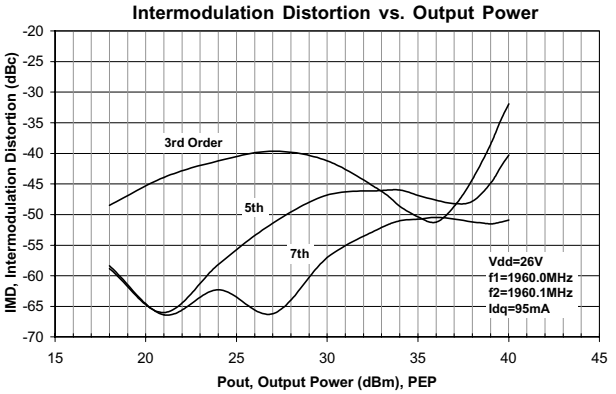
Advance Data Sheet

Product Description

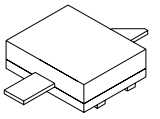
The SL-1020 is Stanford Microdevices' high-linearity 10W LDMOS transistor designed for base station applications at or near 2000 MHz. Rated for minimum output power of 10W, it is ideal for CDMA, TDMA, GSM, FM, Single or Multi-Carrier Power Amplifiers in Class A or AB operation.

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.

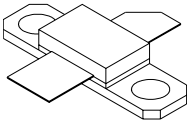


SL-1020

2000 MHz 10W Broadband 26V RF Power N-Channel Enhancement Mode LDMOS



Model SLD-10201



Model SLD-10202

Available in pill or flange ceramic packages

Product Features

- **Patented, High Reliability LDMOS Technology**
- **Low intermodulation distortion: –30dBc at 10W (PEP).**
- **Industry Standard Packages**
- **Surface-Mountable**

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) (Vds=26V, Idq=95mA, Pout=3W, f=940 MHz)	dB	12.5	14.5	-
Gps	Compressed Power Gain, Single Tone (CW) (Vds=26V, Idq=95mA, Pout=10W, f=940 MHz)	dB	11.5	13.5	-
η	Drain Efficiency, Single Tone (CW) (Vds=26V, Idq=95mA, Pout=10W, f=940 MHz)	%	40	50	-
IMD	Intermodulation Distortion, Two Tone (Vds=26V, Idq=95mA, Pout=10W PEP, f1=940 MHz, f2=940.1 MHz)	dBc	-	-33	-30
VSWR	Load Mismatch Survivability (Vds=26V, Idq=95mA, Pout=10W, f=940 MHz)	-	10:1	-	-

SL-1020 10W, 26V N-Channel Enhancement Mode LDMOS

AC Characteristics

Symbol	Rating	Unit	Min	Typ	Max
Ciss	Input Capacitance (Vds=26V, Vgs=0V, f=1MHz)	pF	-	12.4	-
Coss	Output Capacitance (Vds=26V, Vgs=0V, f=1MHz)	pF	-	8.5	-
Crss	Feedback Capacitance (Vds=26V, Vgs=0V, f=1MHz)	pF	-	0.6	-

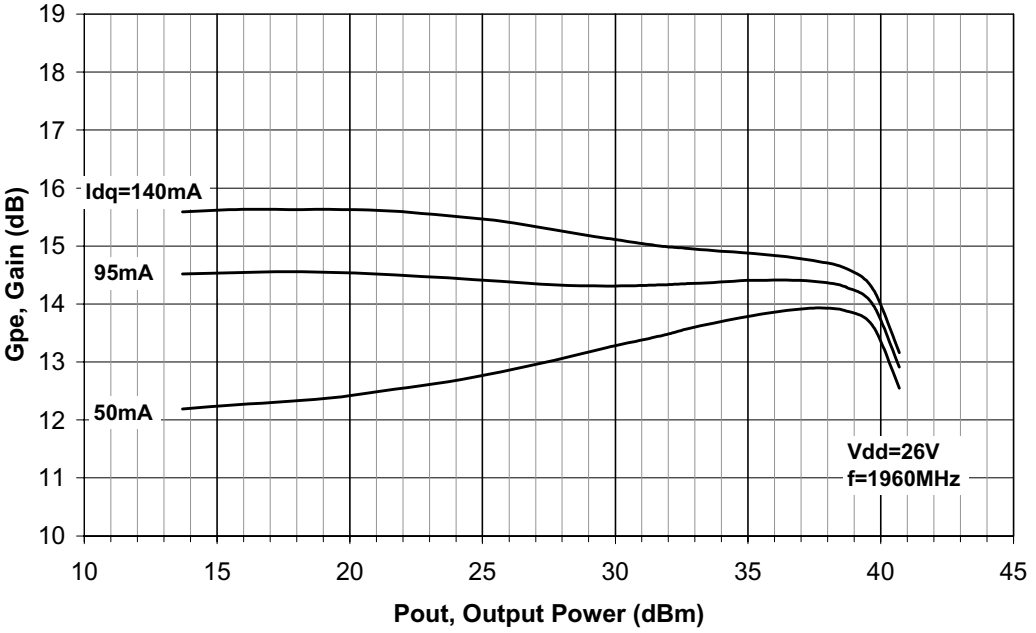
Electrical DC Characteristics(Tc=25°C unless otherwise specified)

