



LPM2301 -20V/-2A

P-Channel Enhancement Mode Field Effect Transistor

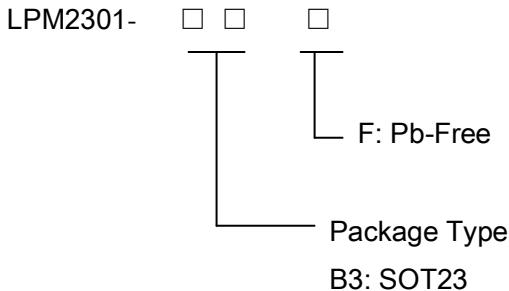
General Description

The LPM2301 is the P-channel logic enhancement mode power field effect transistors are produced using high cell density, DMOS trench technology.

This high density process is especially tailored to minimize on-state resistance.

These devices are particularly suited for low voltage application, notebook computer power management and other battery powered circuits where high-side switching.

Ordering Information



Features

- -20V/-2.0A, $R_{DS(ON)}=170m\Omega(\text{typ.})@V_{GS}=-2.5V$
- -20V/-2.0A, $R_{DS(ON)}=130m\Omega(\text{typ.})@V_{GS}=-4.5V$
- Super high density cell design for extremely low $R_{DS(ON)}$
- SOT23 Package

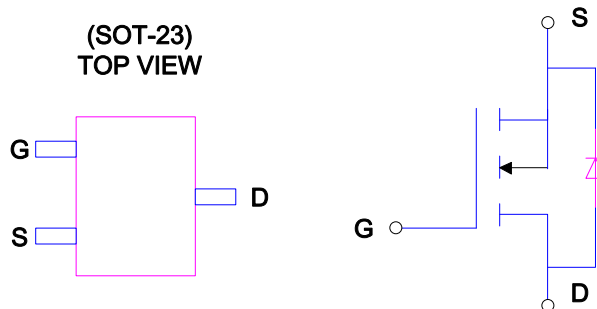
Applications

- ◇ Portable Media Players
- ◇ Cellular and Smart mobile phone
- ◇ LCD
- ◇ DSC Sensor
- ◇ Wireless Card

Marking Information

| Device | Marking | Package | Shipping |
|------------|---------|---------|----------|
| LPM2301B3F | A1S HB | SOT23 | 3K/REEL |

Pin Configurations





Absolute Maximum Ratings

$T_A=25^{\circ}\text{C}$ unless otherwise noted

| Parameter | Symbol | Maximum | Units |
|--|----------------|--------------------------|--------------------|
| Drain-Source Voltage | V_{DS} | -20 | V |
| Gate-Source Voltage | V_{GS} | ± 12 | V |
| Continuous Drain Current A | I_D | $T_A=25^{\circ}\text{C}$ | A |
| Current A | | $T_A=70^{\circ}\text{C}$ | |
| Pulsed Drain Current B | I_{DM} | -8 | |
| Power Dissipation A | P_D | $T_A=25^{\circ}\text{C}$ | W |
| | | $T_A=70^{\circ}\text{C}$ | |
| Junction and Storage Temperature Range | T_J, T_{STG} | -55 to 150 | $^{\circ}\text{C}$ |

Thermal Characteristics

| Parameter | Symbol | Typ. | Units |
|-----------------------------|-----------------|---------------------|-----------------------------|
| Maximum Junction-to-Ambient | $R_{\theta JA}$ | $t \leq 10\text{s}$ | $^{\circ}\text{C}/\text{W}$ |
| Maximum Junction-to-Ambient | | Steady-State | $^{\circ}\text{C}/\text{W}$ |
| Maximum Junction-to-Lead | $R_{\theta JL}$ | Steady-State | $^{\circ}\text{C}/\text{W}$ |

