



# 100V, 57A, 17.6mΩ N-channel Power SGT MOSFET

## JMSL1018PGQ

### Features

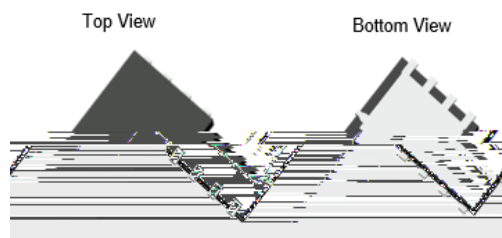
Ultra-low ON-resistance,  $R_{DS(ON)}$   
Low Gate Charge  
100% UIS Tested  
100%  $V_{DS}$  Tested  
Halogen-free; RoHS-compliant  
AEC-Q101 Qualified

### Applications

Load Switch  
PWM Application  
General Automotive Application

### Product Summary

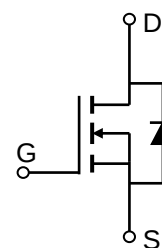
| Parameters                       | Value | Unit |
|----------------------------------|-------|------|
| $V_{DSS}$                        | 100   | V    |
| $V_{GS(th)}_{Typ}$               | 1.5   | V    |
| $I_D(@V_{GS}=10V)$               | 57    | A    |
| $R_{DS(ON)}_{Typ}(@V_{GS}=10V)$  | 13.2  | mΩ   |
| $R_{DS(ON)}_{Typ}(@V_{GS}=4.5V)$ | 17.6  | mΩ   |



PDFN5X6-8L



Pin Assignment



Schematic Diagram

### Ordering Information

| Device         | Marking | MSL | Form      | Package    | Reel(pcs) | Per Carton (pcs) |
|----------------|---------|-----|-----------|------------|-----------|------------------|
| JMSL1018PGQ-13 | L1018PQ | 1   | Tape&Reel | PDFN5x6-8L | 5000      | 50000            |

### Absolute Maximum Ratings (@ $T_C = 25^\circ\text{C}$ unless otherwise specified)

| Symbol              | Parameter                                     | Value                                                            | Unit             |
|---------------------|-----------------------------------------------|------------------------------------------------------------------|------------------|
| $V_{DS}$            | Drain-to-Source Voltage                       | 100                                                              | V                |
| $V_{GS}$            | Gate-to-Source Voltage                        | $\pm 20$                                                         | V                |
| $I_D$               | Continuous Drain Current                      | $T_C = 25^\circ\text{C}$ : 57<br>$T_C = 100^\circ\text{C}$ : 41  | A                |
| $I_{DM}$            | Pulsed Drain Current <sup>(1)</sup>           | Refer to Fig.4                                                   | A                |
| $E_{AS}$            | Single Pulsed Avalanche Energy <sup>(2)</sup> | 44                                                               | mJ               |
| $P_D$               | Power Dissipation                             | $T_C = 25^\circ\text{C}$ : 105<br>$T_C = 100^\circ\text{C}$ : 52 | W                |
| $T_{J \text{ STG}}$ | Junction & Storage Temperature Range          | -55 to 175                                                       | $^\circ\text{C}$ |

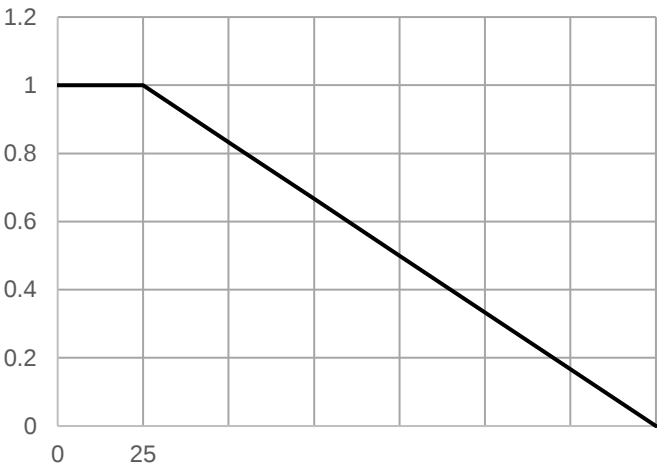
### Thermal Characteristics

| Symbol | Parameter                                              | Max | Unit               |
|--------|--------------------------------------------------------|-----|--------------------|
| R      | Thermal Resistance, Junction to Ambient <sup>(3)</sup> | 46  | $^\circ\text{C/W}$ |
| R      | Thermal Resistance, Junction to Case                   | 1.4 |                    |