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)	uA	-	-	100
Igss	Gate to Source Leakage Current (Vgs=20V, Vds=0)	uA	-	-	1.0
Vth	Threshold Voltage (Vds=10V, Ids=1mA)	Volts	2.0	3.0	5.0
Vgs (on)	Gate Quiescent Voltage (Vds=26V, Ids=95mA)	Volts	3.0	4.0	6.0
Vds (on)	Drain to Source On Voltage (Vgs=10V, Ids=1A)	Volts	-	0.9	-
Gm	Forward Transconductance (Vds=10V, Ids=5A)	S	-	0.5	-

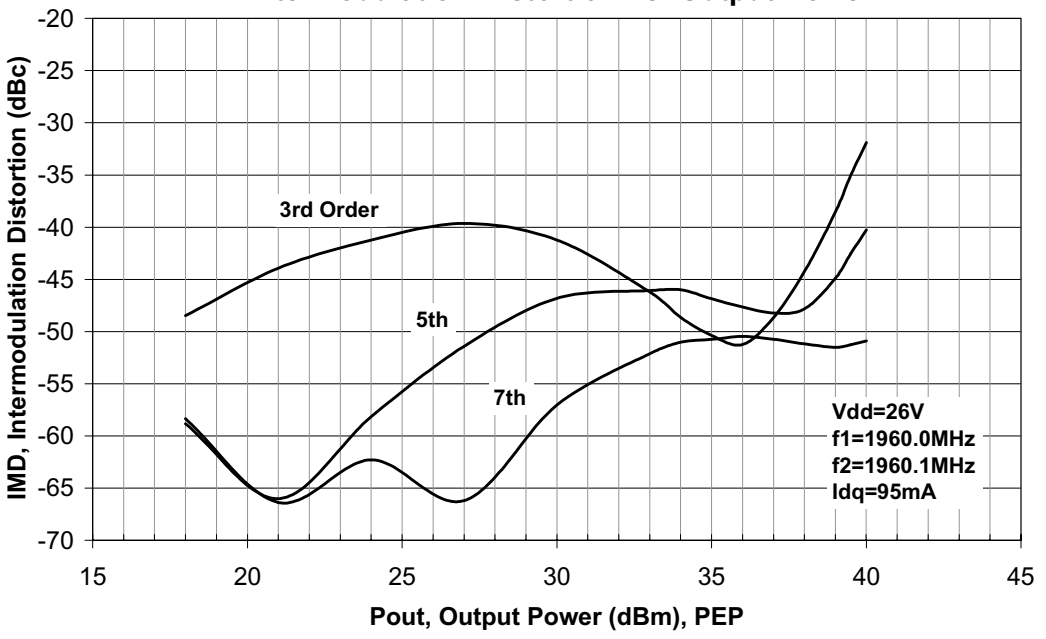
Thermal Characteristics

Symbol	Characteristics	Unit	Min	Typ	Max
Θjc	Thermal Resistance, Junction to Case	°C/W	-	-	6.2

