

## 100V N-Channel Enhancement Mode MOSFET

### 1. Product Information

#### 1.1 Features

- ◇ Surface-mounted package
- ◇ Advanced trench cell design
- ◇ Advanced SGT cell design

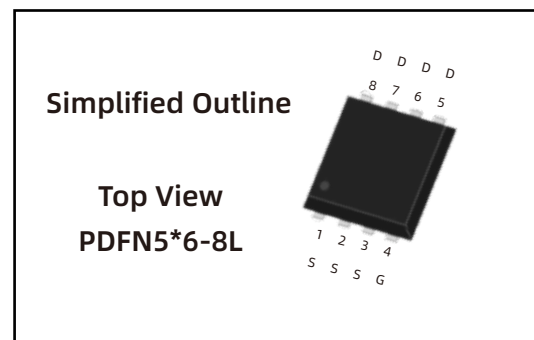
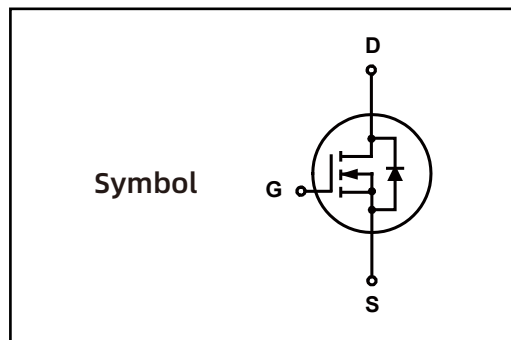
#### 1.2 Applications

- ◇ LCD TV appliances
- ◇ LCDM appliances
- ◇ High power inverter system

#### 1.3 Quick reference

- ◇  $BV \cong 100\text{ V}$
- ◇  $P_{\text{tot}} \cong 50\text{ W}$
- ◇  $I_D \cong 60\text{ A}$
- ◇  $R_{\text{DS(ON)}} \cong 8.0\text{ m}\Omega @ V_{\text{GS}} = 10\text{ V}$
- ◇  $R_{\text{DS(ON)}} \cong 12.0\text{ m}\Omega @ V_{\text{GS}} = 6\text{ V}$

### 2. Pin Description



### 3. Marking Information

| Product Name | Marking                        |
|--------------|--------------------------------|
| LN075N100G   | LN075N100G<br>CYWWZZ<br>XXXXXX |

## 4. Limiting Values

| Symbol               | Parameter                               | Conditions  | Min | Max      | Unit                      |
|----------------------|---|---|-----|----------|---------------------------|
| $V_{DS}$             | Drain-Source Voltage                    | $T_C = 25\text{ }^\circ\text{C}$                        | 100 | -        | V                         |
| $V_{GS}$             | Gate-Source Voltage                     | $T_C = 25\text{ }^\circ\text{C}$                        | -   | $\pm 20$ | V                         |
| $I_D^*$              | Drain Current ( DC )                    | $T_C = 25\text{ }^\circ\text{C}, V_{GS} = 10\text{ V}$  | -   | 60       | A                         |
|                      |   | $T_C = 100\text{ }^\circ\text{C}, V_{GS} = 10\text{ V}$ | -   | 34       | A                         |
| $I_{DM}^*$           | Drain Current ( Pulsed )                | $T_C = 25\text{ }^\circ\text{C}, V_{GS} = 10\text{ V}$  | -   | 216      | A                         |
| $P_{tot}$            | Drain power dissipation                 | $T_C = 25\text{ }^\circ\text{C}$                        | -   | 50       | W                         |
| $T_{stg}$            | Storage Temperature                     |   | -55 | 150      | $^\circ\text{C}$          |
| $T_J$                | Junction Temperature                    |   | -   | 150      | $^\circ\text{C}$          |
| $I_S$                | Continuous-Source Current               | $T_C = 25\text{ }^\circ\text{C}$                        | -   | 60       | A                         |
| $E_{AS}^*$           | Single Pulsed Avalanche Energy          | $V_{DD} = 50\text{ V}, L = 1\text{ mH}$                 | -   | 112      | mJ                        |
| $R_{\theta JA}^{**}$ | Thermal Resistance- Junction to Ambient |   | -   | 50       | $^\circ\text{C}/\text{W}$ |
| $R_{\theta JC}^{**}$ | Thermal Resistance- Junction to Case    |   | -   | 2.5      |                           |

