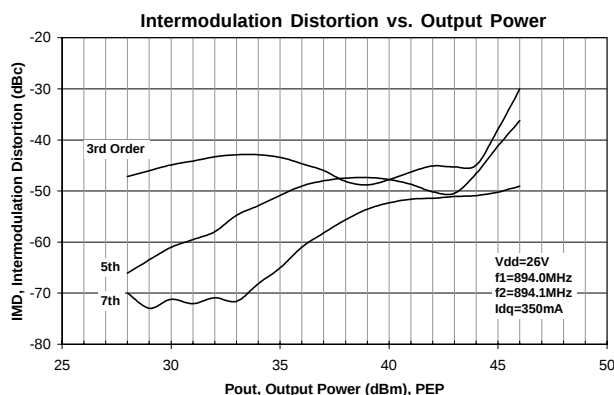


Product Description

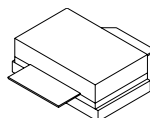
The SL-3010 is Stanford Microdevices' high-linearity 30W LDMOS transistor designed for base station applications at or near 1000 MHz. Rated for minimum output power of 30W, it is ideal for CDMA, TDMA, GSM, FM, Single or Multi-Carrier Power Amplifiers in Class A or AB operation.

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.

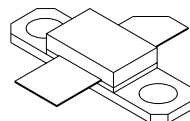


SL-3010

1000 MHz 30W Broadband 26V RF Power N-Channel Enhancement Mode LDMOS



Model SL-30101



Model SL-30102

Available in pill or flange ceramic packages

Product Features

- Patented, High Reliability LDMOS Technology
- Low intermodulation distortion: -30dBc at 30W (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=25°C unless otherwise specified, Stanford Microdevices broadband fixture)

Symbol	Rating	Unit	Min	Typ	Max
G _{pln}	Linear Power Gain, Single Tone (CW) (V _{ds} =26.5V, I _{dq} =350mA, P _{out} =5W, f=894 MHz)	dB	11.0	12.5	-
G _{ps}	Compressed Power Gain, Single Tone (CW) (V _{ds} =26.5V, I _{dq} =350mA, P _{out} =30W, f=894 MHz)	dB	10.5	11.5	-
η	Drain Efficiency, Single Tone (CW) (V _{ds} =26.5V, I _{dq} =350mA, P _{out} =30W, f=894 MHz)	%	45	52	-
IMD	Intermodulation Distortion, Two Tone (V _{ds} =26.5V, I _{dq} =350mA, P _{out} =30W PEP, f ₁ =894 MHz, f ₂ =894.1 MHz)	dBc	-	-35	-30
VSWR	Load Mismatch Survivability (V _{ds} = 26.5V, I _{dq} =350mA, P _{out} =30W, f=894 MHz)	-	10:1	-	-

The information provided herein is believed to be reliable at press time. Stanford Microdevices assumes no responsibility for inaccuracies or omissions. Stanford Microdevices assumes no responsibility for the use of this information, and all such information shall be entirely at the user's own risk. Prices and specifications are subject to change without notice. No patent rights or licenses to any of the circuits described herein are implied or granted to any third party. Stanford Microdevices does not authorize or warrant any Stanford Microdevices product for use in life-support devices and/or systems.
Copyright 1999-2000 Stanford Microdevices, Inc. All worldwide rights reserved.

