

SSC8120GS8
N-Channel Enhancement Mode MOSFET with ESD Protection
➤ Features

| VDS | VGS | RDSON Typ. | ID | ESD |
|-----|------|------------|------|------|
| 20V | ±12V | 310mR@4V5 | 0.8A | 1.2K |
| | | 490mR@2V5 | | |
| | | 850mR@1V8 | | |

➤ Description

This device is a N-Channel enhancement mode MOSFET which is produced with high cell density and DMOS trench technology. This device particularly suits low voltage applications, especially for battery powered circuits, the tiny and thin outline saves PCB consumption.

➤ Applications

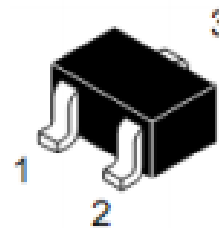
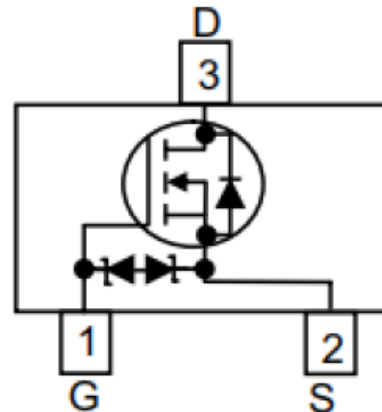
- Replace Digital Transistor
- Battery Operated Systems
- Power Supply Converter Circuits
- Load/Power Switching cell Phones

➤ Ordering Information

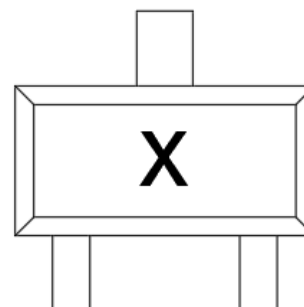
| Device | Package | Shipping |
|------------|---------|-----------|
| SSC8120GS8 | SOT523 | 3000/Reel |

➤ Pin configuration

Top view



SOT523



Marking

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

| Symbol | Parameter | Ratings | Unit |
|-----------|--------------------------------|------------|--------------------|
| V_{DSS} | Drain-to-Source Voltage | 20 | V |
| V_{GSS} | Gate-to-Source Voltage | ± 12 | V |
| I_D | Continuous Drain Current | 0.8 | A |
| I_{DM} | Pulsed Drain Current | 3 | A |
| P_D | Power Dissipation | 0.25 | W |
| T_J | Operation junction temperature | -55 to 150 | $^{\circ}\text{C}$ |
| T_{STG} | Storage temperature range | -55 to 150 | $^{\circ}\text{C}$ |

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

| Symbol | Parameter | Typical | Maximum | Unit |
|-----------------|--|---------|---------|-----------------------------|
| $R_{\theta JA}$ | Junction-to-Ambient Thermal Resistance | | 500 | $^{\circ}\text{C}/\text{W}$ |
| $R_{\theta JC}$ | Junction-to-Case Thermal Resistance | | 300 | |

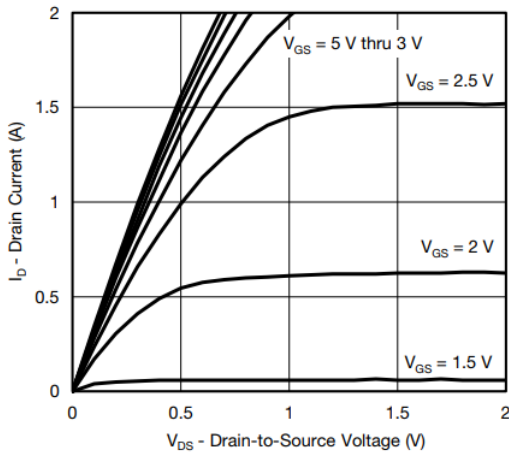
➤ **Electronics Characteristics**($T_A=25^{\circ}\text{C}$ unless otherwise noted)

| Symbol | Parameter | Test Conditions | Min | Typ. | Max | Unit |
|---------------|--------------------------------|-------------------------------------|------|------|------|------|
| $V_{(BR)DSS}$ | Drain-Source Breakdown Voltage | $V_{GS}=0V, I_D=250\mu\text{A}$ | 20 | | | V |
| $V_{GS(th)}$ | Gate Threshold Voltage | $V_{DS}=V_{GS}, I_D=250\mu\text{A}$ | 0.35 | 0.6 | 1 | V |
| $R_{DS(on)}$ | Drain-Source On-Resistance | $V_{GS}=4.5V, I_D=0.6A$ | | 310 | 450 | mR |
| | | $V_{GS}=2.5V, I_D=0.5A$ | | 490 | 765 | |
| | | $V_{GS}=1.8V, I_D=0.35A$ | | 850 | 1300 | |