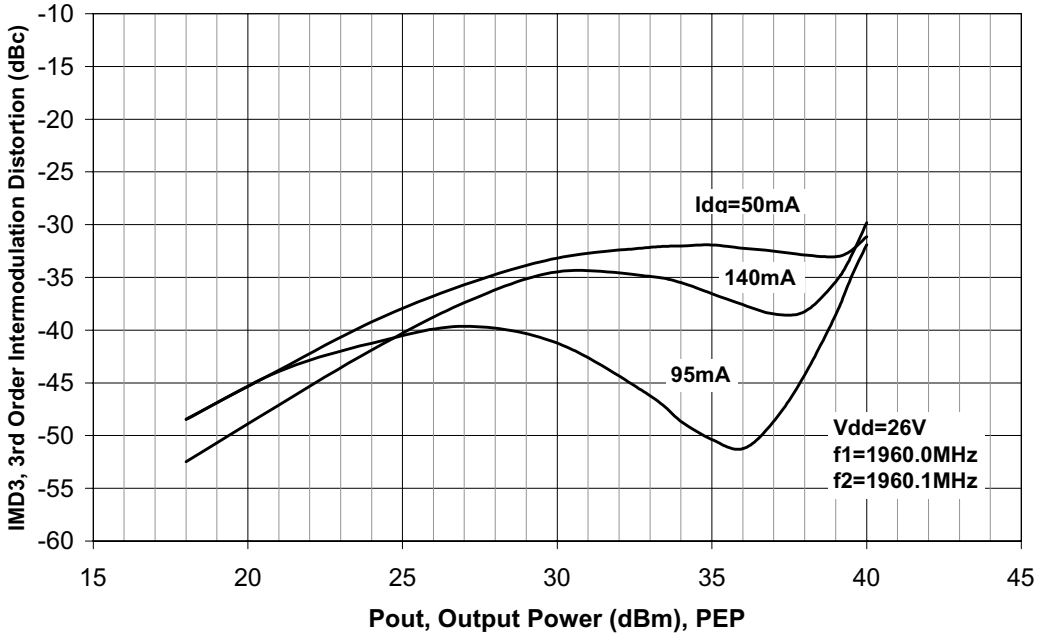
Power Gain vs. Output Power



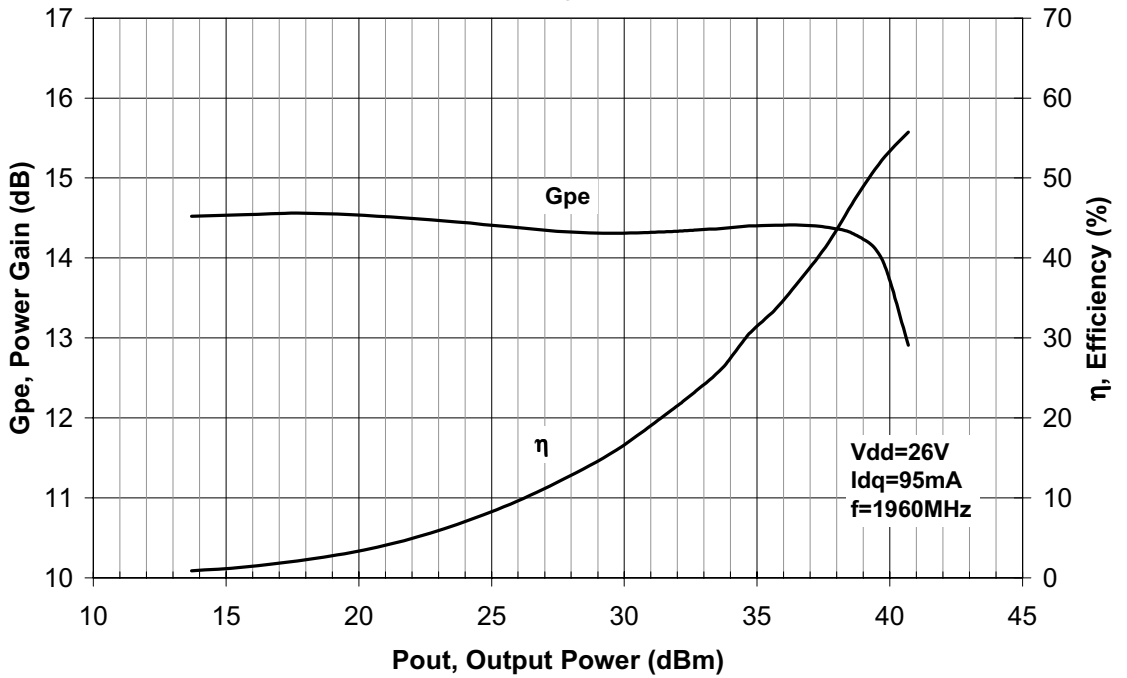
Intermodulation Distortion vs. Output Power