SL-3010 30W, 26V N-Channel Enhancement Mode LDMOS
AC Characteristics

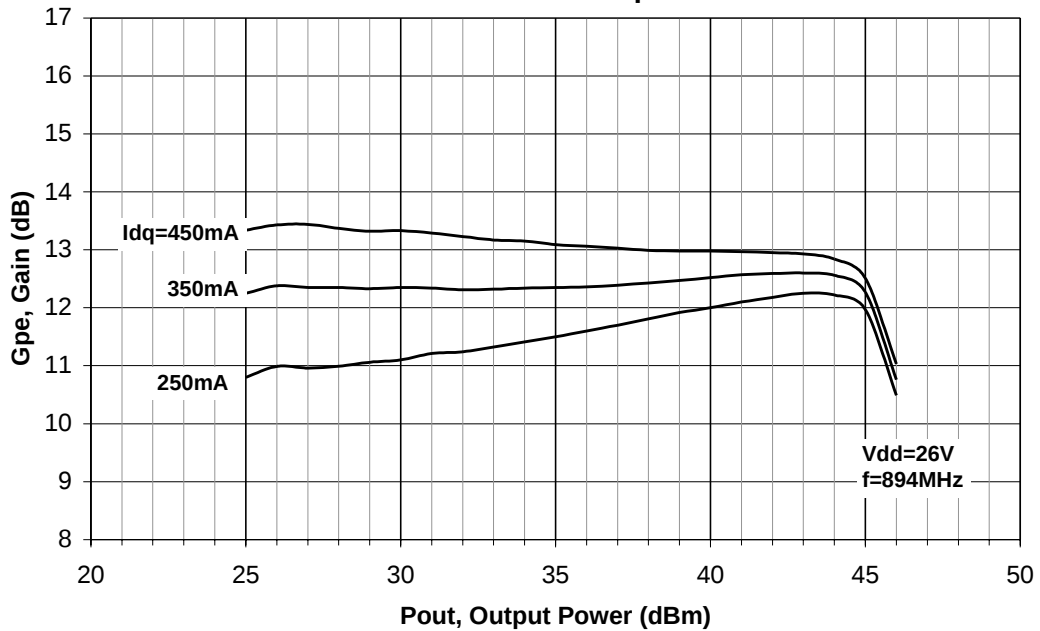
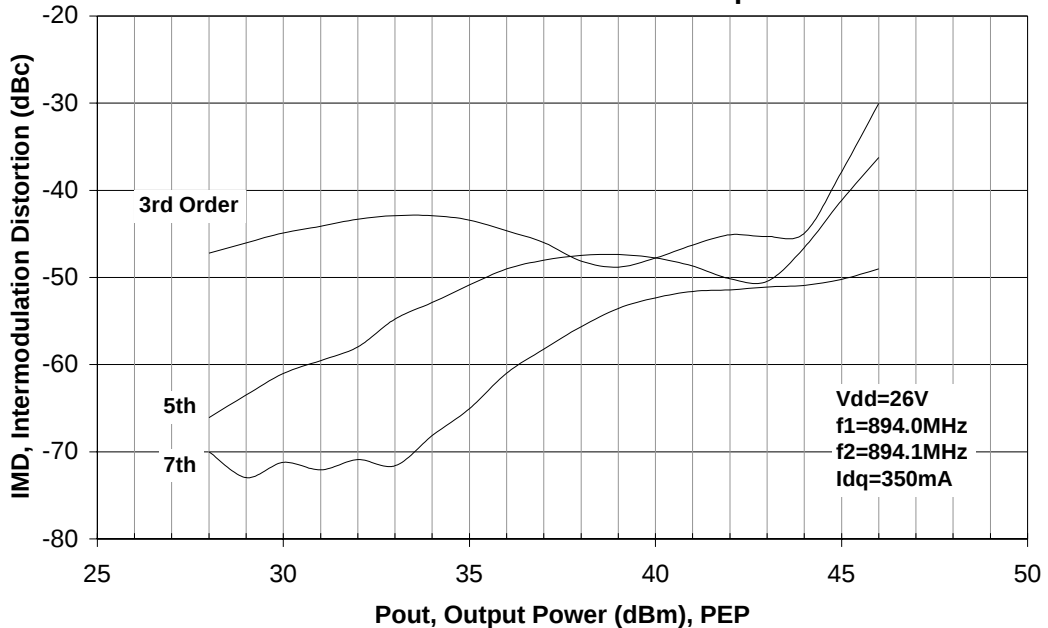
Symbol	Rating	Unit	Min	Typ	Max
Ciss	Input Capacitance (Vds=26V, Vgs=0V, f=1MHz)	pF	-	44	-
Coss	Output Capacitance (Vds=26V, Vgs=0V, f=1MHz)	pF	-	26	-
Crss	Feedback Capacitance (Vds=26V, Vgs=0V, f=1MHz)	pF	-	1.2	-