Notes :

- \* Pulse width  $\leq 300\text{ }\mu\text{s}$ , duty cycle  $\leq 2\%$
- \*\* Mounted on Large Heat Sink
- \*\*\* Limited by bonding wire

## 5. Ordering Code

| Product Name      | Package        | Reel Size | Tape width | Quantity    | Note |
|-------------------|----------------|-----------|------------|-------------|------|
| <b>LN075N100G</b> | <b>PDFN5*6</b> |           |            | <b>5000</b> |      |

Note: COMTECH defines " Green " as lead-free ( RoHS compliant ) and halogen free ( Br or Cl does not exceed 900 ppm by weight in homogeneous material and total of Br and Cl does not exceed 1500 ppm by weight; Follow IEC 61249-2-21 and IPC / JEDEC J-STD-020C )

## 6. Electrical Characteristics ( $T_A=25^\circ$ Unless Otherwise Noted )

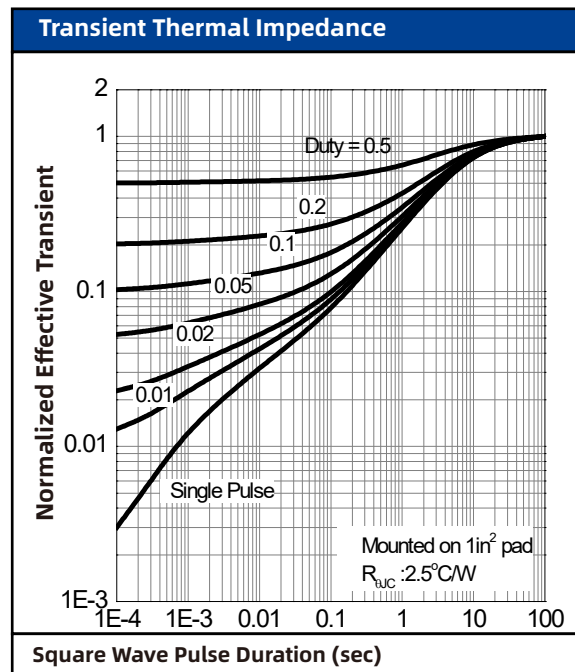
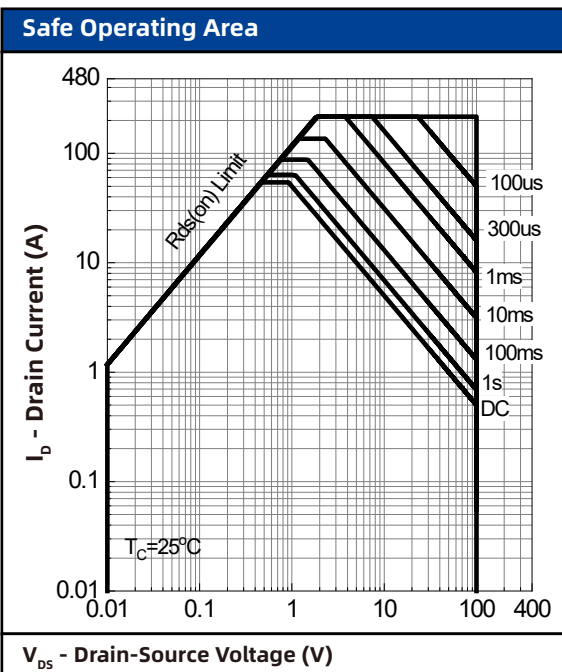
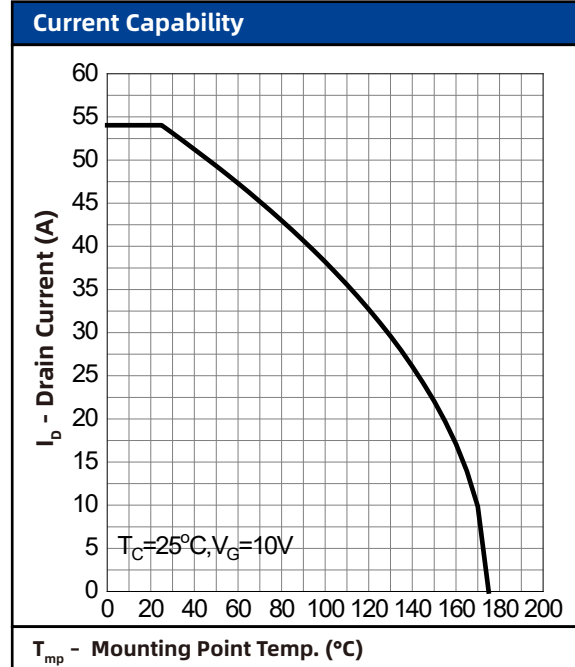
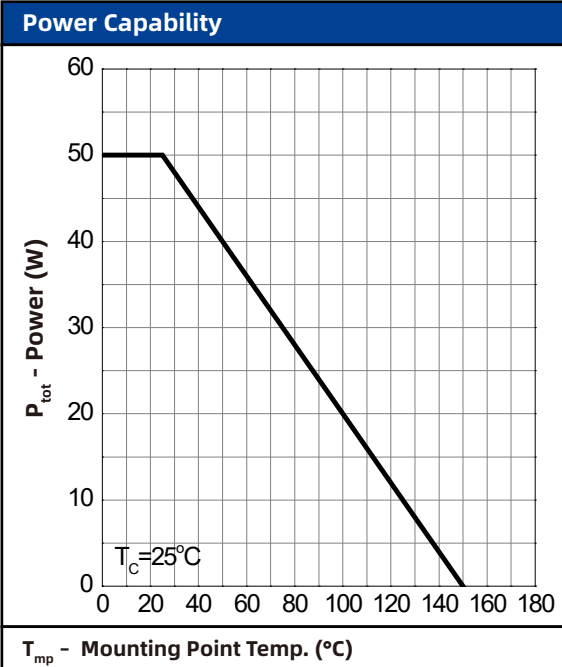
| Symbol   | Parameter                      | Conditions   | Min | Typ  | Max       | Unit          |
|--|--------------------------------|--|-----|------|-----------|---------------|
| <b>Static Characteristics</b>                  |                                |  |     |      |           |               |
| $BV_{DSS}$                                     | Drain-Source Breakdown Voltage | $V_{GS} = 0\text{ V}, I_{DS} = 250\ \mu\text{A}$   | 100 | -    | -         | V             |
| $V_{GS(th)}$                                   | Gate Threshold Voltage         | $V_{DS} = V_{GS}, I_{DS} = 250\ \mu\text{A}$   | 1.0 | -    | 3.0       | V             |
