



SSC8L80GN6

N-Channel Enhancement Mode MOSFET

➤ Features

| V_{DS} | V_{GS} | $R_{DS(ON)}$ Typ. | I_D |
|----------|-----------|--------------------|-------|
| 80V | $\pm 20V$ | 7.5m Ω @10V | 58A |
| | | 11m Ω @4V5 | |

➤ Description

This device is N-Channel enhancement MOSFET. Uses SGT technology and design to provide excellent RDSON with low gate charge. This device is suitable for use in DC-DC conversion, power switch and charging circuit.

100% UIS + ΔV_{DS} + R_g Tested!

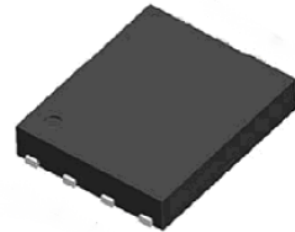
➤ Applications

- Motor Drive Control
- Synchronous rectification
- Power Management
- DC-DC Conversion

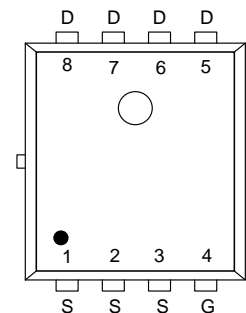
➤ Ordering Information

| Device | Package | Shipping |
|------------|------------|-----------|
| SSC8L80GN6 | PDFN5X6-8L | 5000/Reel |

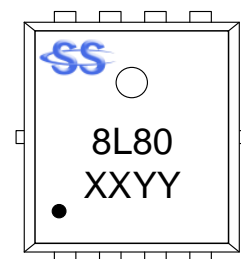
➤ Pin configuration



PDFN5X6-8L



Pin Configuration (Top View)



Marking

(XX: product year / YY: product week)

**➤ Absolute Maximum Ratings ($T_A=25^{\circ}\text{C}$ unless otherwise noted)**

| Symbol | Parameter | | Ratings | Unit |
|-----------|--|---------------------------|----------|--------------------|
| V_{DSS} | Drain-to-Source Voltage | | 80 | V |
| V_{GSS} | Gate-to-Source Voltage | | ± 20 | V |
| I_D | Continuous Drain Current ^d | $T_C=25^{\circ}\text{C}$ | 58 | A |
| | | $T_C=100^{\circ}\text{C}$ | 27 | |
| I_{DSM} | Continuous Drain Current ^a | $T_A=25^{\circ}\text{C}$ | 21 | A |
| | | $T_A=70^{\circ}\text{C}$ | 17 | |
| I_{DM} | Pulsed Drain Current ^b | | 230 | A |
| P_D | Power Dissipation ^c | $T_C=25^{\circ}\text{C}$ | 46 | W |
| | | $T_C=100^{\circ}\text{C}$ | 18.5 | |
| P_{DSM} | Power Dissipation ^a | $T_A=25^{\circ}\text{C}$ | 5.4 | W |
| | | $T_A=70^{\circ}\text{C}$ | 3.5 | |
| I_{AS} | Avalanche Current ^b $L=0.5\text{mH}$ Single Pulse | | 19 | A |
| E_{AS} | Avalanche Energy ^b $L=0.5\text{mH}$ Single Pulse | | 90 | mJ |
| T_J | Operation junction temperature | | -55~150 | $^{\circ}\text{C}$ |
| T_{STG} | Storage temperature range | | -55~150 | |

➤ Thermal Resistance Ratings ($T_A=25^{\circ}\text{C}$ unless otherwise noted)

| Symbol | Parameter | Ratings | Unit |
|-----------------|---|---------|----------------------|
| $R_{\theta JA}$ | Junction-to-Ambient Thermal Resistance ^a | 23 | $^{\circ}\text{C/W}$ |
| $R_{\theta JC}$ | Junction-to-Case Thermal Resistance | 2.7 | |

Note:

