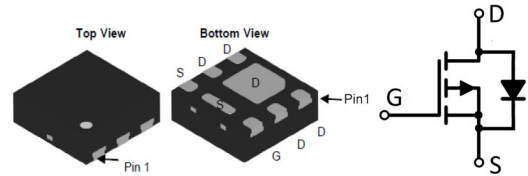


Features

- $V_{DS}=-18V, I_D=-20A$
- $R_{DS(ON)} @V_{GS}=-2.5V, TYP=20m\Omega$
- $R_{DS(ON)} @V_{GS}=-4.5V, TYP=14m\Omega$
- High power and current handling capability
- Lead free product is acquired
- Surface mount package

Package

DFN2X2-6L



Description

The LX20P18B uses advanced trench technology to provide excellent $R_{DS(ON)}$, low gate charge and operation with gate voltages as low as 2.5V. This device is suitable for use as a Battery protection or in other Switching application.

Application

- Electronic cigarette
- Load switch

Ordering information

| Order code | Package | Base qty | Delivery mode |
|------------|-----------|----------|---------------|
| LX20P18B | DFN2x2-6L | 3K | Tape and reel |

Absolute Maximum Ratings (@ $T_A=25^\circ C$ unless otherwise noted)

| Symbol | Parameter | Value | Unit |
|-----------------|---|-------------------|--------------|
| V_{DS} | Drain-Source Voltage | -18 | V |
| V_{GS} | Gate-Source Voltage | ± 12 | V |
| I_D | Continuous Drain Current | $T_C=25^\circ C$ | -20 |
| | | $T_C=100^\circ C$ | -10.6 |
| I_{DM} | Pulsed Drain Current | -36 | A |
| P_D | Maximum Power Dissipation | $T_C=25^\circ C$ | 1.6 |
| $R_{\theta JA}$ | Thermal Resistance, Junction to Ambient | 125 | $^\circ C/W$ |
| T_J, T_{stg} | Operating and Storage Temperature Range | -55 to 150 | $^\circ C$ |



Electrical Characteristics @T_A=25°C unless otherwise noted

| Symbol | Parameter | Test Condition | Min. | Typ. | Max. | Unit |
|--|----------------------------------|--|------|-------|------|------|
| Static | | | | | | |
| B _{VDS} | Drain-Source Breakdown Voltage | V _{GS} = 0V, I _D = -250uA | -15 | -18 | - | V |
| I _{DSS} | Zero Gate Voltage Drain Current | V _{DS} = -12V, V _{GS} = 0V | - | - | -1 | uV |
| I _{GSS} | Gate Leakage Current | V _{GS} = ±12V, V _{DS} = 0V | - | - | ±100 | nA |
| V _{GS(th)} | Gate Threshold Voltage | V _{DS} = V _{GS} , I _D = -250uA | -0.4 | -0.65 | -1.0 | V |
| R _{DS(on)} | Drain-Source On-State Resistance | V _{GS} = -4.5V, I _D = -5A | - | 14 | 23 | mΩ |
| | | V _{GS} = -2.5V, I _D = -4A | - | 20 | 35 | |
| Dynamic | | | | | | |
| C _{iss} | Input Capacitance | V _{DS} = -10V, V _{GS} = 0V, f = 1.0MHZ | - | 900 | - | pF |
| C _{oss} | Output Capacitance | | - | 180 | - | |
| C _{rss} | Reverse Transfer Capacitance | | - | 160 | - | |
| Switching | | | | | | |
| t _{d(on)} | Turn-On Delay Time | V _{DS} = -10V, V _{GS} = -4.5V, R _{GEN} = 6Ω | - | 15 | - | ns |
| t _r | Turn-On Rise Time | | - | 35 | - | |
| t _{d(off)} | Turn-Off Delay Time | | - | 30 | - | |
| t _f | Turn-Off Fall Time | | - | 10 | - | |
| Q _g | Total Gate Charge | V _{DS} = -4.5V | - | 10 | - | nC |
| Q _{gs} | Gate-Source Charge | V _{GS} = -10V | - | 2 | - | |
| Q _{gd} | Gate-Drain Charge | I _D = -5A | - | 3 | - | |
| Drain-source Body diode characteristics | | | | | | |
| V _{SD} | Diode Forward Voltage | I _S = -4.1A, V _{GS} = 0V | - | - | -1.2 | V |

