

LMN3660EJZF 30V N-Channel Enhancement Mode MOSFET

Features

- Low Gate Charge
- ESD Protected
- SOT-23 package design

voltage power management, such as smart phone and notebook computer, and low in-line power loss are needed in commercial industrial surface mount applications.

Product Description

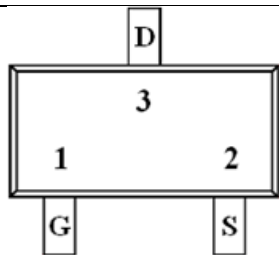
LMN3660E, N-Channel enhancement mode MOSFET, uses Advanced Trench Technology to provide excellent $R_{DS(ON)}$, low gate charge.

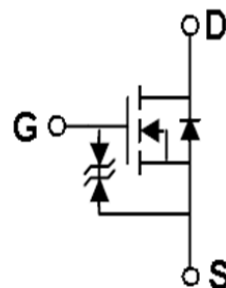
These devices are particularly suited for low

Applications

- Power Management in Note book
- Portable Equipment
- Load Switch

Pin Configuration

| LMN3660EJZF (SOT-23) | |
|--|-------------|
|  <p>Transparent top view</p> | |
| Pin | Description |
| 1 | Gate |
| 2 | Source |
| 3 | Drain |



Ordering Information

| Ordering Information | | | | | |
|----------------------|----------|----------|--------------|---------|----------|
| Part Number | P/N | PKG code | Pb Free code | Package | Quantity |
| LMN3660EX7F | LMN3660E | JZ | F | SOT-23 | 3000 PCS |

Marking Information

| Marking Information | | |
|---------------------|-------------|----------|
| Part Marking | Part Number | LFC code |
| 0XM | 0 | XM |

Absolute Maximum Ratings

(T_C=25°C Unless otherwise noted)

| Symbol | Parameter | Typical | Unit |
|------------------|--|-------------|------|
| V _{DSS} | Drain-Source Voltage | 30 | V |
| V _{GSS} | Gate-Source Voltage | ±12 | V |
| I _D | Continuous Drain Current T _A =25°C ¹ | 0.57 | A |
| I _{DM} | Pulsed Drain Current ² | 2.0 | A |
| I _S | Continuous Source Current (Diode Conduction) | 0.28 | A |
| P _D | Power Dissipation | 0.3 | W |
| T _J | Operating Junction Temperature | -55 to +150 | °C |
| T _{STG} | Storage Temperature Range | -55 to +150 | °C |
| R _{θJA} | Thermal Resistance-Junction to Ambient ¹ | 363 | °C/W |

Electrical Characteristics

(T_C=25°C Unless otherwise noted)

| Symbol | Parameter | Conditions | Min | Typ | Max | Unit |
|----------------------|---------------------------------|--|-----|-----|------|------|
| Static | | | | | | |
| V _{(BR)DSS} | Drain-Source Breakdown Voltage | V _{GS} =0V, I _D =250uA | 30 | | | V |
| V _{GS(th)} | Gate Threshold Voltage | V _{DS} =V _{GS} , I _D =250Ua | 0.5 | | 1.5 | |
| I _{GSS} | Gate Leakage Current | V _{DS} =0V, V _{GS} =±12V | | | 10 | uA |
| I _{DSS} | Zero Gate Voltage Drain Current | V _{DS} =24V, V _{GS} =0V | | | 100 | nA |
| | | V _{DS} =16V, V _{GS} =0V, T _J =85°C | | | 30 | uA |
| R _{DS(on)} | Drain-Source On-Resistance | V _{GS} =10V, I _D =0.5A | | 340 | 600 | mΩ |
| | | V _{GS} =4.5V, I _D =0.4A | | 412 | 650 | |
| | | V _{GS} =2.5V, I _D =0.3A | | 625 | 1200 | |
| g _{FS} | Forward Transconductance | V _{DS} =10V, I _D =0.5A | | 1.2 | | S |
| V _{SD} | Diode Forward Voltage | I _S =0.5A, V _{GS} =0V | | | 1.35 | V |
| Dynamic | | | | | | |
| Q _g | Total Gate Charge | V _{DS} =15V, V _{GS} =10V, I _D =0.5A | | 1.5 | | nC |
| Q _{gs} | Gate-Source Charge | | | 0.2 | | |
| Q _{gd} | Gate-Drain Charge | | | 0.2 | | |
| C _{iss} | Input Capacitance | V _{DS} =15V, V _{GS} =0V, f=1MHz | | 39 | | pF |
| C _{oss} | Output Capacitance | | | 9 | | |
| C _{rss} | Reverse Transfer Capacitance | | | 6 | | |
| t _{d(on)} | Turn-On Time | V _{DD} =15V, I _D =0.5A, V _{GS} =10V, R _G =2.5Ω | | 5.3 | | ns |
| t _r | | | | 16 | | |
| t _{d(off)} | Turn-Off Time | | | 20 | | |
| t _f | | | | 18 | | |