Typical Performance Characteristics





Typical Performance Characteristics

|  |  |  |  |  |  |  |
|--|--|--|--|--|--|--|
|  |  |  |  |  |  |  |
|  |  |  |  |  |  |  |
|  |  |  |  |  |  |  |
|  |  |  |  |  |  |  |

## Test Circuit

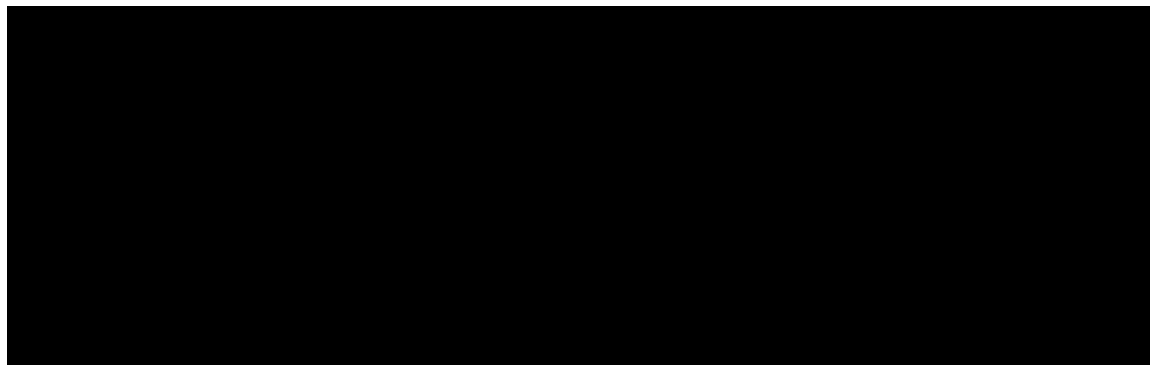


Figure 1: Gate Charge Test Circuit & Waveform

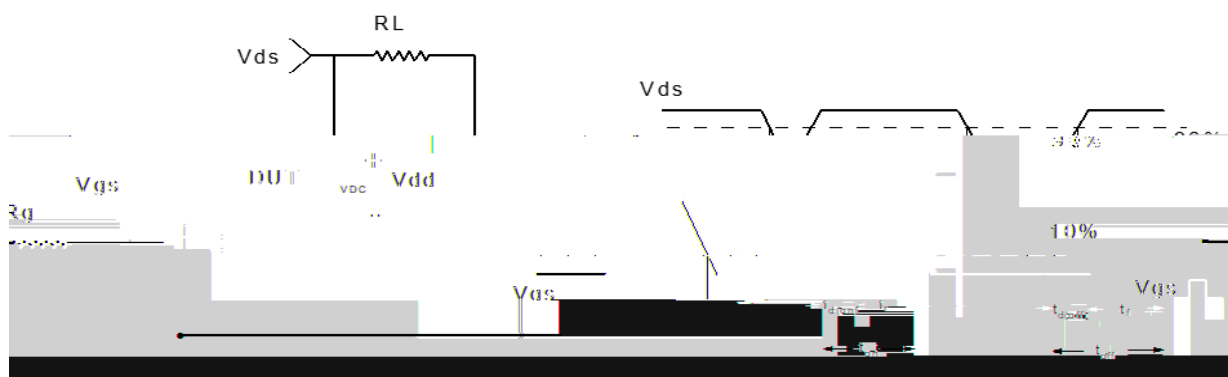


