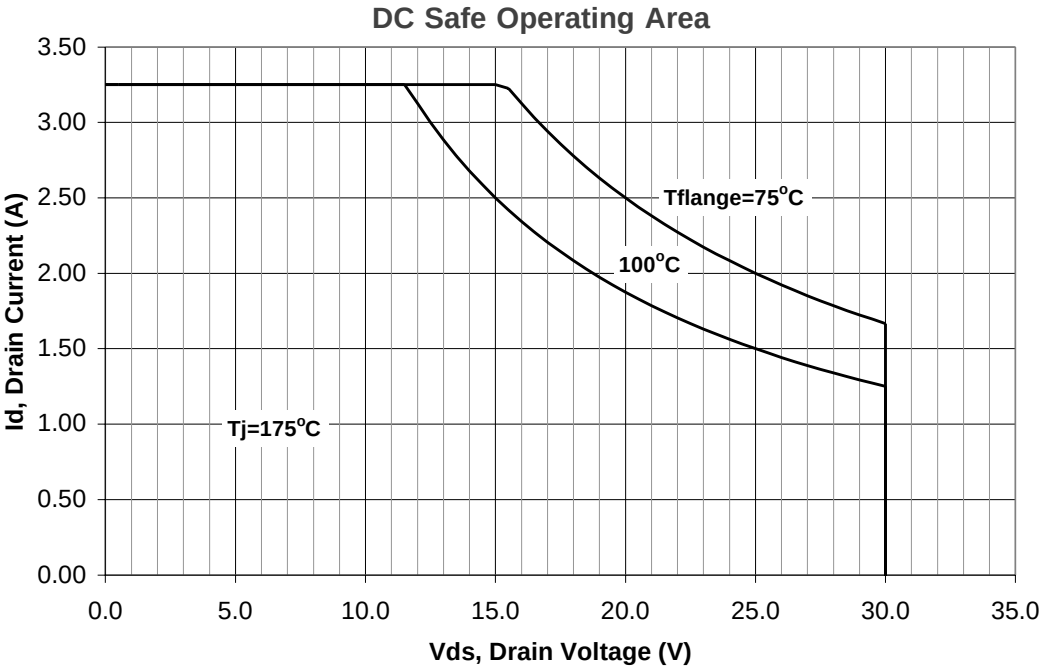


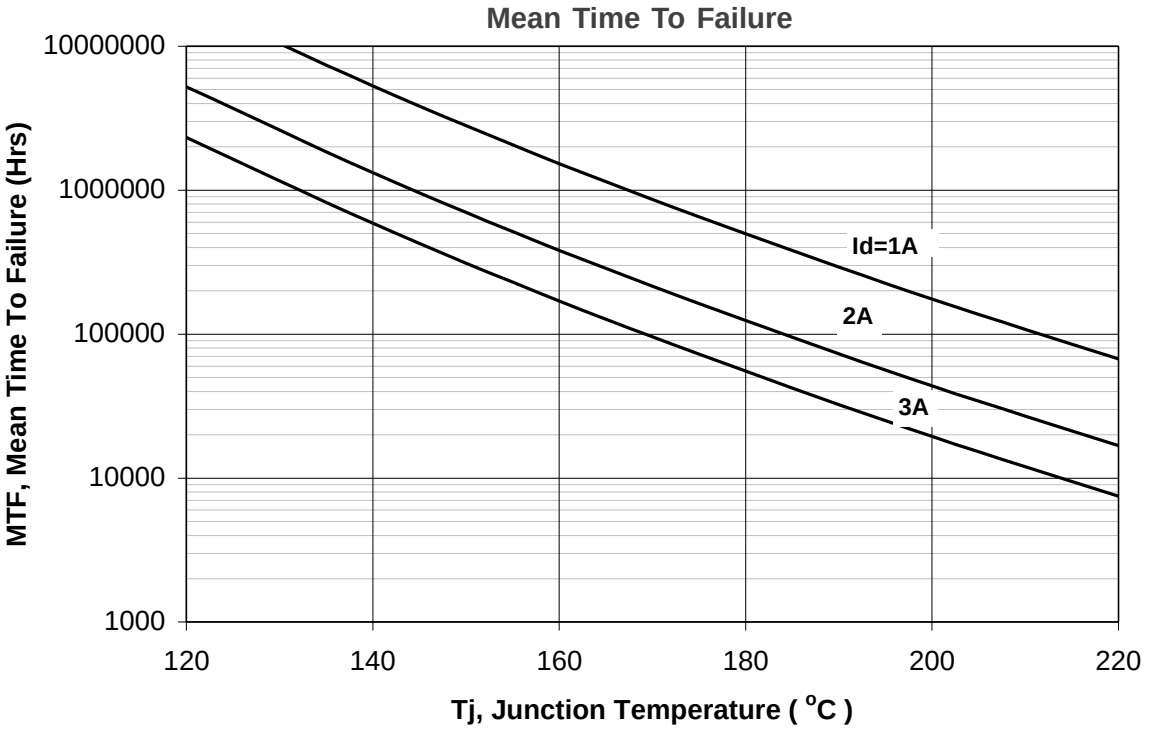
## SL-2522 25W, 26.5V N-Channel Enhancement Mode LDMOS