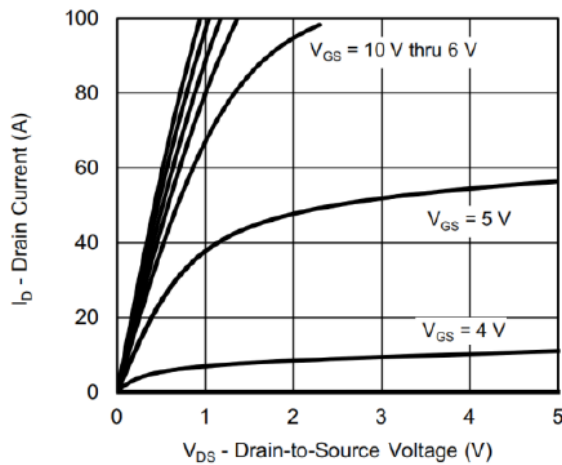
- The value of $R_{\theta JA}$ is measured with the device mounted on 1 in² FR-4 board with 2oz.copper, in a still air environment with $T_A=25^{\circ}\text{C}$. The value in any given application depends on the user is specific board design. The power dissipation is based on the $t \leq 10\text{s}$ thermal resistance rating.
- Repetitive rating, pulse width limited by junction temperature.
- The power dissipation P_D is based on $T_{J(MAX)}=150^{\circ}\text{C}$, using junction-to-case thermal resistance, and is more useful in setting the upper dissipation limit for cases where additional heat sinking is used.
- The maximum current rating is package limited.

**➤ Electrical Characteristics (T_A=25°C unless otherwise noted)**

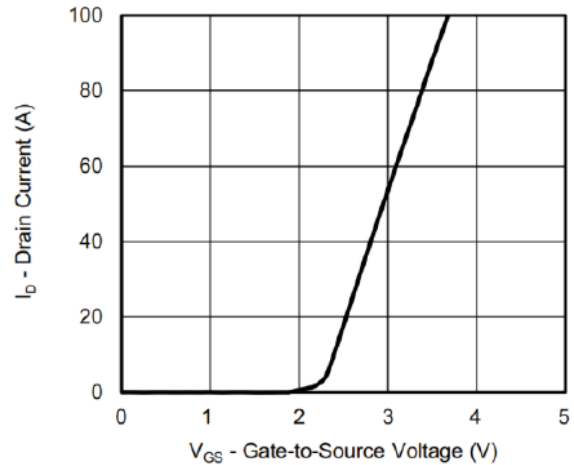
| Parameter | Symbol | Test Conditions | Min. | Typ. | Max. | Unit |
|---------------------------------|----------------------|---|------|------|------|------|
| Drain-Source Breakdown Voltage | V _{(BR)DSS} | V _{GS} = 0V, I _D = 250μA | 80 | | | V |
| Gate Threshold Voltage | V _{GS(th)} | V _{DS} = V _{GS} , I _D = 250uA | 1.2 | 2 | 2.5 | V |
| Drain-Source On-Resistance | R _{DS(on)} | V _{GS} = 10V, I _D = 20A | | 7.5 | 10 | mΩ |
| | | V _{GS} = 4.5V, I _D = 10A | | 11 | 15 | |
| Zero Gate Voltage Drain Current | I _{DSS} | V _{DS} = 80V, V _{GS} = 0V | | | 1 | μA |
| Gate-Source Leak Current | I _{GSS} | V _{GS} = ±20V, V _{DS} = 0V | | | ±100 | nA |
| Transconductance | G _{FS} | V _{DS} = 5V, I _D = 20A | | 30 | | s |
| Forward Voltage | V _{SD} | V _{GS} = 0V, I _S = 10A | | 0.8 | 1.3 | V |
| Gate Resistance | R _G | V _{DS} = 0V, f = 1MHz | | 1.7 | | Ω |
| Input Capacitance | C _{ISS} | V _{DS} = 40V, V _{GS} = 0V, f = 1MHz | | 2117 | | pF |
| Output Capacitance | C _{OSS} | | | 506 | | |
| Reverse Transfer Capacitance | C _{RSS} | | | 56 | | |
| Total Gate Charge | Q _G | V _{GS} = 10V, V _{DS} = 40V, I _D = 20A | | 28 | | nC |
| Gate to Source Charge | Q _{GS} | | | 10 | | |
| Gate to Drain Charge | Q _{GD} | | | 5 | | |
| Turn-on Delay Time | T _{D(ON)} | V _{GS} = 10V, V _{DS} = 40V, R _L = 2Ω, R _G = 3Ω | | 9 | | ns |
| Rise Time | T _r | | | 5 | | |
| Turn-off Delay Time | T _{D(OFF)} | | | 23 | | |
| Fall Time | T _f | | | 8 | | |
| Diode Recovery Time | T _{rr} | I _F =20A, di/dt=500A/us | | 26 | | ns |
| Diode Recovery Charge | Q _{rr} | I _F =20A, di/dt=500A/us | | 120 | | nC |