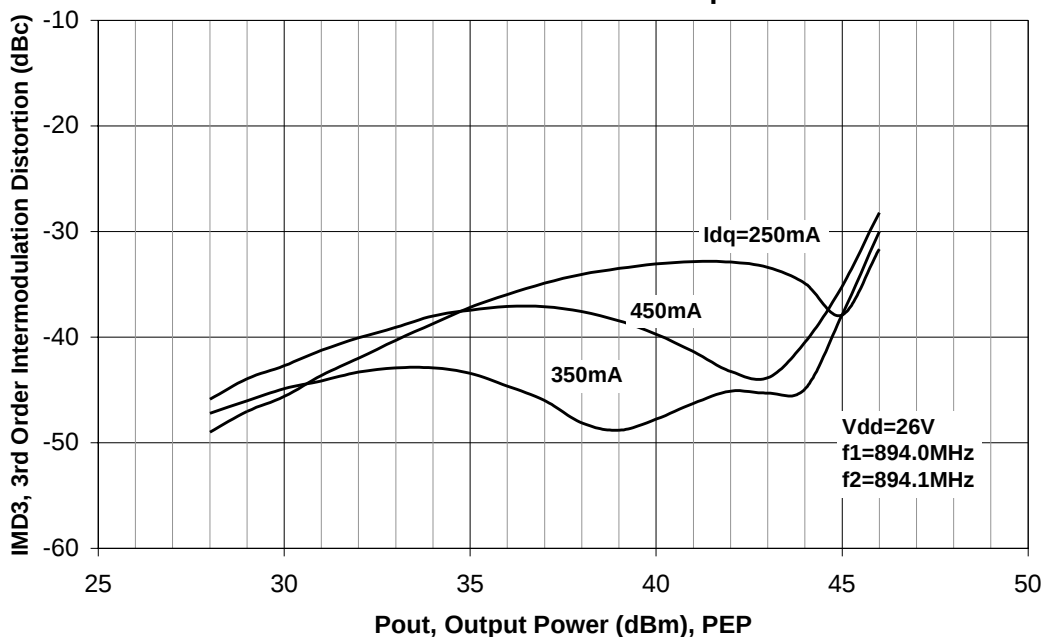
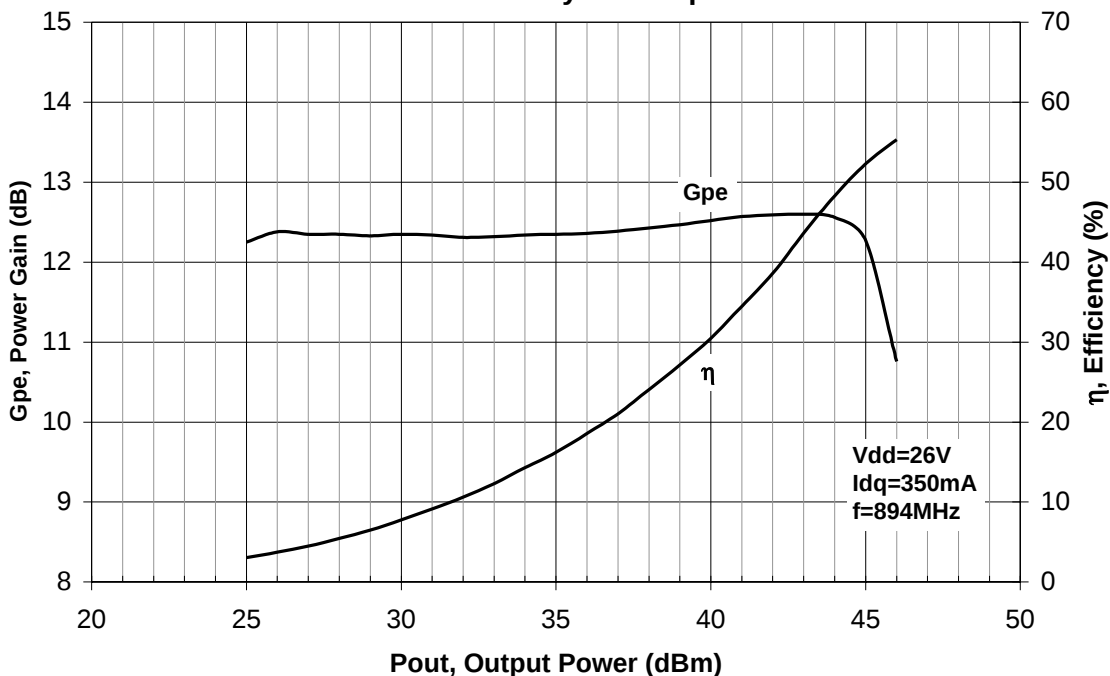
Electrical DC Characteristics(Tc=25°C unless otherwise specified)