Typical Performance Characteristics

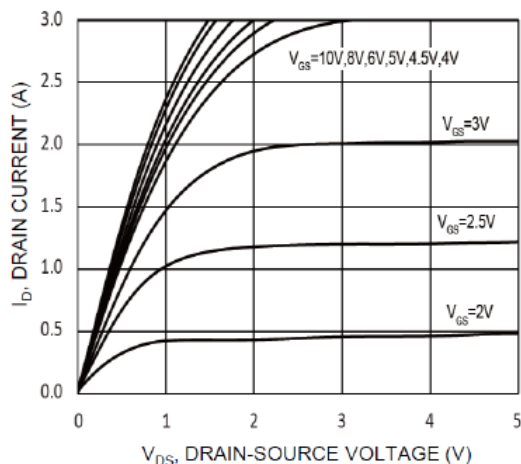


Fig. 1 Typical Output Characteristics

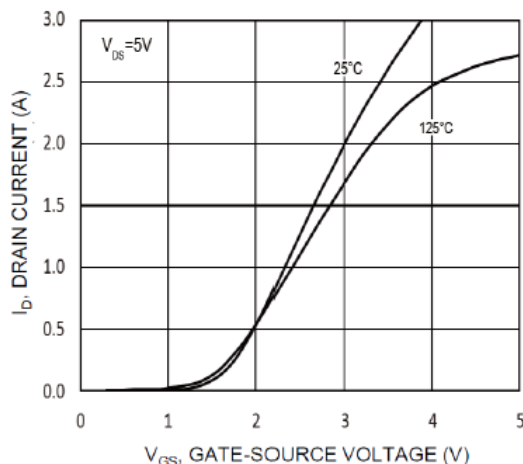


Fig. 2 Typical Transfer Characteristics

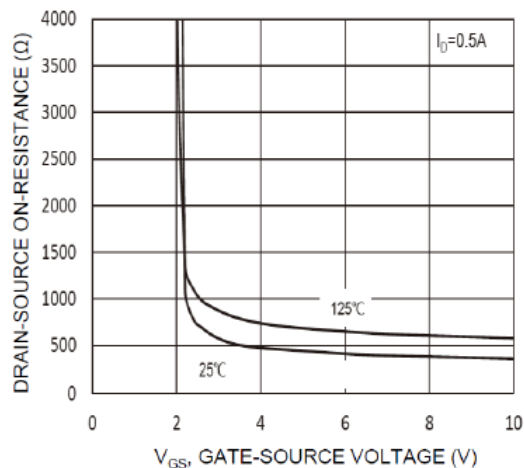


Fig. 3 Typical On-Resistance vs. V_{GS}

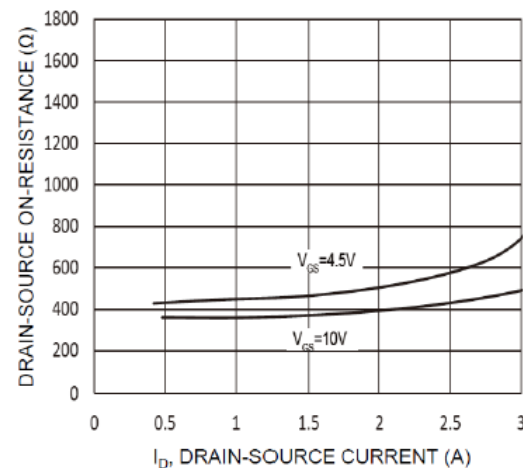


Fig. 4 Typical On-Resistance vs. I_D