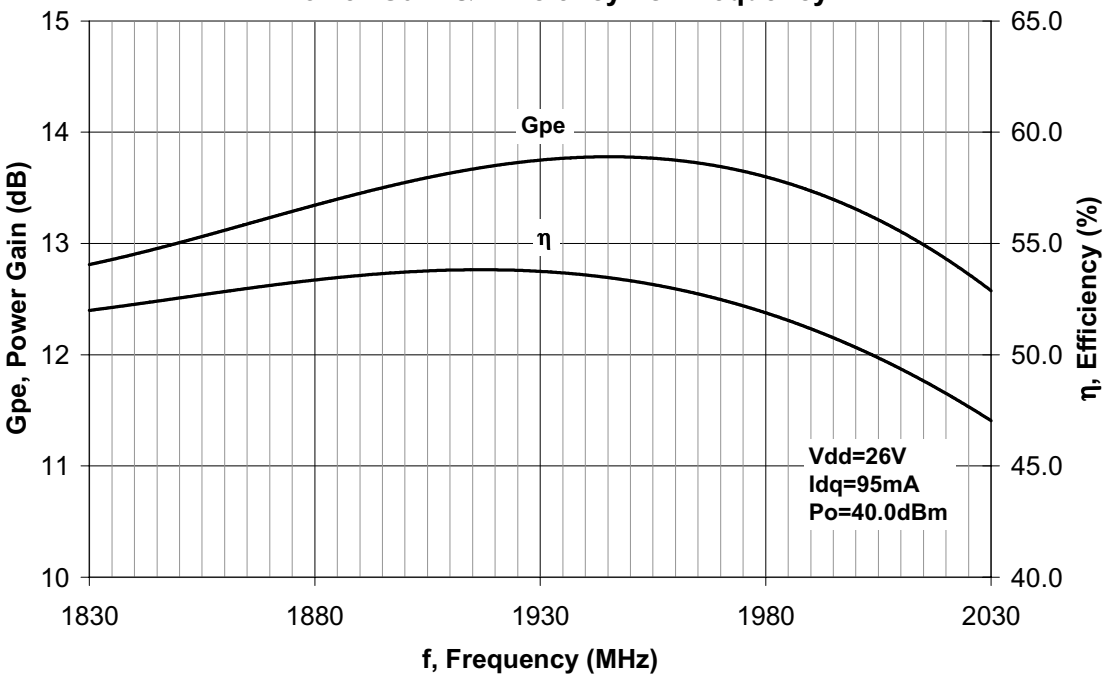
Intermodulation Distortion vs. Output Power



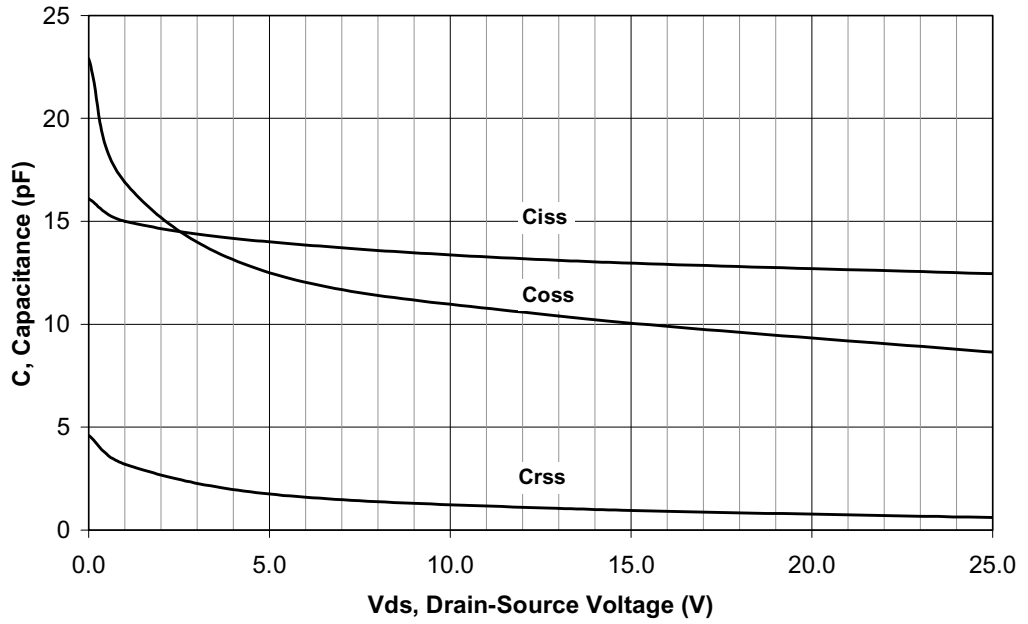
Power Gain & Efficiency vs. Output Power