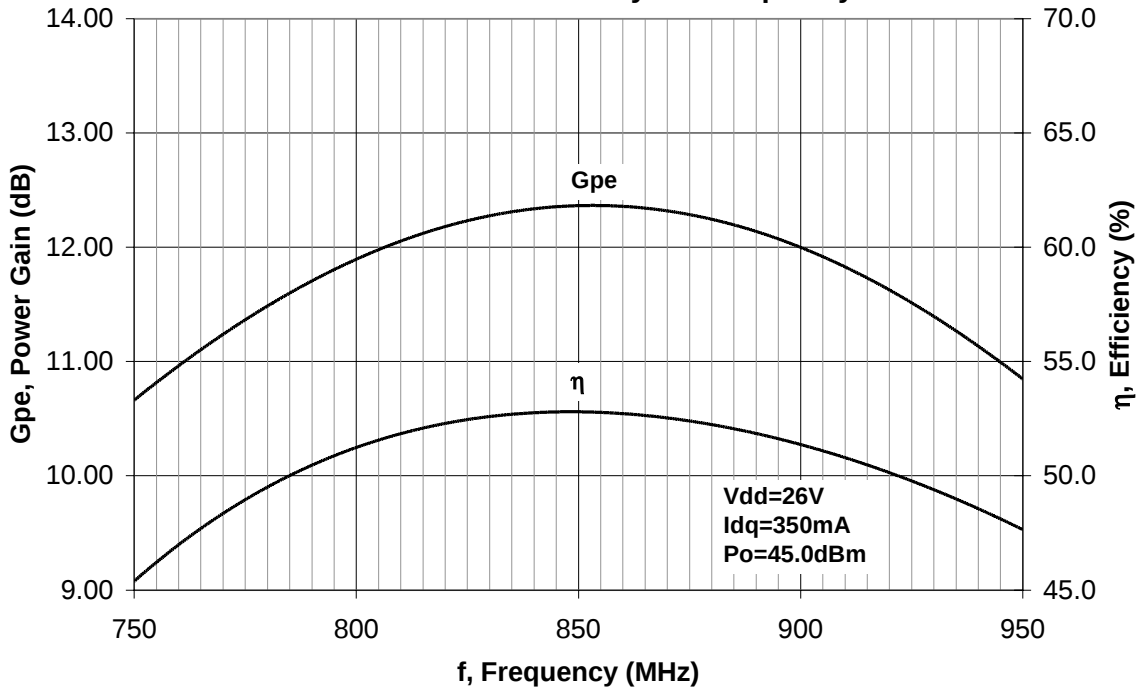
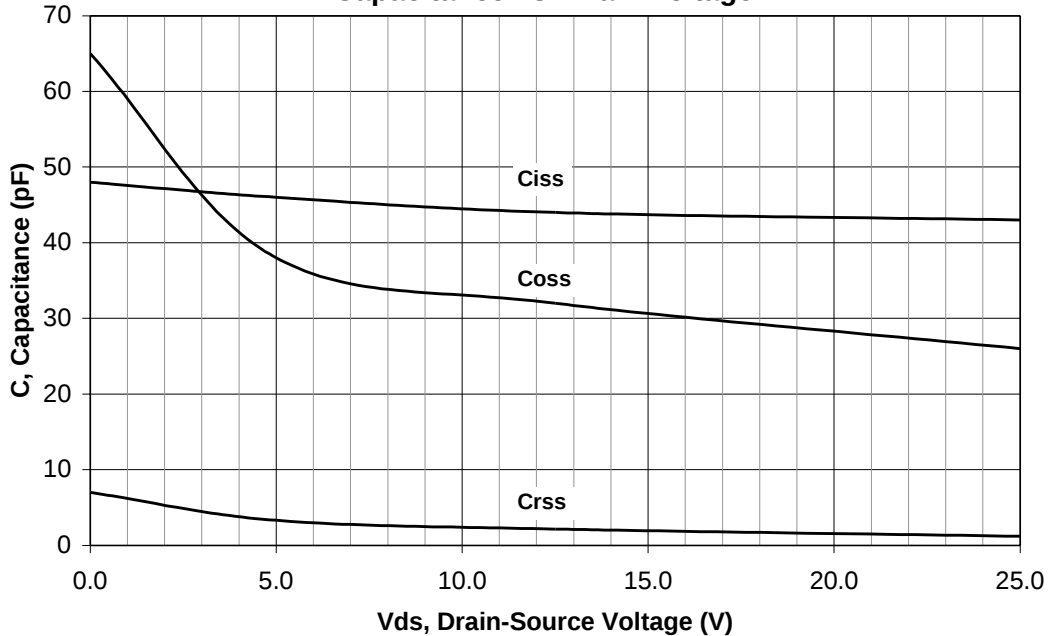
Symbol	Characteristics	Unit	Min	Typ	Max
BVdss	Drain to Source Voltage, gate connected to source (Vgs=0V, Ids=1mA)	Volts	65	-	-
Idss	Drain to Source Leakage Current (Vds=28V, Vgs=0)	mA	-	-	1.0
Igss	Gate to Source Leakage Current (Vgs=20V, Vds=0)	uA	-	-	1.0
Vth	Threshold Voltage (Vds=10V, Ids=1mA)	Volts	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	0.45
Gm	Forward Transconductance (Vds=10V, Ids=5A)	S	1.4	1.8	-