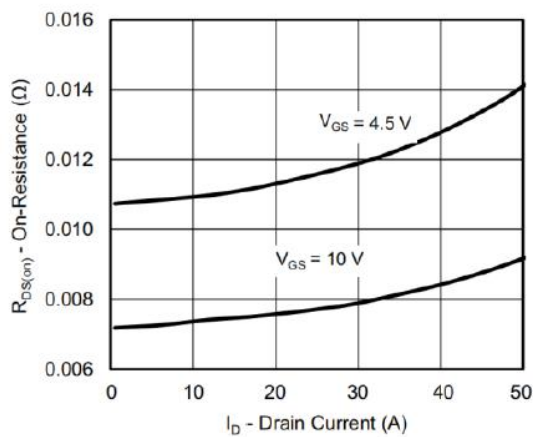
➤ Typical Performance Characteristics ($T_A=25^\circ\text{C}$ unless otherwise noted)



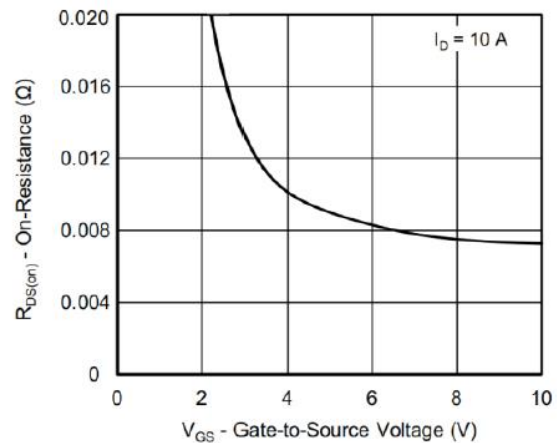
Output Characteristics



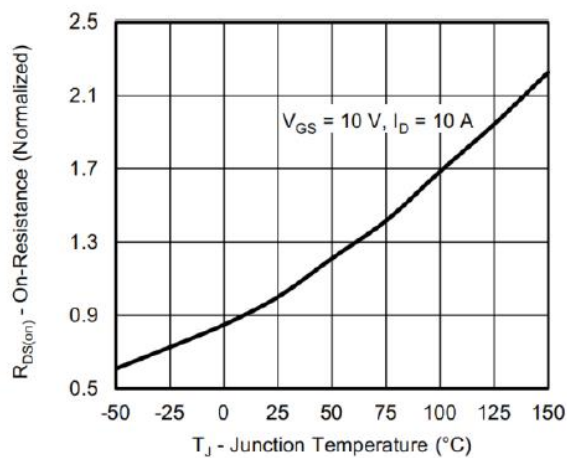
Transfer Characteristics



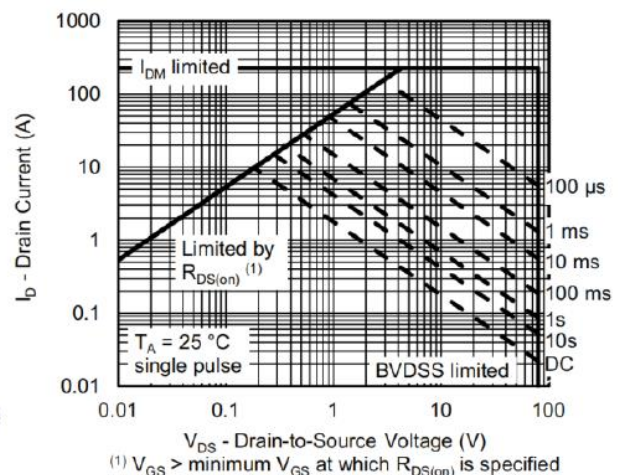
On-Resistance vs. Drain Current and Gate Voltage



