



## Description

The DMP3028LSD uses advanced trench technology and design to provide excellent  $R_{DS(ON)}$  with low gate charge. It can be used in a wide variety of applications.

## General Features

$V_{DS} = -30V, I_D = -11A$

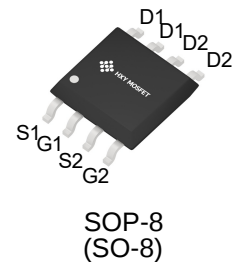
$R_{DS(ON)} < 18m @ V_{GS} = -10V$

$R_{DS(ON)} < 27m @ V_{GS} = -4.5V$

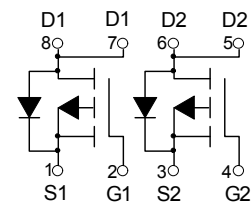
## Application

PWM application

Load switch



SOP-8  
(SO-8)



Dual P-Channel MOSFET

## Package Marking and Ordering Information

| Product ID | Pack        | Brand      | Qty(PCS) |
|------------|-------------|------------|----------|
| DMP3028LSD | SOP-8(SO-8) | HXY MOSFET | 3000     |

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

| Symbol          | Parameter                                        | Limit      | Unit         |
|-----------------|--------------------------------------------------|------------|--------------|
| $V_{DS}$        | Drain-Source Voltage                             | -30        | V            |
| $V_{GS}$        | Gate-Source Voltage                              | $\pm 20$   | V            |
| $I_D$           | Drain Current-Continuous                         | -11        | A            |
| $I_{DM}$        | Drain Current-Pulsed (Note 1)                    | -40        | A            |
| $P_D$           | Maximum Power Dissipation                        | 3.7        | W            |
| $T_J, T_{STG}$  | Operating Junction and Storage Temperature Range | -55 To 150 | $^\circ C$   |
| $R_{\theta JA}$ | Thermal Resistance, Junction-to-Ambient (Note 2) | 33.8       | $^\circ C/W$ |



**Electrical Characteristics** ( $T_J=25^\circ\text{C}$  unless otherwise specified)

| Symbol        | Parameter                                                | Test Condition                                               | Min. | Typ. | Max.      | Units      |
|---------------|----------------------------------------------------------|--------------------------------------------------------------|------|------|-----------|------------|
| $V_{(BR)DSS}$ | Drain-Source Breakdown Voltage                           | $V_{GS}=0V, I_D=-250\mu A$                                   | -30  | -    | -         | V          |
| $I_{DSS}$     | Zero Gate Voltage Drain Current                          | $V_{DS}=-30V, V_{GS}=0V,$                                    | -    | -    | -1        | $\mu A$    |
| $I_{GSS}$     | Gate to Body Leakage Current                             | $V_{DS}=0V, V_{GS}=\pm 20V$                                  | -    | -    | $\pm 100$ | nA         |
| $V_{GS(th)}$  | Gate Threshold Voltage                                   | $V_{DS}=V_{GS}, I_D=-250\mu A$                               | -1.0 | -1.6 | -2.5      | V          |
| $R_{DS(on)}$  | Static Drain-Source on-Resistance<br>Note3               | $V_{GS}=-10V, I_D=-10A$                                      | -    | 14   | 18        | m $\Omega$ |
|               |                                                          | $V_{GS}=-4.5V, I_D=-5A$                                      | -    | 20   | 27        |            |
| $C_{iss}$     | Input Capacitance                                        | $V_{DS}=-15V, V_{GS}=0V,$<br>$f=1.0MHz$                      | -    | 1330 | -         | pF         |
| $C_{oss}$     | Output Capacitance                                       |                                                              | -    | 183  | -         | pF         |
| $C_{rss}$     | Reverse Transfer Capacitance                             |                                                              | -    | 156  | -         | pF         |
| $Q_g$         | Total Gate Charge                                        | $V_{DS}=-15V, I_D=-5A,$<br>$V_{GS}=-10V$                     | -    | 22   | -         | nC         |
| $Q_{gs}$      | Gate-Source Charge                                       |                                                              | -    | 1.0  | -         | nC         |
| $Q_{gd}$      | Gate-Drain("Miller") Charge                              |                                                              | -    | 1.8  | -         | nC         |
| $t_{d(on)}$   | Turn-on Delay Time                                       | $V_{DD}=-15V, I_D=-10A,$<br>$V_{GS}=-10V, R_{GEN}=2.5\Omega$ | -    | 9    | -         | ns         |
| $t_r$         | Turn-on Rise Time                                        |                                                              | -    | 13   | -         | ns         |
| $t_{d(off)}$  | Turn-off Delay Time                                      |                                                              | -    | 48   | -         | ns         |
| $t_f$         | Turn-off Fall Time                                       |                                                              | -    | 20   | -         | ns         |
| $I_S$         | Maximum Continuous Drain to Source Diode Forward Current |                                                              | -    | -    | -11       | A          |
| $I_{SM}$      | Maximum Pulsed Drain to Source Diode Forward Current     |                                                              | -    | -    | -40       | A          |
| $V_{SD}$      | Drain to Source Diode Forward Voltage                    | $V_{GS}=0V, I_S=-15A$                                        | -    | -0.8 | -1.2      | V          |
| $t_{rr}$      | Reverse Recovery Time                                    | $T_J=25^\circ\text{C},$                                      | -    | 64   | -         | ns         |
| $Q_{rr}$      | Reverse Recovery Charge                                  | $V_{DD}=-24V, I_F=-2.8A,$<br>$di/dt=-100A/\mu s$             | -    | 25   | -         | nC         |