| $I_{DSS}$                                      | Drain Leakage Current          | $V_{DS} = 80\text{ V}, V_{GS} = 0\text{ V}$  | -   | -    | 1         | $\mu\text{A}$ |
| $I_{GSS}$                                      | Gate Leakage Current           | $V_{GS} = 0\text{ V}, V_{GS} = \pm 20\text{ V}$  | -   | -    | $\pm 100$ | nA            |
| $R_{DS(on)}^a$                                 | On-State Resistance            | $V_{GS} = 10\text{ V}, I_{DS} = 30\text{ A}$   | -   | 7.5  | 8.0       | m $\Omega$    |
|  |                                | $V_{GS} = 6\text{ V}, I_{DS} = 20\text{ A}$  | -   | 10   | 12        |               |
| <b>Diode Characteristics</b>                   |                                |  |     |      |           |               |
| $V_{SD}^a$                                     | Diode Forward Voltage          | $I_{SD} = 30\text{ A}, V_{GS} = 0\text{ V}$  | -   | -    | 1.3       | V             |
| $t_{rr}$                                       | Reverse Recovery Time          | $I_{DS} = 30\text{ A}, V_{GS} = 0\text{ V}$  | -   | 43   | -         | nS            |
| $Q_{rr}$                                       | Reverse Recovery Charge        | $di_{SD}/dt = 100\text{ A}/\mu\text{s}$  | -   | 114  | -         | nC            |
| <b>Dynamic Characteristics<sup>b</sup></b>     |                                |  |     |      |           |               |