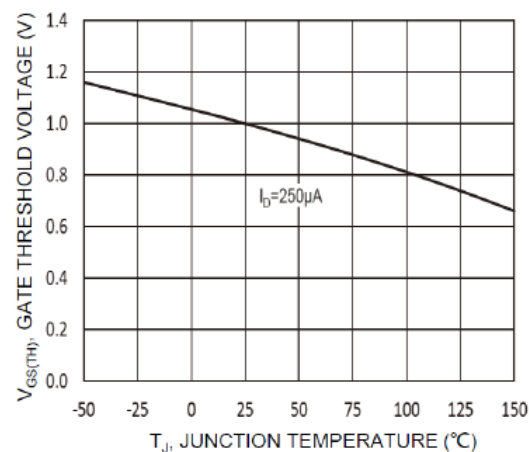


Fig. 5 Normalized Threshold Voltage

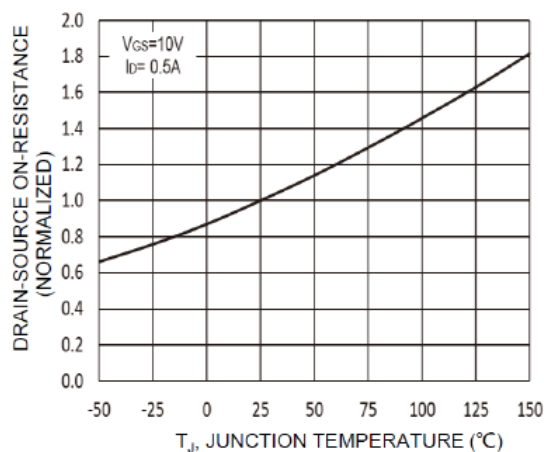
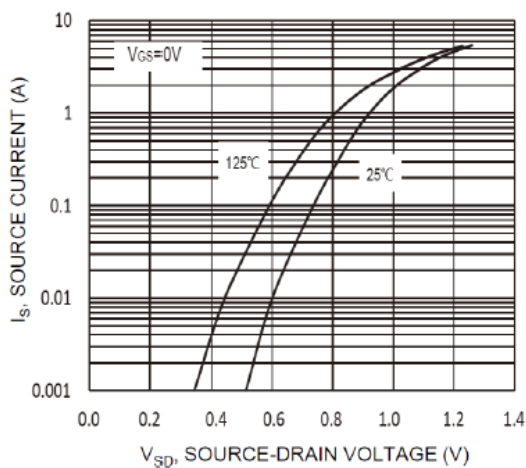
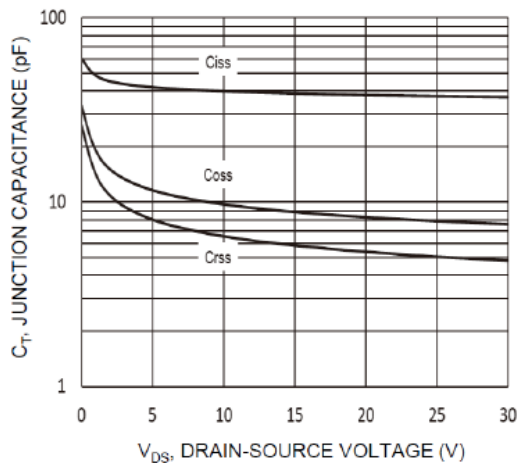
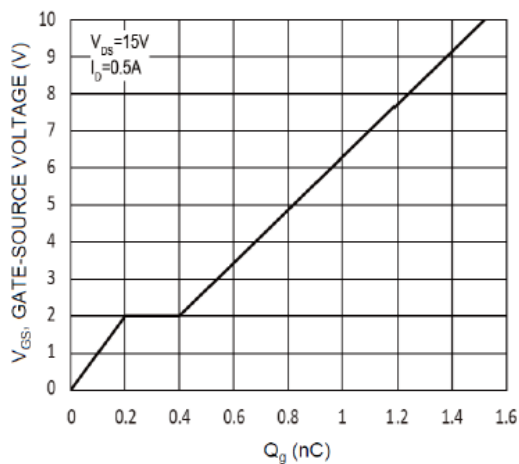
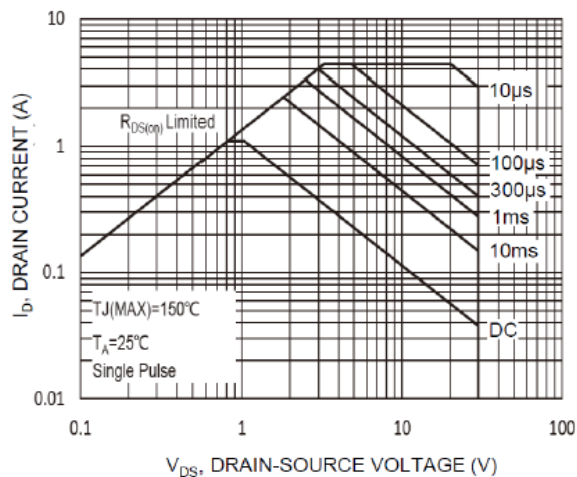
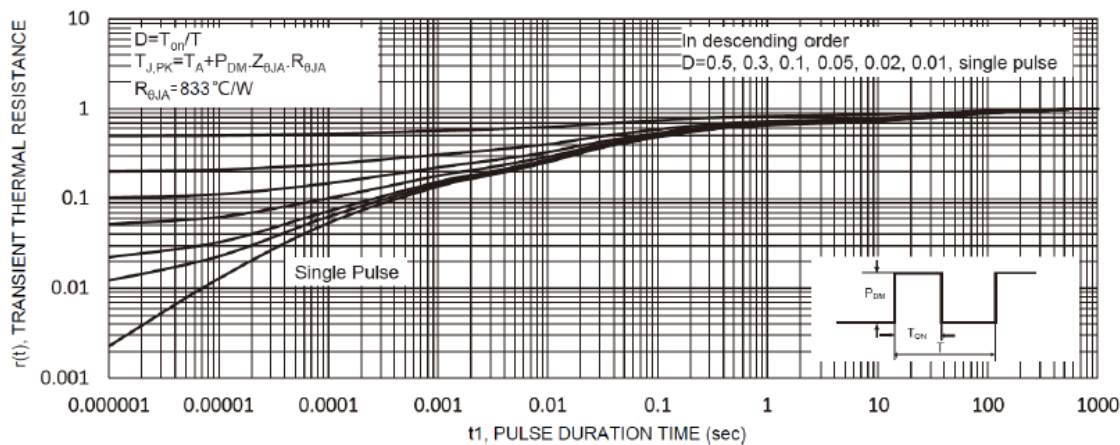
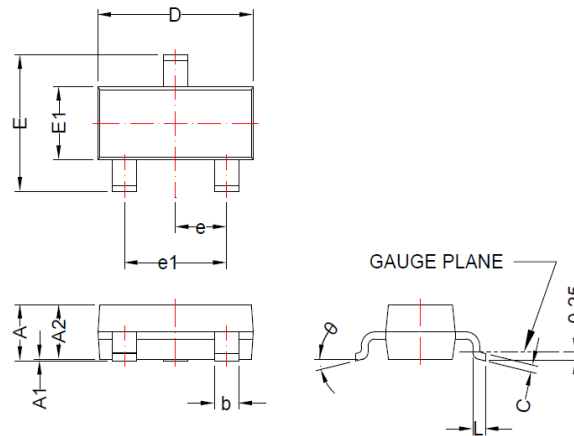