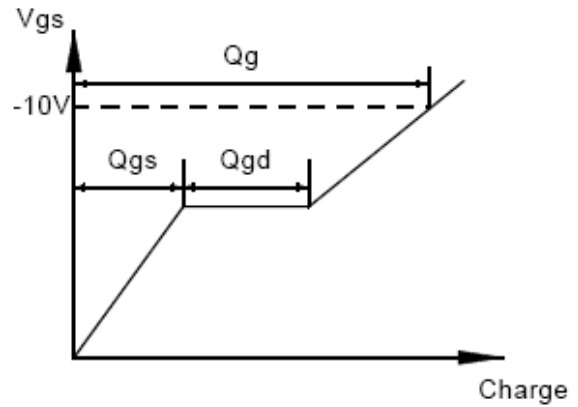
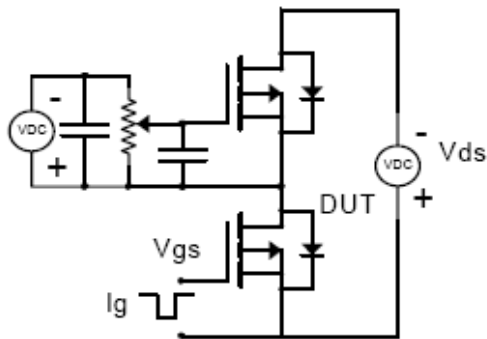


Functional Pin Description

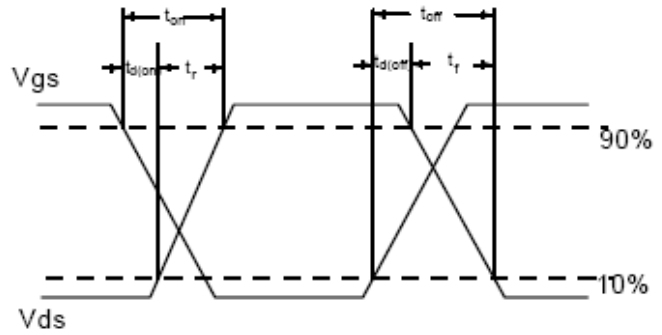
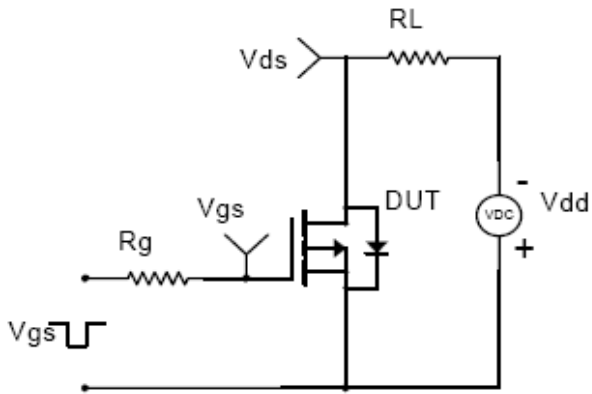
| Symbol | Parameter | Condition | Min | Typ. | Max | Units |
|-----------------------------|-----------------------------------|--|------|------|-----------|-------|
| STATIC PARAMETERS | | | | | | |
| BV _{DSS} | Drain-Source Breakdown Voltage | I _D =-250μA, V _{GS} =0V | -20 | | | V |
| I _{DSS} | Zero Gate Voltage Drain Current | V _{DS} =-20V, V _{GS} =0V T _J =55°C | | | -1 -10 | uA |
| I _{GSS} | Gate-Body leakage current | V _{DS} =0V, V _{GS} =±12V | | | ±1 | uA |
| V _{GS(th)} | Gate Threshold Voltage | V _{DS} =V _{GS} I _D =-250μA | -0.4 | | -1 | V |
| R _{DS(on)} | Static Drain-Source On-Resistance | V _{GS} =-4.5V, I _D =-2A | | 130 | | mΩ |
| | | V _{GS} =-2.5V, I _D =-2A | | 170 | | mΩ |
| g _{FS} | Forward Transconductance | V _{DS} =-5V, I _D =-2A | | 10 | | S |
| V _{SD} | Diode Forward Voltage | I _S =-1A, V _{GS} =0V | | -0.7 | -1 | V |
| DYNAMIC PARAMETERS | | | | | | |
| C _{iss} | Input Capacitance | V _{GS} =0V, V _{DS} =-15V, f=1MHz | | 400 | | pF |
| C _{oss} | Output Capacitance | | | 220 | | pF |
| C _{rss} | Reverse Transfer Capacitance | | | 80 | | pF |
| SWITCHING PARAMETERS | | | | | | |
| Q _g | Total Gate Charge | V _{GS} =-10V, V _{DS} =-15V, I _D =-2A | | 7 | | nC |
| Q _{gs} | Gate Source Charge | | | 1.2 | | nC |
| Q _{gd} | Gate Drain Charge | | | 1.8 | | nC |
| t _{D(on)} | Turn-On DelayTime | V _{GS} =-10V, V _{DS} =-15V, R _L =3.6Ω, R _{GEN} =6Ω | | 15 | | nS |
| t _r | Turn-On Rise Time | | | 36 | | |
| t _{D(off)} | Turn-Off DelayTime | | | 42 | | |
| t _f | Turn-Off Fall Time | | | 34 | | |