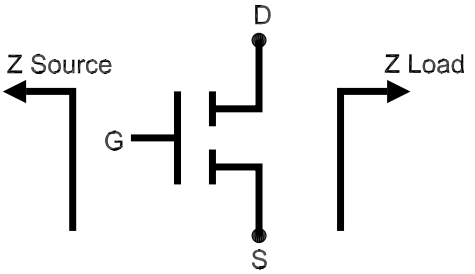
Power Gain & Efficiency vs. Frequency



Capacitance vs. Drain Voltage

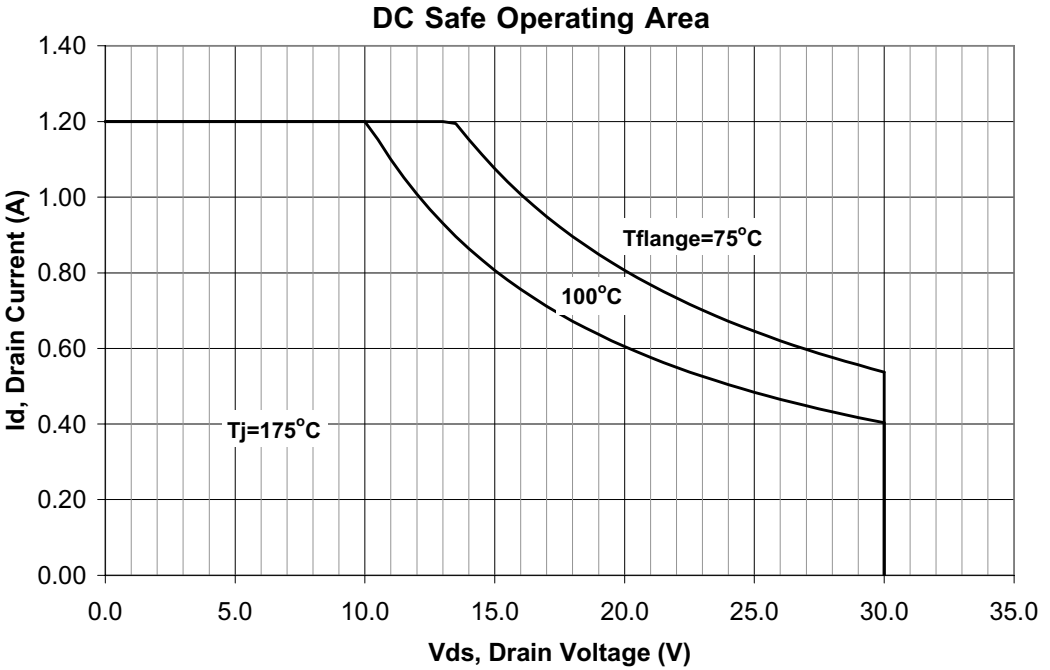


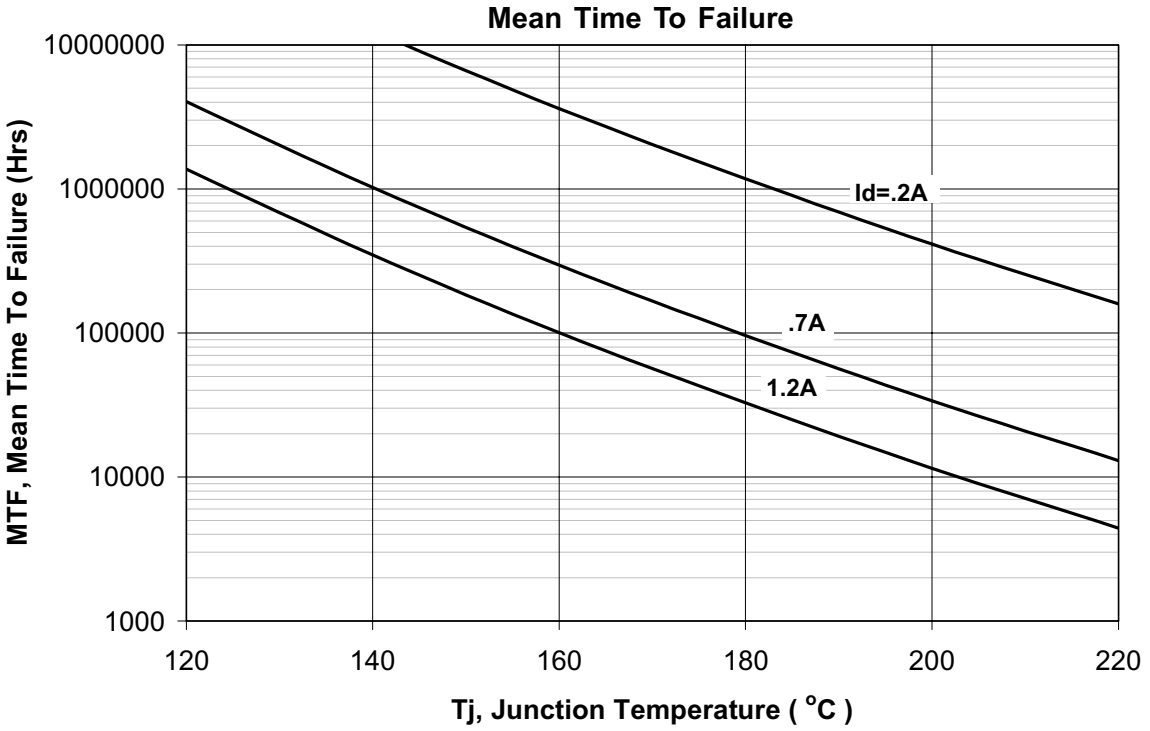
SL-1020 10W, 26V N-Channel Enhancement Mode LDMOS



Frequency MHz	Z Source	Z Load
1800	2.41 + j4.97	3.04 - j0.33
1960	2.23 + j4.47	2.59 - j0.88
2000	2.18 + j4.36	2.49 - j1.09

Series Equivalent Input and Output Impedances, Vdd= 26V, Idq= 95mA




Mean Time To Failure
MTF, Mean Time To Failure (Hrs)
10000000