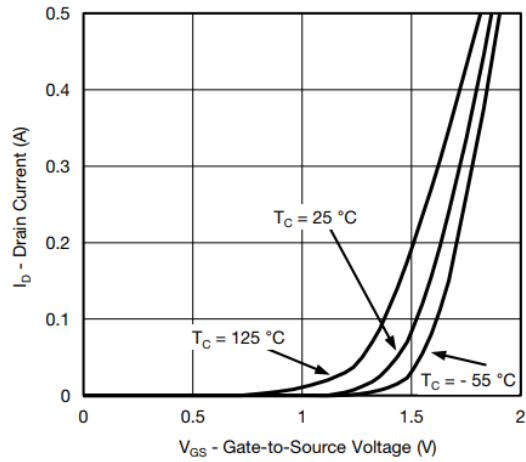
| Symbol | Parameter | Test Conditions | Min | Typ. | Max | Unit |
|-----------|------------------------------------|-----------------------------|-----|------|----------|---------|
| I_{DSS} | Zero Gate Voltage Drain Current | $V_{DS}=16V, V_{GS}=0V$ | | | 1 | μA |
| I_{GSS} | Gate-Source leak current | $V_{GS}=\pm 12V, V_{DS}=0V$ | | | ± 10 | μA |
| G_{FS} | Forward Transconductance | $V_{DS}=5V, I_D=0.5A$ | | 11 | | S |
| V_{SD} | Forward Voltage | $V_{GS}=0V, I_S=0.15A$ | | 0.7 | 1.3 | V |

| Symbol | Parameter | Test Conditions | Min | Typ. | Max | Unit |
|--------------|---------------------------------|---|-----|------|-----|------|
| C_{iss} | Input Capacitance | $V_{DS}=10V, V_{GS}=0V,$ $F=200KHZ$ | | 110 | | pF |
| C_{oss} | Output Capacitance | | | 15 | | |
| C_{rss} | Reverse Transfer Capacitance | | | 12 | | |
| $T_{D(ON)}$ | Turn-on delay time | $V_{GEN}=4.5V,$ $V_{DS}=6V, R_G=6R,$ $R_L=6R, I_D=1A$ | | | 5 | ns |
| $T_{D(OFF)}$ | Turn-off delay time | | | | 26 | |

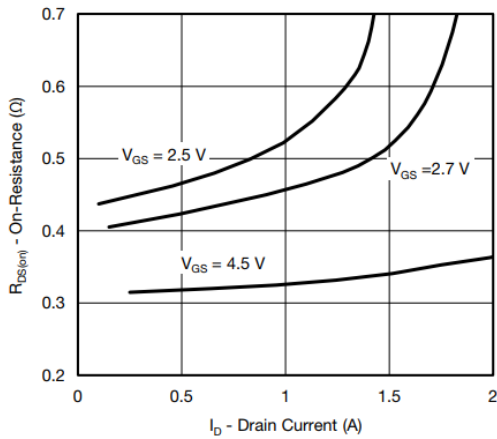
➤ **Typical Characteristics** ($T_A=25^\circ\text{C}$ unless otherwise noted)