Typical Performance Characteristics ($T_J = 25^\circ\text{C}$, unless otherwise noted)

Figure 1 : Power Dissipation

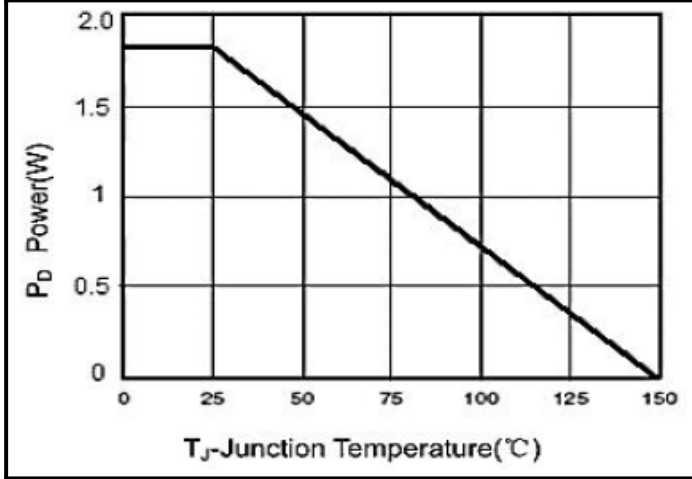


Figure 2 : Drain Current

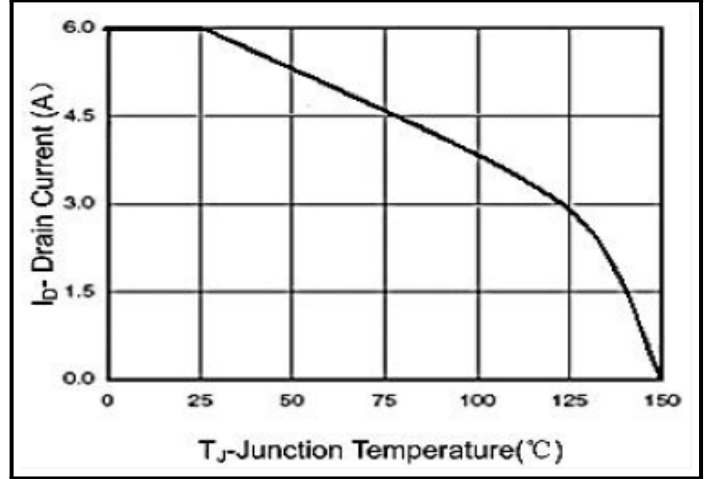


Figure 3 : Output Characteristics

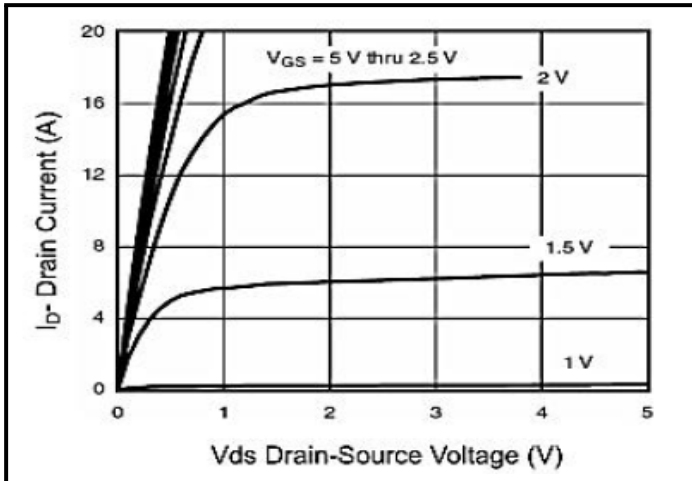