Figure 2: Resistive Switching Test Circuit & Waveform

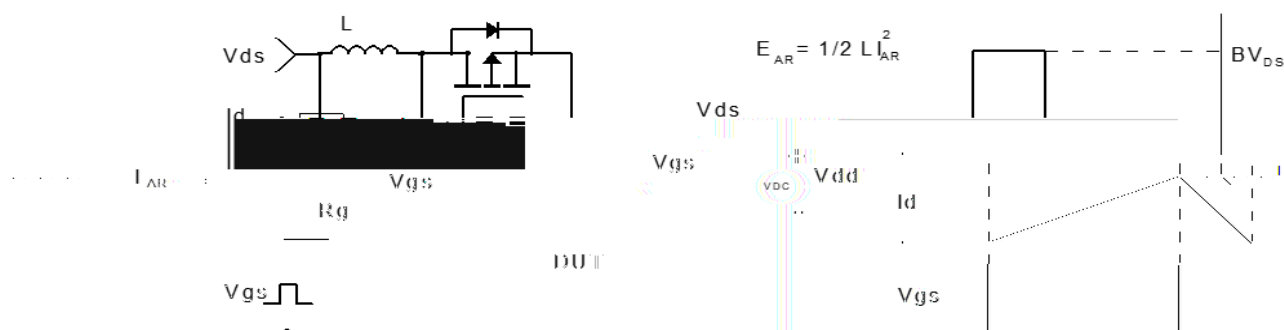


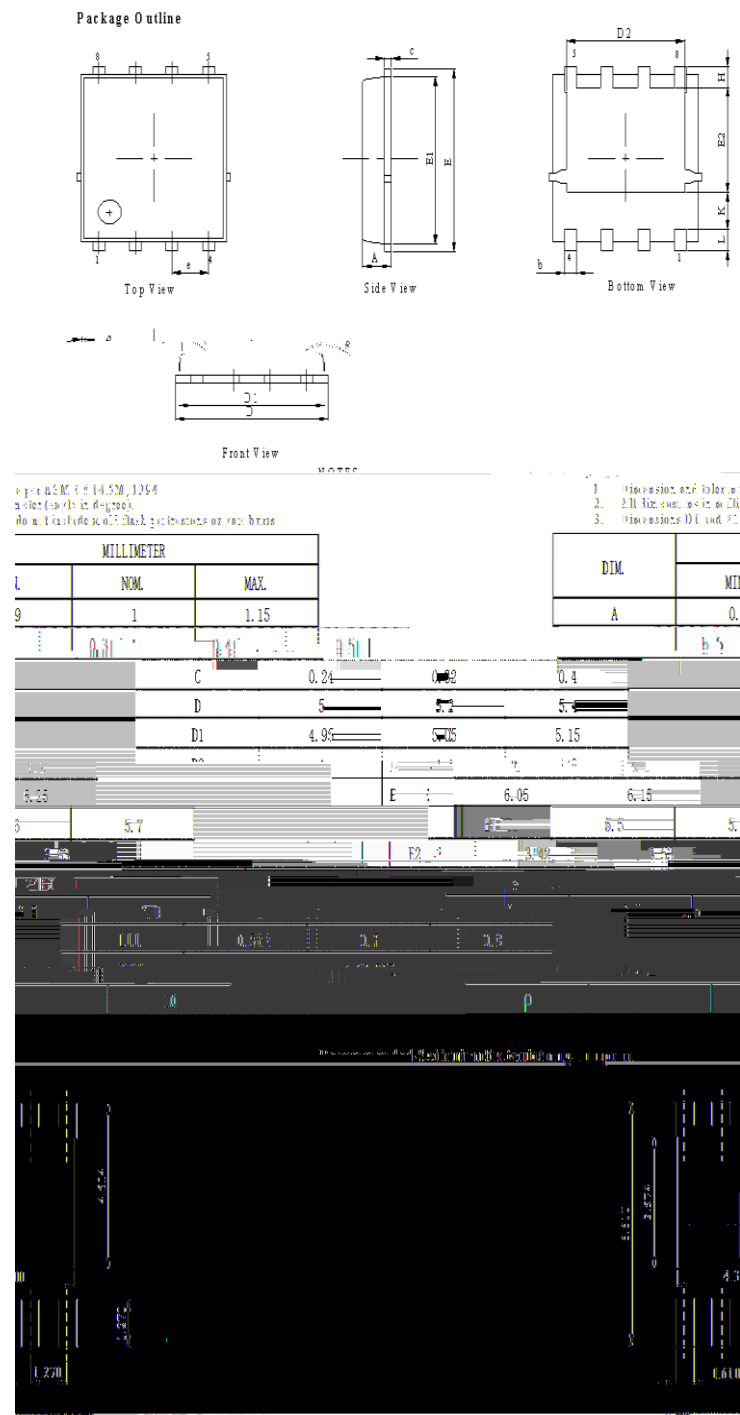
Figure 3: Unclamped Inductive Switching Test Circuit & Waveform



Figure 4: Diode Recovery Test Circuit & Waveform



## Package Mechanical Data(PDFN5X6-8L)



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