Notes:1. Repetitive Rating: Pulse Width Limited by Maximum Junction Temperature

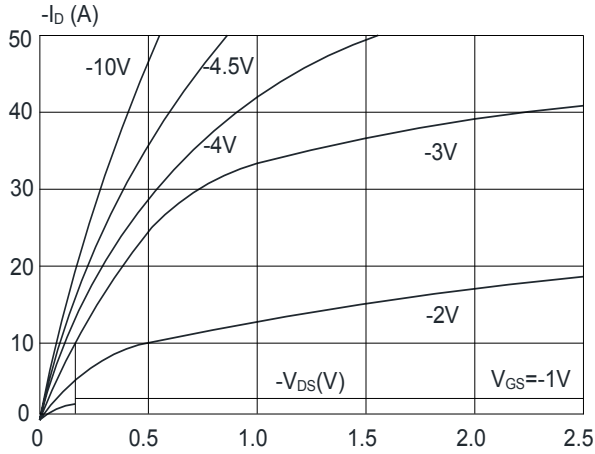
2. EAS condition:  $T_J=25^\circ\text{C}$ ,  $V_{GS}=10V$ ,  $R_G=25\Omega$ ,  $L=0.5mH$ ,  $I_{AS}=-12.7A$

3. Pulse Test: Pulse Width $\leq 300\mu s$ , Duty Cycle $\leq 0.5\%$

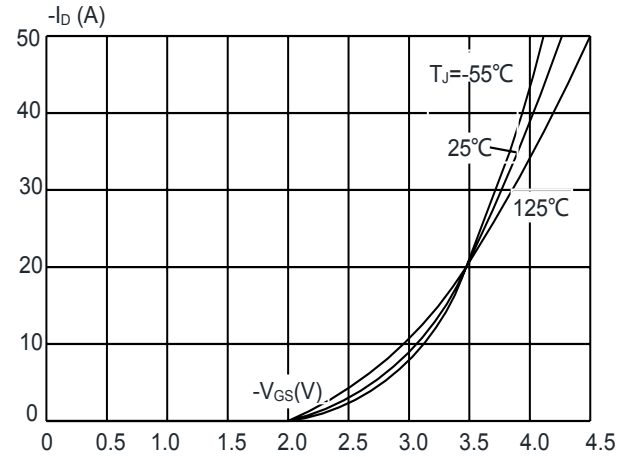