Figure 4 : Drain-Source On-Resistance

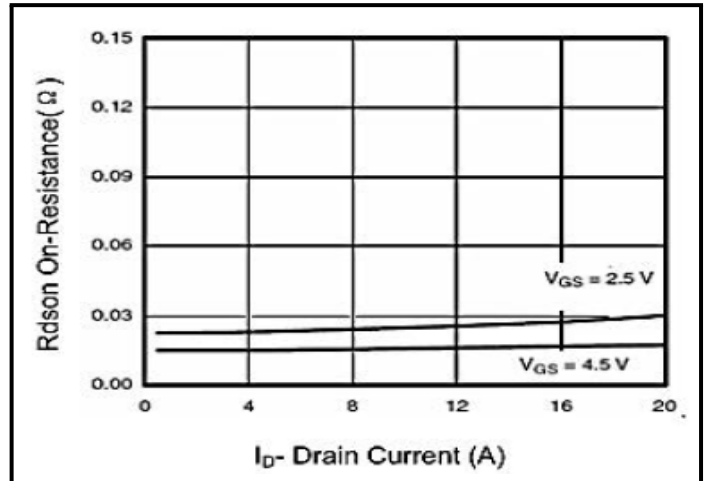


Figure 5 : Transfer Characteristics

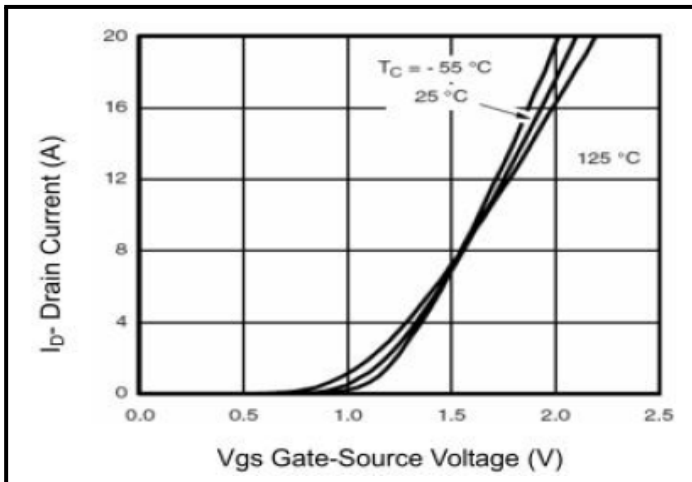
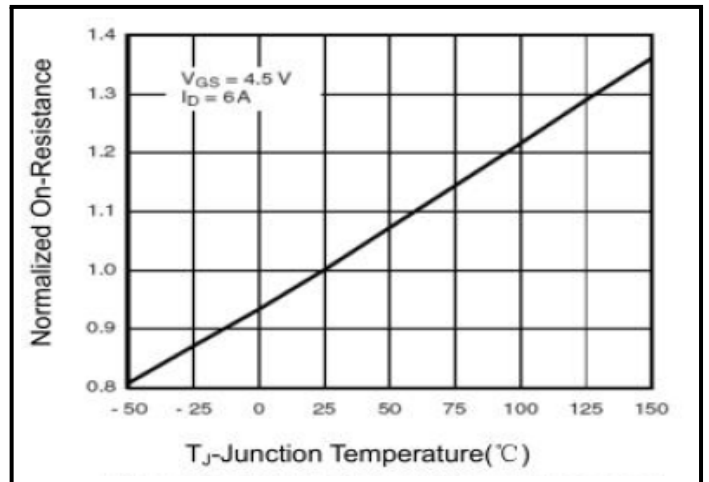


Figure 6 : Drain Current vs. On-resistance



Typical Performance Characteristics ($T_J = 25^\circ\text{C}$, unless otherwise noted)