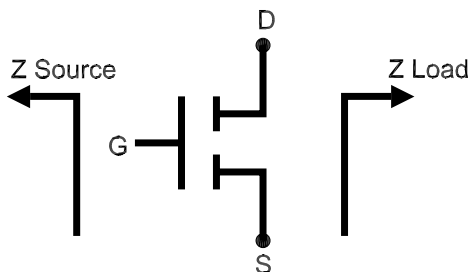
Thermal Characteristics

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


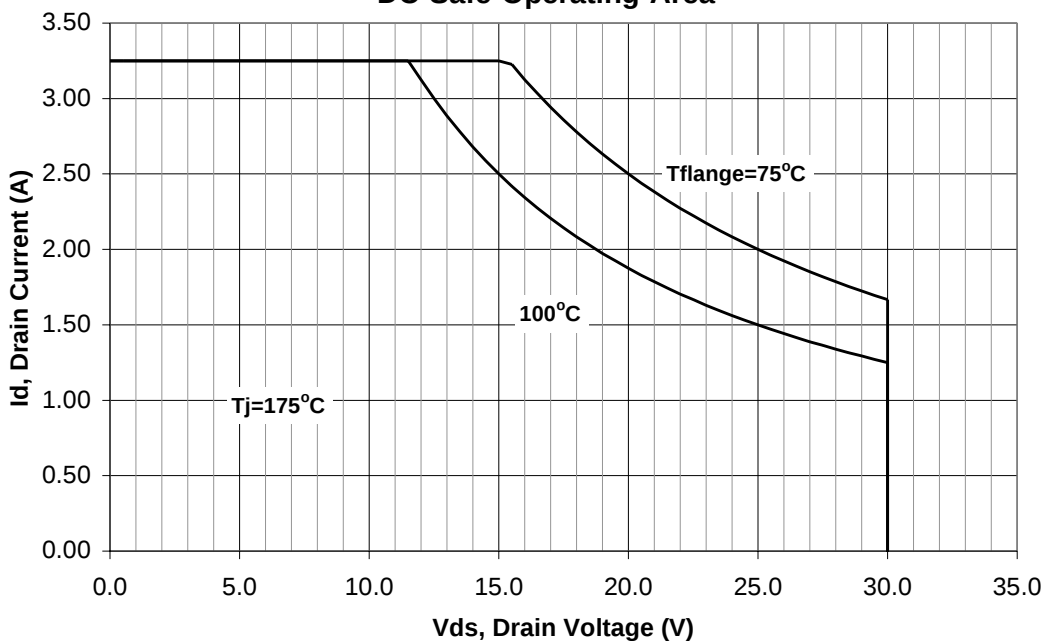
SL-3010 30W, 26V N-Channel Enhancement Mode LDMOS
Intermodulation Distortion vs. Output Power