| $C_{ISS}$                                      | Input Capacitance              | $V_{GS} = 0\text{ V}, V_{DS} = 50\text{ V}$<br>Frequency = 1 MHz   | -   | 2350 | -         | pF            |
| $C_{OSS}$                                      | Output Capacitance             |  | -   | 670  | -         |               |
| $C_{rSS}$                                      | Reverse Transfer Capacitance   |  | -   | 10   | -         |               |
| $t_d(on)$                                      | Turn-on Delay Time             | $V_{DS} = 50\text{ V}, V_{GEN} = 10\text{ V},$<br>$R_G = 3.9\ \Omega, R_L = 1.66\ \Omega,$<br>$I_{DS} = 30\text{ A}$ | -   | 15   | -         | nS            |
| $t_r$  | Turn-on Rise Time              |  | -   | 10   | -         |               |
| $t_d(off)$                                     | Turn-off Delay Time            |  | -   | 33   | -         |               |
| $t_f$  | Turn-off Fall Time             |  | -   | 13   | -         |               |
| <b>Gate Charge Characteristics<sup>b</sup></b> |                                |  |     |      |           |               |
| $Q_g$  | Total Gate Charge              | $V_{DS} = 50\text{ V}, V_{GS} = 10\text{ V},$<br>$I_{DS} = 30\text{ A}$  | -   | 44   | -         | nC            |
| $Q_{gs}$                                       | Gate-Source Charge             |  | -   | 13   | -         |               |
| $Q_{gd}$                                       | Gate-Drain Charge              |  | -   | 11   | -         |               |