## Typical Performance Characteristics

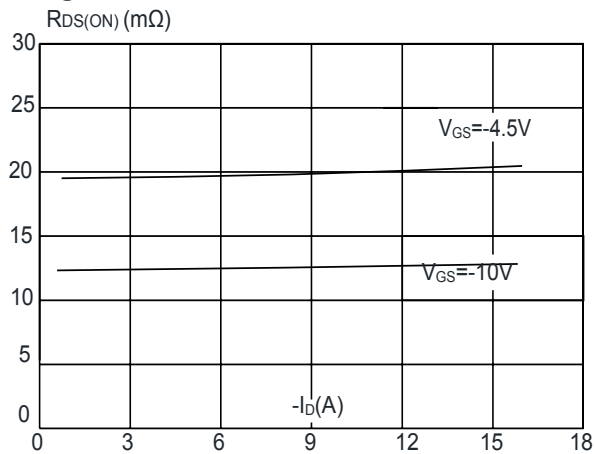
**Figure1: Output Characteristics**



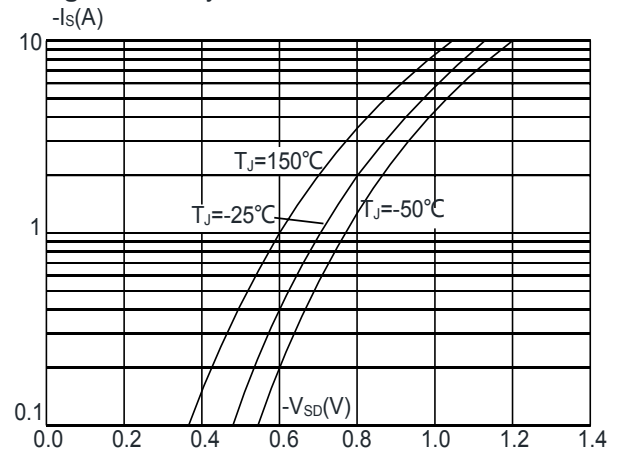
**Figure 2: Typical Transfer Characteristics**



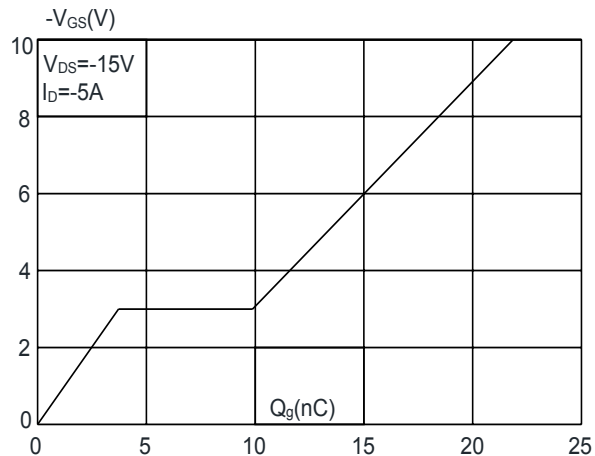
**Figure 3: On-resistance vs. Drain Current**



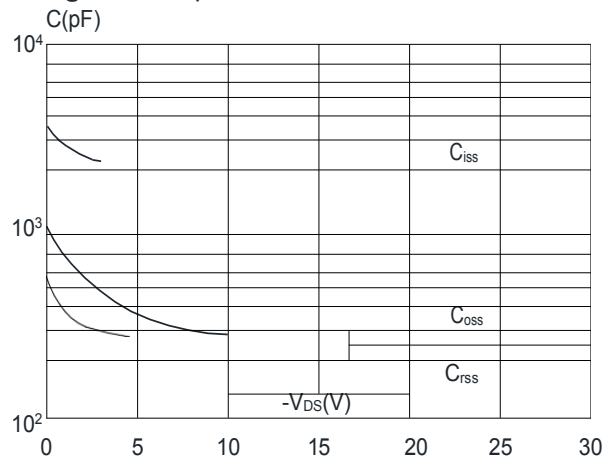
**Figure 4: Body Diode Characteristics**