Figure 7 : $R_{ds(on)}$ vs. V_{gs}

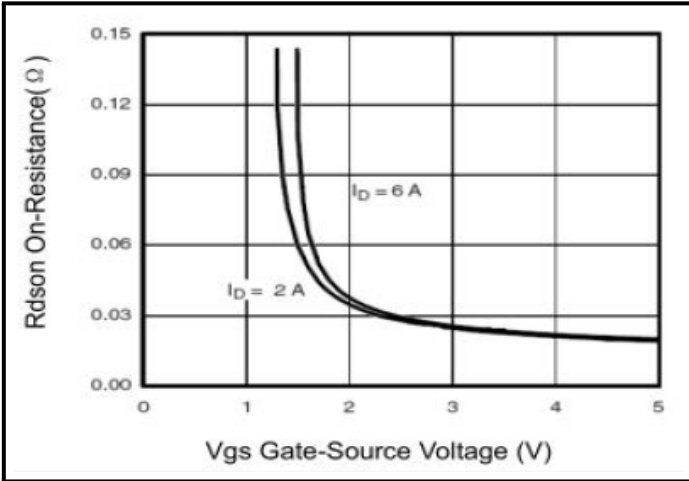


Figure 8 : Capacitance vs. V_{ds}

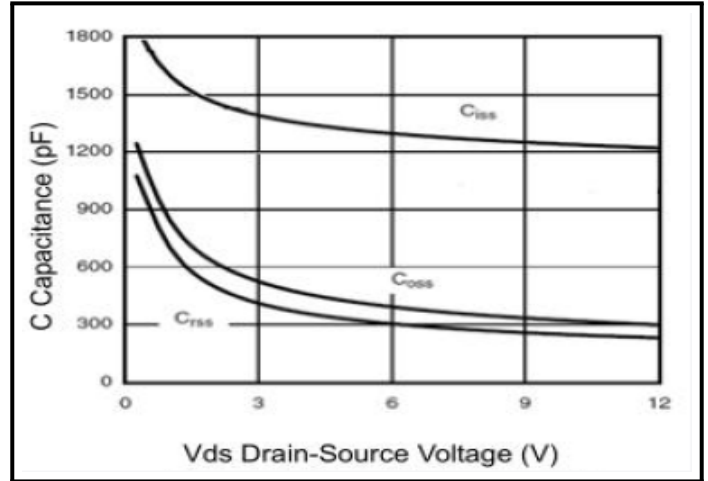


Figure 9 : Gate Charge

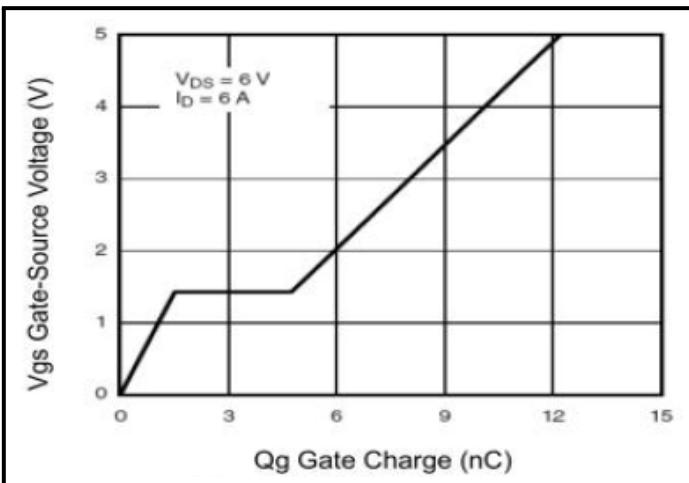


Figure 10 : Source-Drain Diode Forward

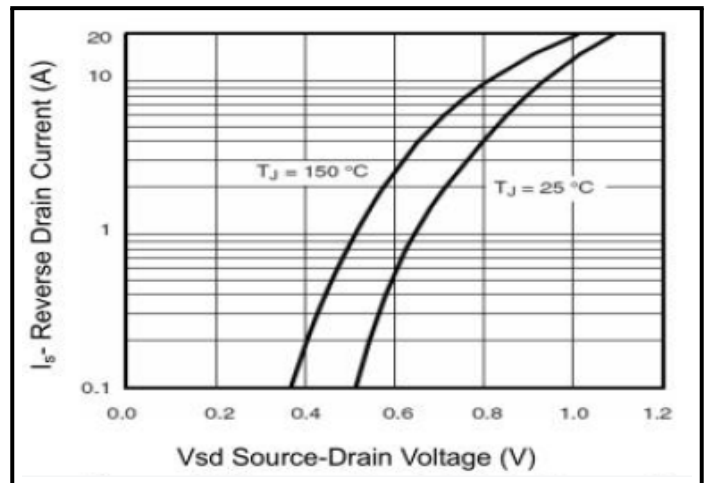
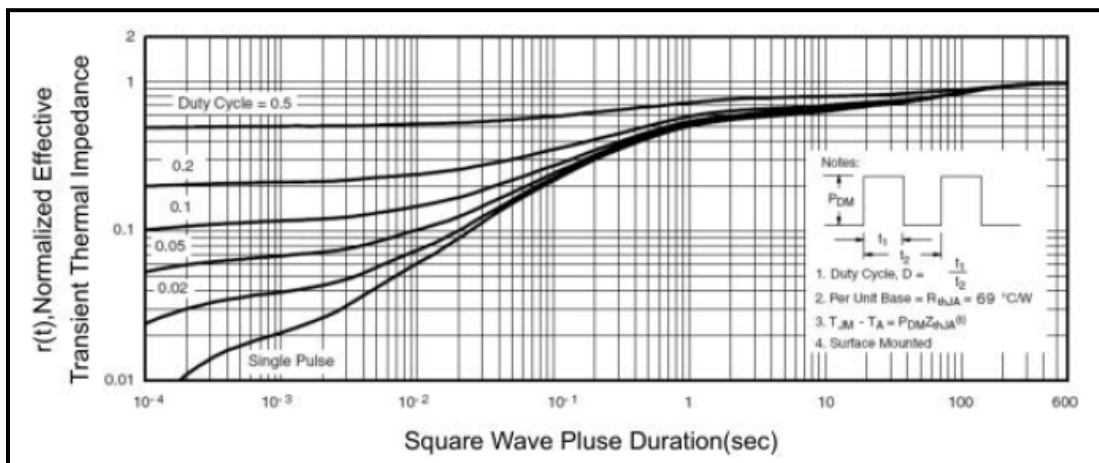
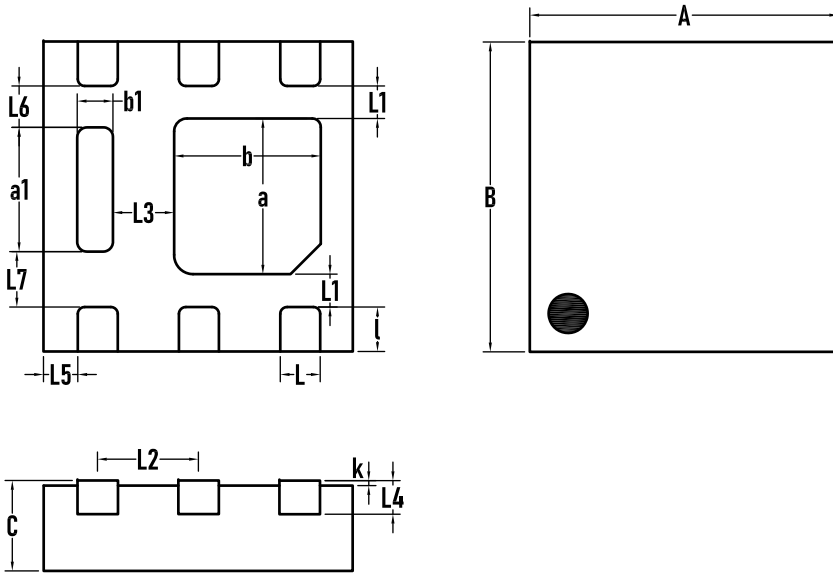


Figure 11 : Normalized Maximum Transient Thermal Impedance



Outline Drawing - DFN2x2-6L



| SYMBOL | MILLIMETER | | |
|--------|------------|-------|------|
| | MIN. | Typ. | MAX. |
| A | 1.95 | 2.00 | 2.05 |
| B | 1.95 | 2.00 | 2.05 |
| C | 0.45 | 0.50 | 0.55 |
| L | 0.25 | 0.30 | 0.35 |
| L1 | 0.10 | 0.20 | 0.30 |
| L2 | – | 0.65 | – |
| L3 | 0.30 | 0.40 | 0.50 |
| L4 | – | 0.152 | – |
| L5 | 0.12 | 0.22 | 0.32 |
| L6 | 0.15 | 0.25 | 0.35 |
| L7 | 0.23 | 0.33 | 0.43 |
| a | 0.90 | 1.00 | 1.10 |
| a1 | 0.72 | 0.82 | 0.92 |
| b | 0.85 | 0.95 | 1.05 |
| b1 | 0.13 | 0.23 | 0.33 |
| l | 0.25 | 0.30 | 0.35 |
| k | 0.00 | – | 0.05 |