Fig. 6. On-Resistance Variation with T_J

Typical Performance Characteristics(continue)

Fig. 7 Diode Forward Voltage vs. Current

Fig. 8 Typical Capacitance

Fig. 9 Gate Charge

Fig. 10 Safe Operation Area

Fig. 11 Transient Thermal Response

Package Dimension:
SOT-23


| Dimensions | | | | |
|----------------------------|-------------|------|-----------|-------|
| Symbol | Millimeters | | Inches | |
| | Min | Max | Min | Max |
| A | 0.75 | 1.17 | 0.030 | 0.046 |
| A1 | 0.01 | 0.15 | 0.000 | 0.006 |
| A2 | 0.70 | 1.02 | 0.028 | 0.040 |
| b | 0.30 | 0.50 | 0.012 | 0.020 |
| c | 0.08 | 0.20 | 0.003 | 0.008 |
| D | 2.80 | 3.04 | 0.110 | 0.120 |
| E | 2.10 | 2.64 | 0.083 | 0.104 |
| E1 | 1.20 | 1.40 | 0.047 | 0.055 |
| e | 0.95 BSC | | 0.037 BSC | |
| e1 | 1.90 BSC | | 0.075 BSC | |
| L | 0.3 | 0.6 | 0.012 | 0.024 |
| θ | 0° | 8° | 0° | 8° |

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