**Figure 5: Gate Charge Characteristics**

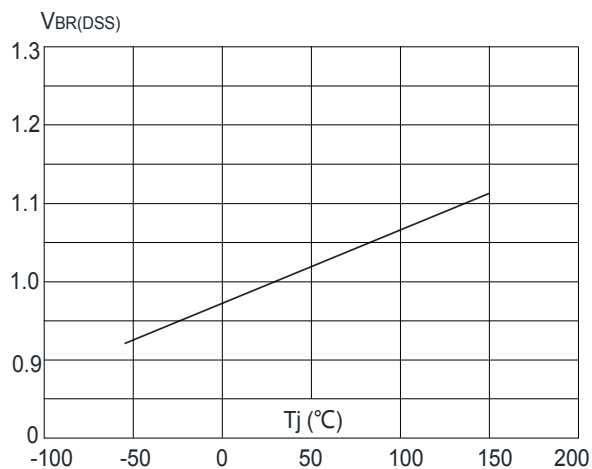


**Figure 6: Capacitance Characteristics**

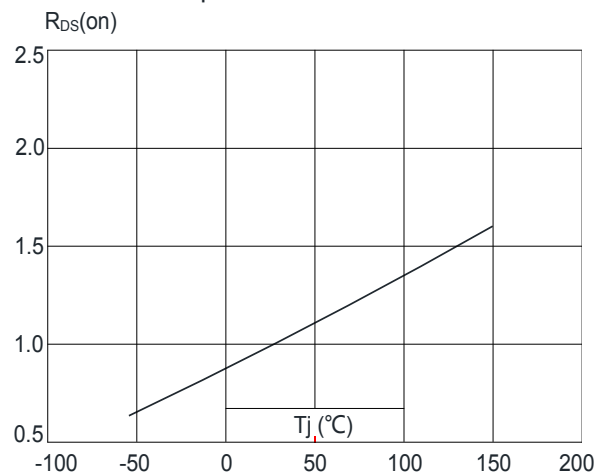




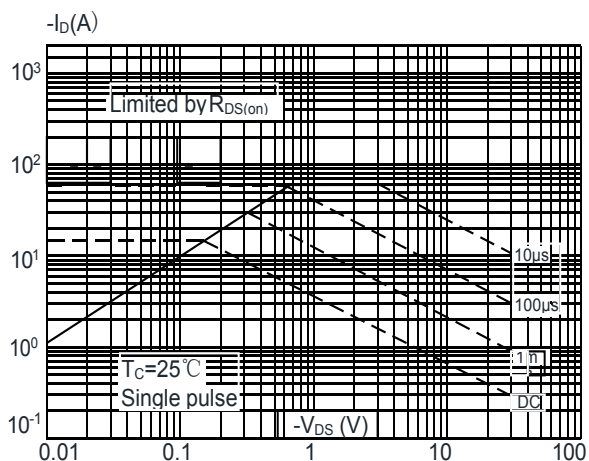
**Figure 7:** Normalized Breakdown Voltage vs. Junction Temperature



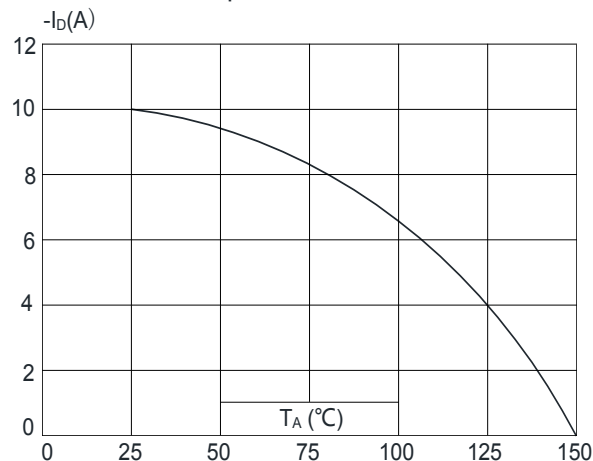
**Figure 8:** Normalized on Resistance vs. Junction Temperature



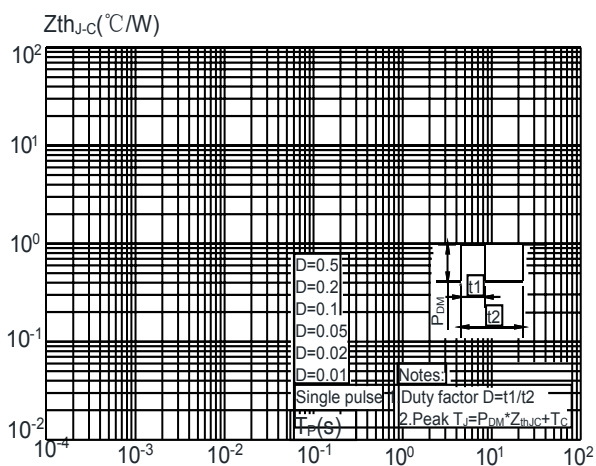
**Figure 9:** Maximum Safe Operating Area