On-Resistance vs. Gate-to-Source Voltage

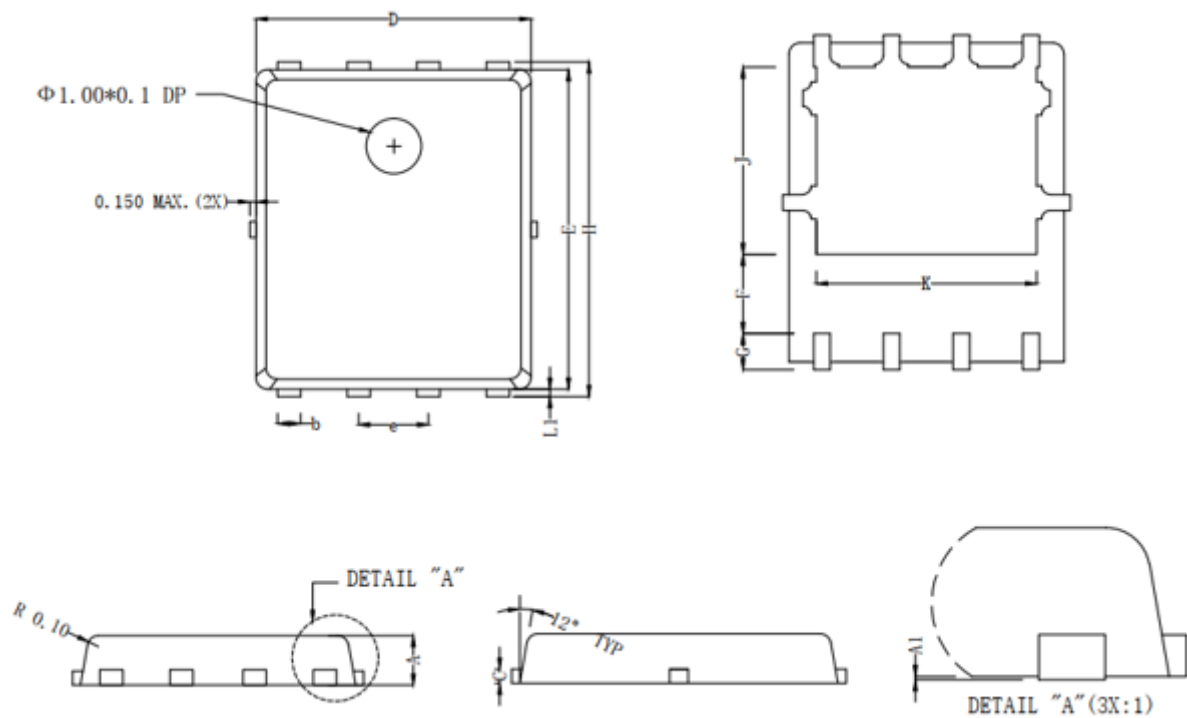


On-Resistance vs. Junction Temperature



Safe Operating Area, Junction-to-Ambient

➤ Package Information



| Symbol | Dimensions In Millimeters | | |
|--------|---------------------------|------|------|
| | Min. | Nom. | Max. |
| A | 0.90 | 1.00 | 1.10 |
| A1 | 0.00 | 0.03 | 0.05 |
| b | 0.25 | 0.03 | 0.35 |
| c | 0.254 REF | | |
| D | 4.80 | 4.90 | 5.00 |
| F | 1.35 REF | | |
| E | 5.65 | 5.75 | 5.85 |
| e | 1.27 BSC | | |
| H | 5.90 | 6.00 | 6.10 |
| L1 | 0.10 | 0.13 | 0.16 |
| G | 0.55 REF | | |
| K | 4.00 REF | | |
| J | 3.45 REF | | |



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