| Frequency MHz | Z Source | Z Load |
|---|---|---|
| 2100 | 1.51 - j4.43 | 0.46 - j1.09 |
| 2120 | 1.50 - j4.37 | 0.43 - j1.00 |
| 2140 | 1.49 - j4.32 | 0.39 - j0.90 |
| 2160 | 1.48 - j4.27 | 0.35 - j0.80 |
| 2180 | 1.47 - j4.22 | 0.32 - j0.69 |
| 2200 | 1.46 - j4.17 | 0.27 - j0.57 |

**Series Equivalent Input and Output Impedances, Vdd= 26.5V, Idq= 240mA**




Mean Time To Failure
MTF, Mean Time To Failure (Hrs)
10000000
1000000
100000
10000
1000
120
140
160
180
200
220
Id=1A
2A
3A
Tj, Junction Temperature ( °C )

# SL-2522 25W, 26.5V N-Channel Enhancement Mode LDMOS

## Absolute Maximum Ratings

| Rating | Symbol | Value | Unit |
|---|---|---|---|
| Drain to Source, gate connected to source | BVdss | 65 | Volts |
| Gate to Source Voltage | BVgs | +/- 20 | Volts |
| Total Device Dissipation @Tcase=70°C<br>Derate above 70°C | Pd | 65<br>0.5 | Watts<br>W/°C |
| Storage Temperature Range | Tstg | -65 to +150 | °C |
| Operating Junction Temperature | $T_J$ | 200 | °C |

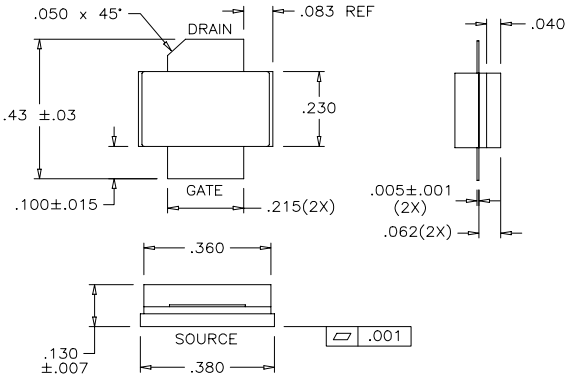
## Part Number Ordering Information

| Part Number | Package |
|---|---|
| SL-25221 | Pill |
| SL-25222 | Flange |

***Caution:***

MOS Devices are susceptable to damage from ElectroStatic Discharge (ESD). Appropriate precautions in handling, packaging and testing MOS devices must be observed.

## Pill Package




Note:
1) Cut lead identifies drain.
2) Dimensions are in inches.
3) Tolerances:
   .XX +/- .01
   .XXX +/- .005

## Flange Package