**Figure 10:** Maximum Continuous Drain Current vs. Ambient Temperature



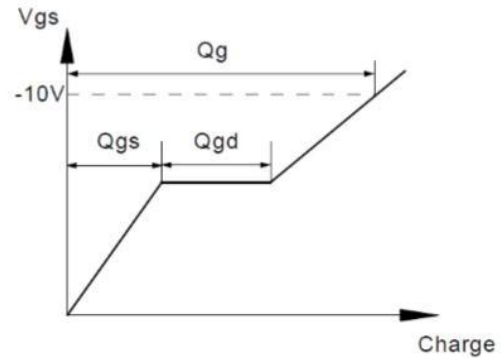
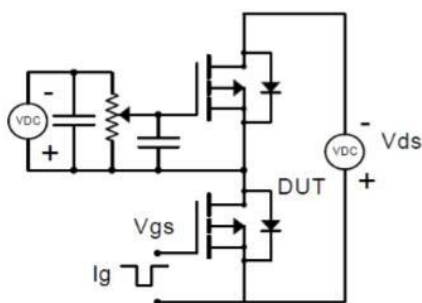
**Figure.11:** Maximum Effective Transient Thermal Impedance, Junction-to-Case



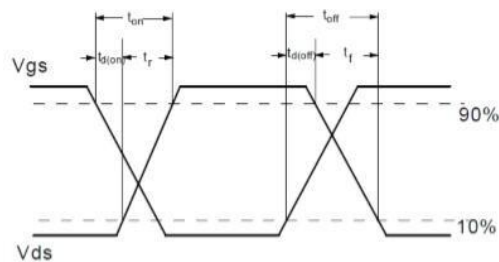
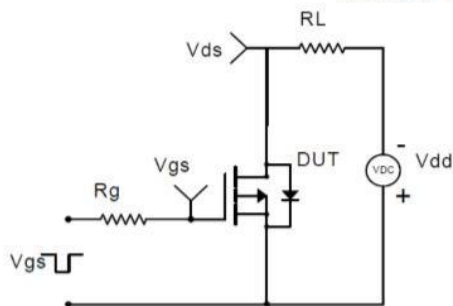


## Test Circuit

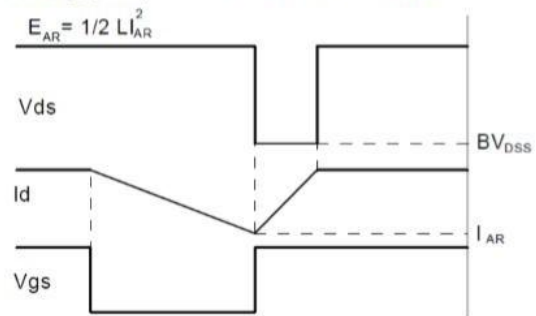
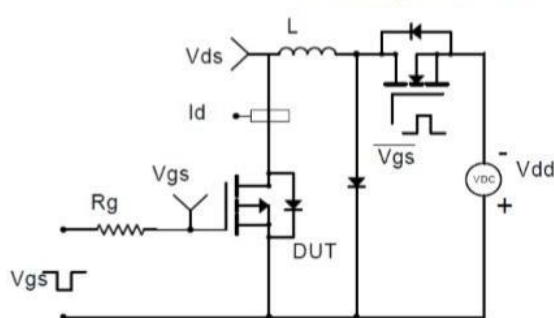
Gate Charge Test Circuit & Waveform