Power Gain & Efficiency vs. Output Power


Power Gain & Efficiency vs. Frequency

Capacitance vs. Drain Voltage


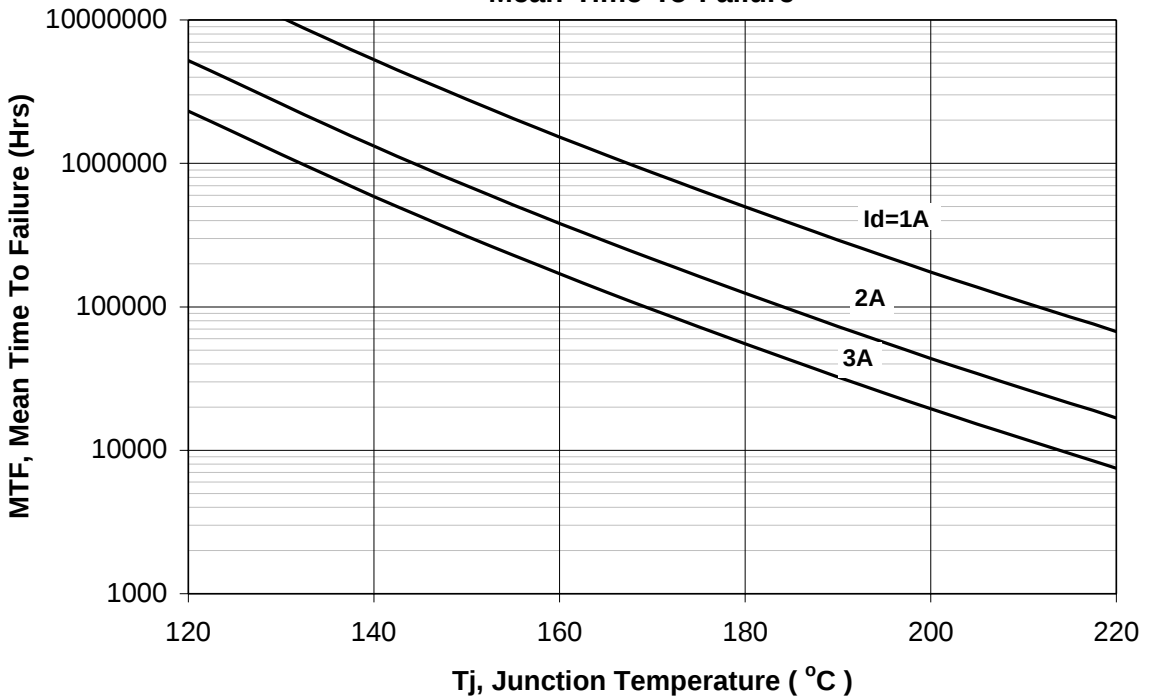
SL-3010 30W, 26V N-Channel Enhancement Mode LDMOS


Frequency MHz	Z Source	Z Load
800	1.58 - j1.84	3.36 + j2.03
810	1.57 - j1.83	3.44 + j2.03
820	1.56 - j1.77	3.50 + j2.09
830	1.56 - j1.70	3.60 + j2.11
840	1.56 - j1.63	3.67 + j2.12
850	1.54 - j1.58	3.73 + j2.13
860	1.53 - j1.56	3.80 + j2.15
870	1.50 - j1.52	3.85 + j2.16
880	1.50 - j1.51	3.92 + j2.16
890	1.49 - j1.48	3.99 + j2.18
900	1.49 - j1.46	4.06 + j2.16

Series Equivalent Input and Output Impedances, V_{dd}= 26V, I_{dq}= 350mA

DC Safe Operating Area


Mean Time To Failure



SL-3010 30W, 26V N-Channel Enhancement Mode LDMOS

Absolute Maximum Ratings

Rating	Symbol	Value	Unit
Drain to Source, gate connected to source	BV _{dss}	65	Volts
Gate to Source Voltage	BV _{gs}	+/- 20	Volts
Total Device Dissipation @T _{case} =70°C Derate above 70°C	P _d	65 0.5	Watts W/°C
Storage Temperature Range	T _{stg}	-65 to +150	°C
Operating Junction Temperature	T _j	200	°C

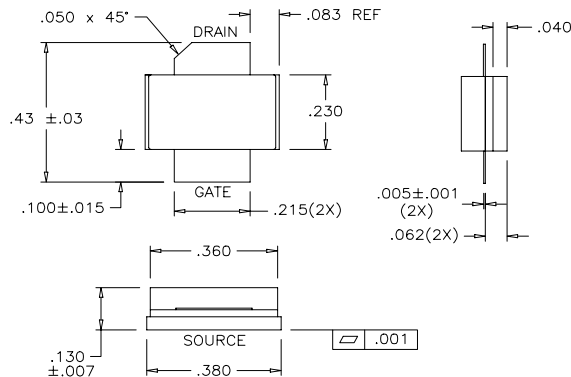
Part Number Ordering Information

Part Number	Package
SL-30101	Pill
SL-30102	Flange

Caution:

MOS Devices are susceptible 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