Notes :

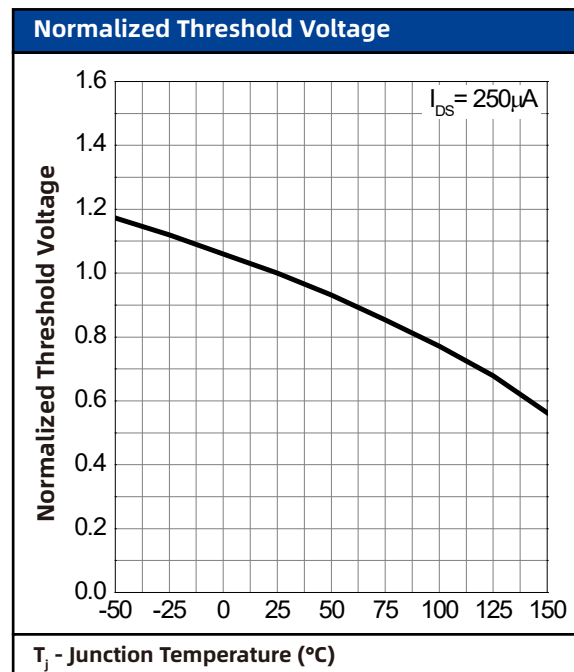
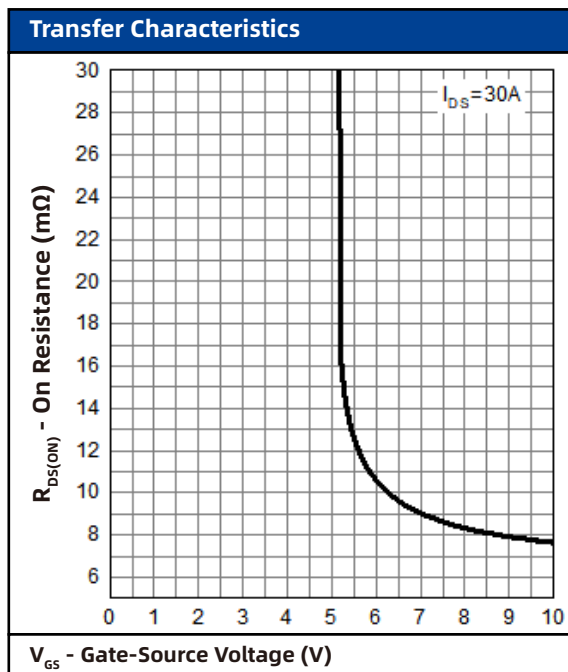
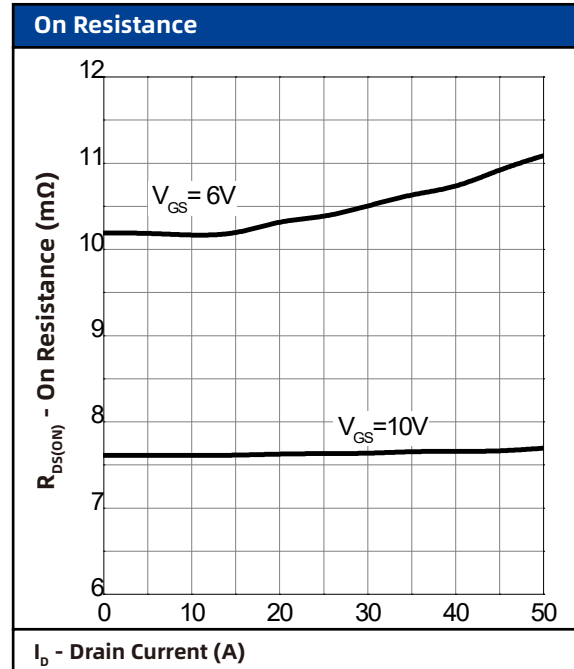
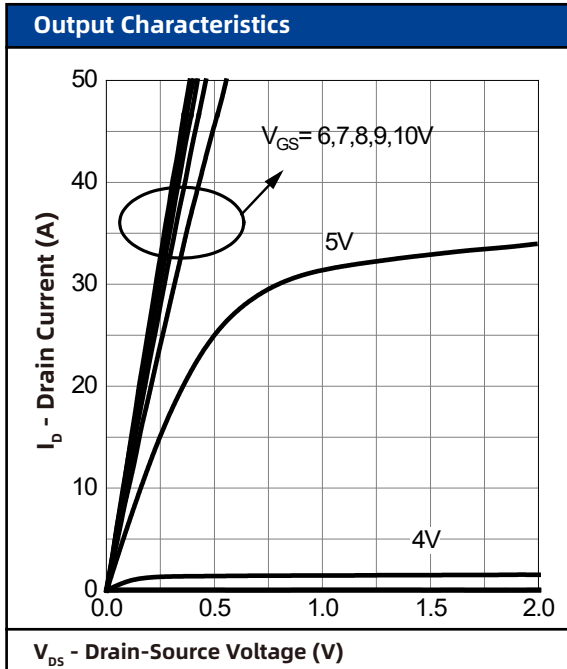
a : Pulse test ; pulse width  $\leq 300\ \mu\text{s}$ , duty cycle  $\leq 2\%$