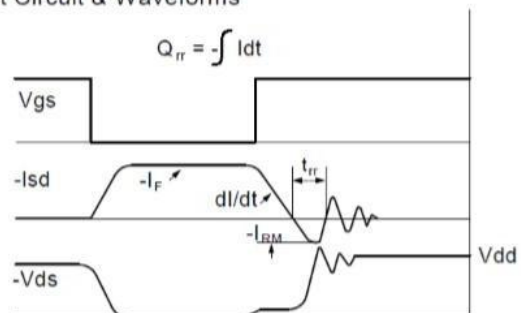
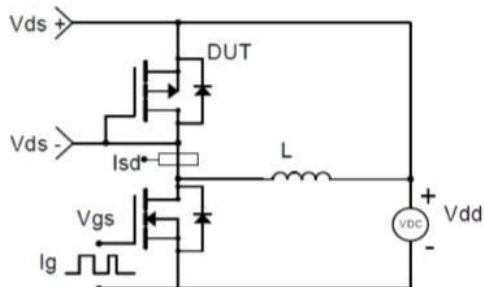
Resistive Switching Test Circuit & Waveforms



Unclamped Inductive Switching (UIS) Test Circuit & Waveforms

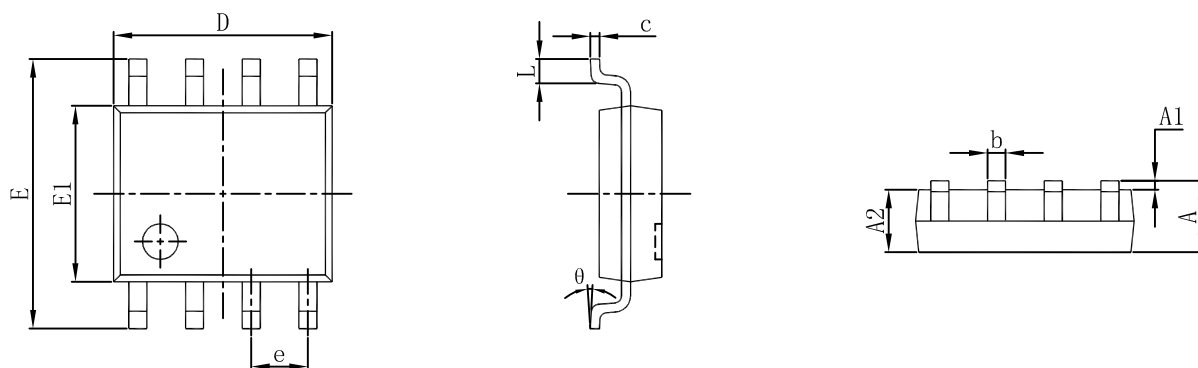


Diode Recovery Test Circuit & Waveforms

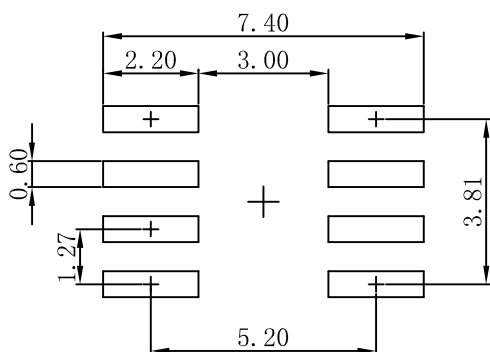




## SOP-8(SO-8) Package Outline Dimensions



| Symbol | Dimensions In Millimeters |       | Dimensions In Inches |       |
|--------|---------------------------|-------|----------------------|-------|
|        | Min                       | Max   | Min                  | Max   |
| A      | 1.350                     | 1.750 | 0.053                | 0.069 |
| A1     | 0.100                     | 0.250 | 0.004                | 0.010 |
| A2     | 1.350                     | 1.550 | 0.053                | 0.061 |
| b      | 0.330                     | 0.510 | 0.013                | 0.020 |
| c      | 0.170                     | 0.250 | 0.007                | 0.010 |
| D      | 4.800                     | 5.000 | 0.189                | 0.197 |
| e      | 1.270 (BSC)               |       | 0.050 (BSC)          |       |
| E      | 5.800                     | 6.200 | 0.228                | 0.244 |
| E1     | 3.800                     | 4.000 | 0.150                | 0.157 |
| L      | 0.400                     | 1.270 | 0.016                | 0.050 |
| θ      | 0°                        | 8°    | 0°                   | 8°    |



Note:  
1. Controlling dimension: in millimeters.  
2. General tolerance:  $\pm 0.05\text{mm}$ .  
3. The pad layout is for reference purposes only.



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