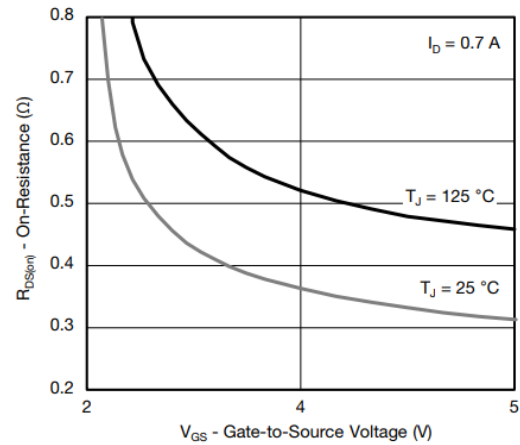
Output Characteristics



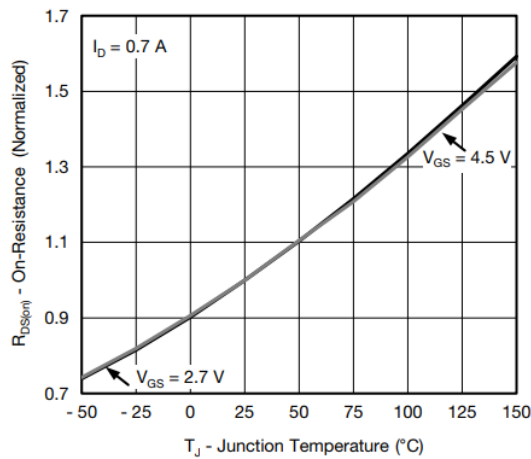
Transfer Characteristics



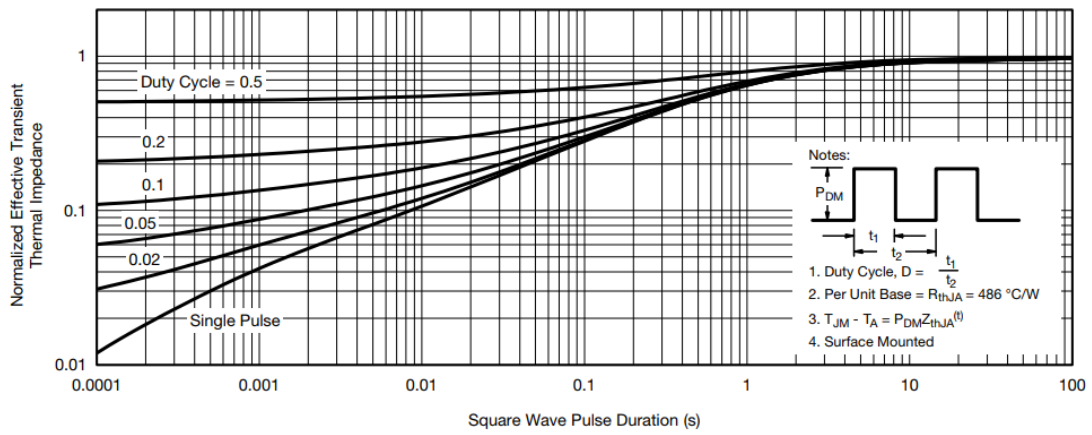
On-Resistance vs. Drain Current and Gate Voltage



On-Resistance vs. Gate-to-Source Voltage



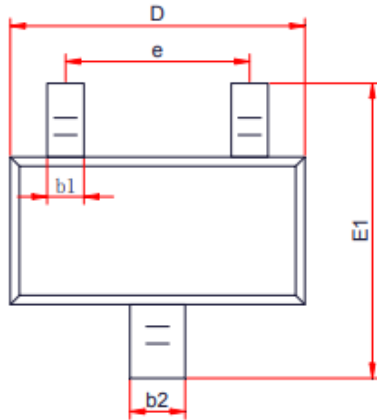
On-Resistance vs. Junction Temperature



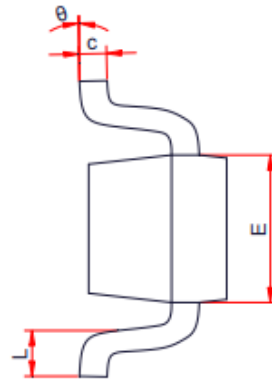
Normalized Thermal Transient Impedance, Junction-to-Ambient

➤ Package Information

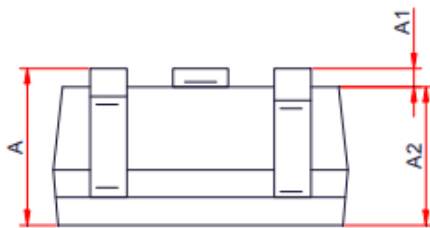
SOT-523



TOP VIEW



SIDE VIEW



SIDE VIEW

| Symbol | Dimension in Millimeters | |
|--------|--------------------------|-------|
| | Min. | Max. |
| A | 0.700 | 0.900 |
| A1 | 0.000 | 0.100 |
| A2 | 0.700 | 0.800 |
| b1 | 0.150 | 0.250 |
| b2 | 0.250 | 0.350 |
| c | 0.100 | 0.200 |
| D | 1.500 | 1.700 |
| E | 0.700 | 0.900 |
| E1 | 1.450 | 1.750 |
| e | 0.500 Typ. | |
| e1 | 0.900 | 1.100 |
| L | 0.400 Ref. | |
| L1 | 0.260 | 0.460 |
| theta | 0° | 8° |



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