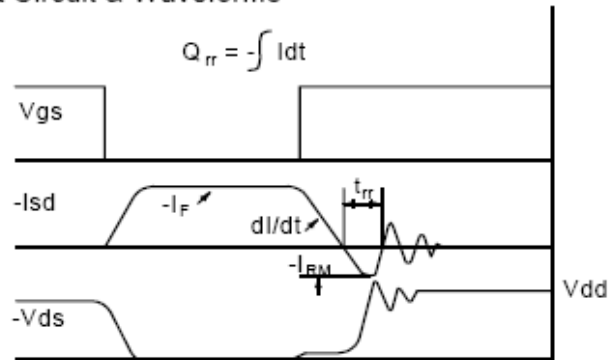
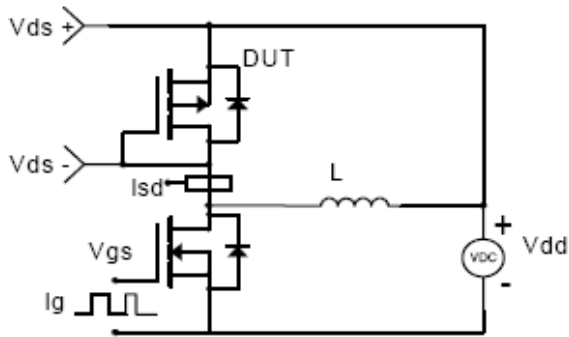
Gate Charge Test Circuit & Waveform