1000000
100000
10000
1000
120
140
160
180
200
220
Id=.2A
.7A
1.2A
Tj, Junction Temperature (°C)

SL-1020 10W, 26V 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 Derate above 70°C	Pd	20 0.2	Watts 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-10201	Pill
SL-10202	Flange

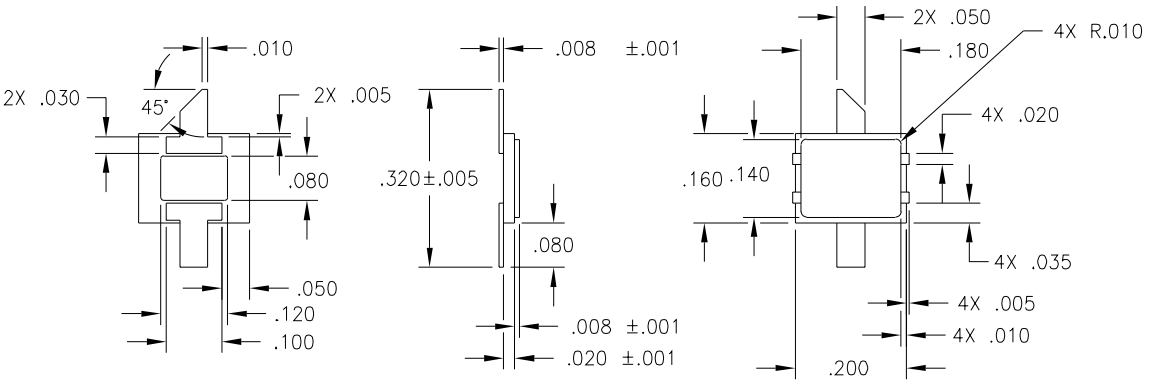
Caution:

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) Lid not shown
2) Cut lead identifies drain



Flange Package

Note:

1) Lid not shown
2) Cut lead identifies drain