b : Guaranteed by design, not subject to production testing

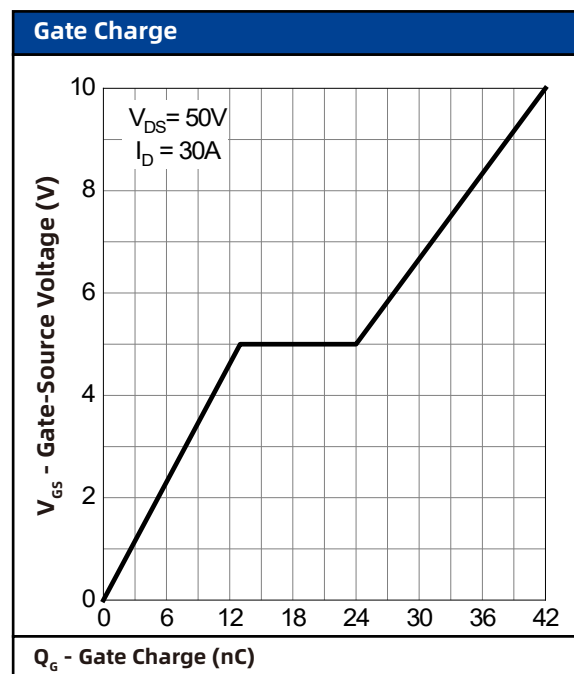
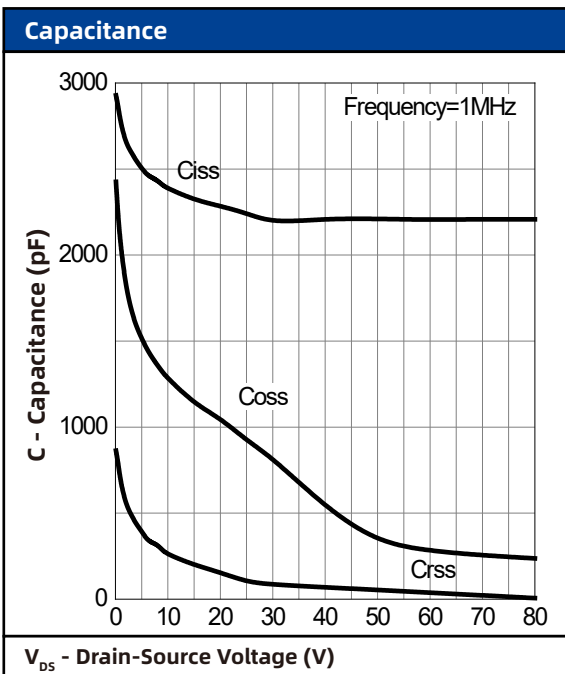
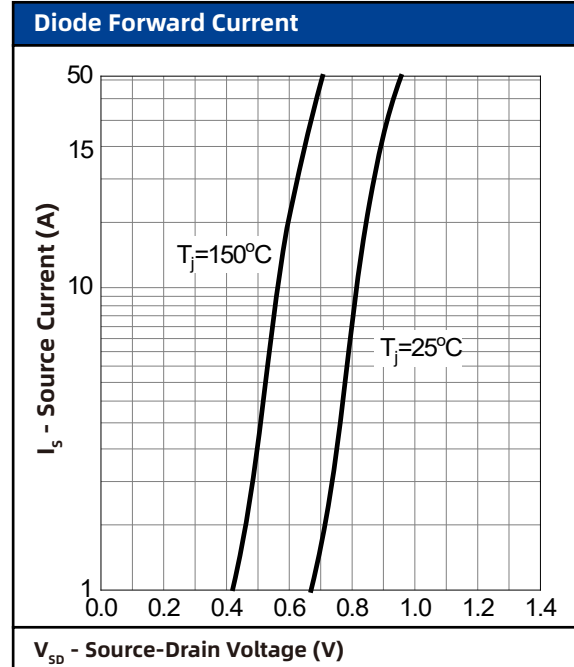
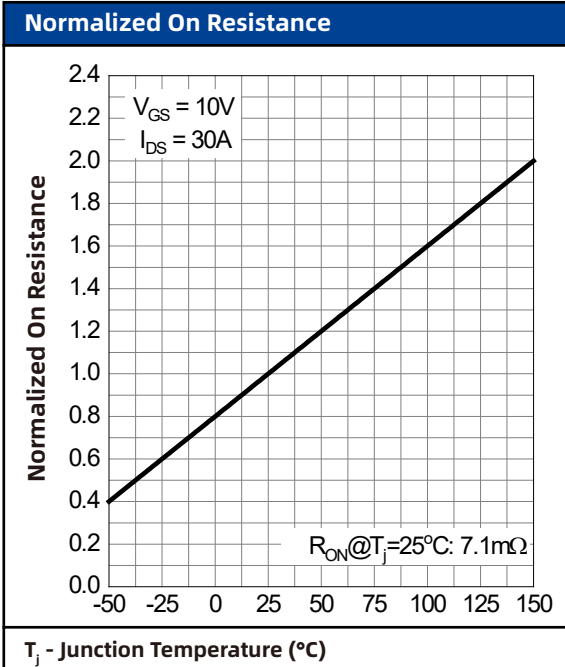
## 7. Typical Characteristics



## 7. Typical Characteristics (cont.)



## 7. Typical Characteristics (cont.)



## 8. Package Dimensions

### PDFN5\*6-8L Package