Resistive Switching Test Circuit & Waveforms



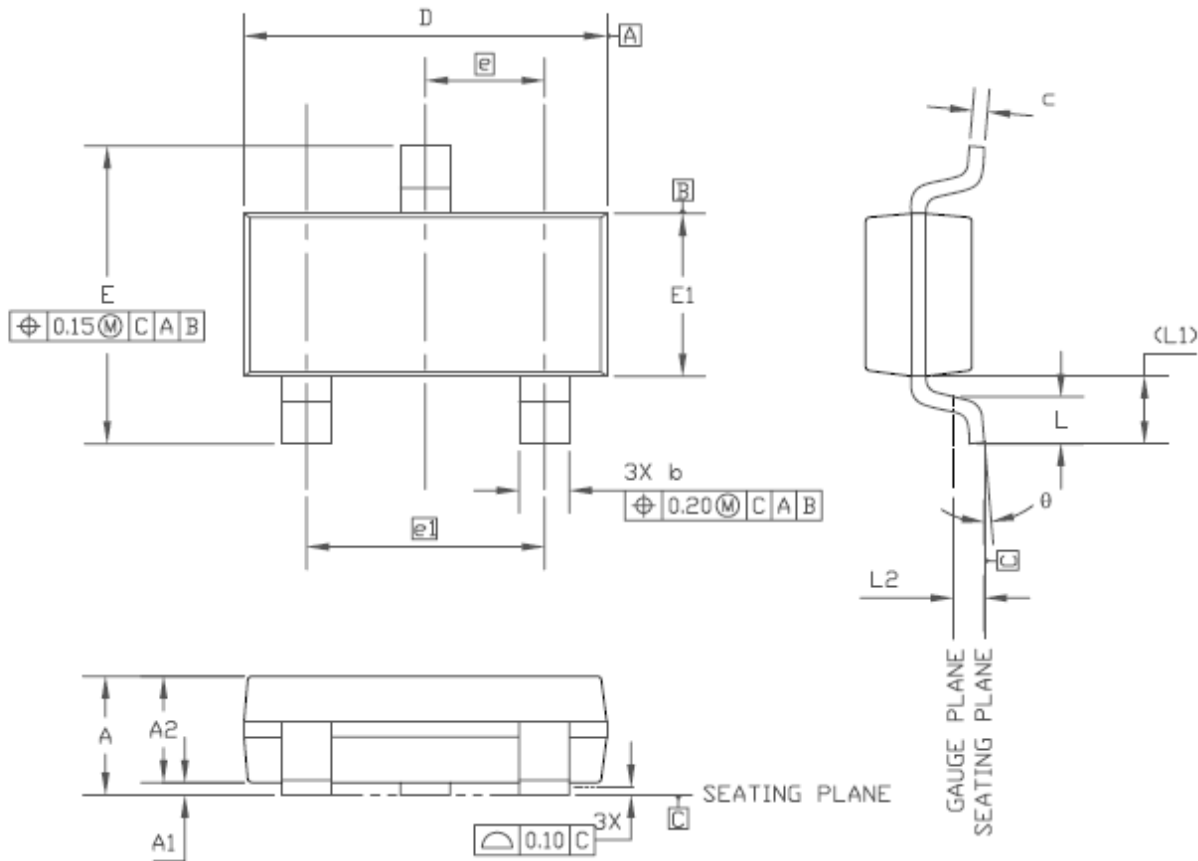
Diode Recovery Test Circuit & Waveforms



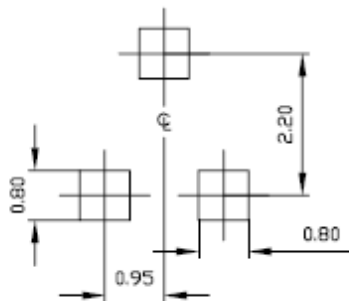


Packaging Information

SOT-23 STANDARD PACKAGE OUTLINE



RECOMMENDED LAND PATTERN



UNIT: mm

| SYMBOLS | DIMENSIONS IN MILLIMETERS | | | DIMENSIONS IN INCHES | | |
|---------|---------------------------|------|------|----------------------|-------|-------|
| | MIN | NOM | MAX | MIN | NOM | MAX |
| A | 0.75 | — | 1.17 | 0.030 | — | 0.046 |
| A1 | 0.05 | — | 0.15 | 0.002 | — | 0.006 |
| A2 | 0.70 | 0.85 | 1.02 | 0.028 | 0.033 | 0.040 |
| b | 0.30 | — | 0.50 | 0.012 | — | 0.020 |
| c | 0.08 | — | 0.20 | 0.003 | — | 0.008 |
| D | 2.80 | 2.90 | 3.04 | 0.110 | 0.114 | 0.120 |
| E | 2.10 | — | 2.64 | 0.083 | — | 0.104 |
| E1 | 1.20 | 1.30 | 1.40 | 0.047 | 0.051 | 0.055 |
| e | 0.95 BSC | | | 0.037 BSC | | |
| e1 | 1.90 BSC | | | 0.075 BSC | | |
| L | 0.40 | 0.50 | 0.60 | 0.016 | 0.020 | 0.024 |
| L1 | 0.54 REF | | | 0.021 REF | | |
| L2 | 0.25 | | | 0.010 | | |
| theta | 0° | — | 8° | 0° | — | 8° |

单击下面可查看定价，库存，交付和生命周期等信息

[>>LOW POWER\(微源半导体\)](#)