



SSC8030GQ4

N-Channel Enhancement Mode MOSFET

➤ Features

| VDS | VGS | RDSON Typ. | ID |
|-----|------|------------|-----|
| 30V | ±20V | 8mΩ@10V | 29A |
| | | 10mΩ@4V5 | |

➤ Description

This device uses advanced trench technology to provide excellent RDSON and low gate charge. This device is suitable for use as a load switch or in PWM applications.

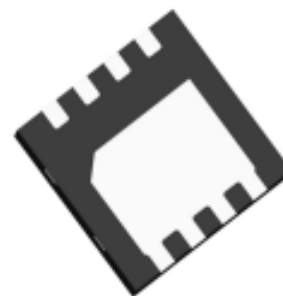
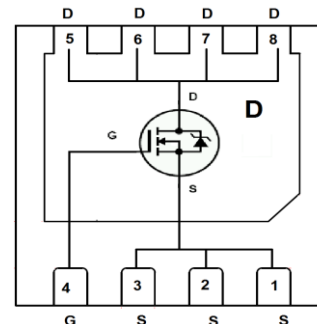
➤ Applications

- Load Switch
- NB/PC
- DCDC conversion

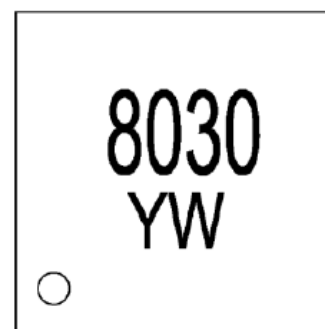
➤ Ordering Information

| Device | Package | Shipping |
|------------|---------|-----------|
| SSC8030GQ4 | DFN3x3 | 5000/Reel |

➤ Pin configuration



Bottom View



(Y: year/W: week)

Marking

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

| Symbol | Parameter | Ratings | Unit |
|-----------|---------------------------------------|---------------------------|--------------------|
| V_{DSS} | Drain-to-Source Voltage | 30 | V |
| V_{GSS} | Gate-to-Source Voltage | ± 20 | V |
| I_D | Continuous Drain Current | TC=25 $^{\circ}\text{C}$ | 29 A |
| | | TC=100 $^{\circ}\text{C}$ | 22 A |
| I_{DM} | Pulsed Drain Current ^b | 90 | A |
| I_{DSM} | Continuous Drain Current ^a | TA=25 $^{\circ}\text{C}$ | 15 A |
| | | TA=70 $^{\circ}\text{C}$ | 12 A |
| P_D | Power Dissipation ^c | TC=25 $^{\circ}\text{C}$ | 25 W |
| | | TC=100 $^{\circ}\text{C}$ | 10 W |
| P_{DSM} | Power Dissipation ^a | TA=25 $^{\circ}\text{C}$ | 3.1 W |
| | | TA=70 $^{\circ}\text{C}$ | 2 W |
| I_S | Continuous Source Current | 29 | A |
| 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 ^a | | 45 | $^{\circ}\text{C}/\text{W}$ |
| $R_{\theta JC}$ | Junction-to-Case Thermal Resistance | | 6 | |

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 current rating 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 $T_J(\text{MAX})=150^{\circ}\text{C}$, using junction-to-case thermal resistance, and is more useful in setting the upper dissipation limit for cases where additional heat sinking is used.

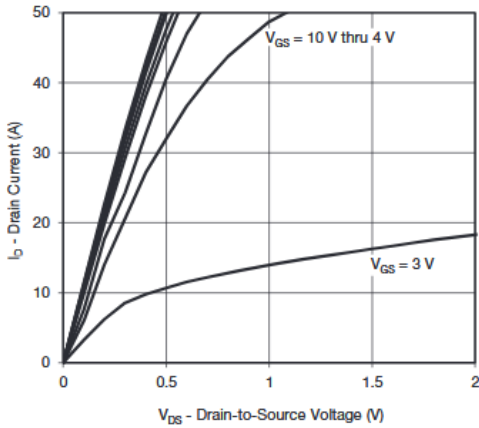


➤ **Electronics Characteristics**($T_A=25^{\circ}\text{C}$ unless otherwise noted)

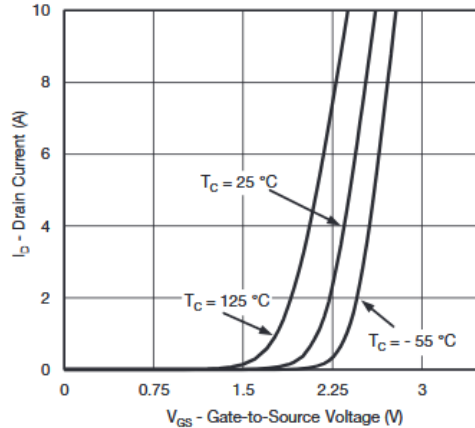
| Symbol | Parameter | Test Conditions | Min | Typ. | Max | Unit |
|---------------|------------------------------------|---|-----|------|-----------|------------|
| $V_{(BR)DSS}$ | Drain-Source Breakdown Voltage | $V_{GS}=0V, I_D=250\mu A$ | 30 | | | V |
| $V_{GS(th)}$ | Gate Threshold Voltage | $V_{DS}=V_{GS}, I_D=250\mu A$ | 1 | | 3 | V |
| $R_{DS(on)}$ | Drain-Source On- Resistance | $V_{GS}=10V, I_D=15A$ | | 8 | 11 | m Ω |
| | | $V_{GS}=4.5V, I_D=12A$ | | 10 | 14 | |
| I_{DSS} | Zero Gate Voltage Drain Current | $V_{DS}=24V, V_{GS}=0V$ | | | 1 | μA |
| I_{GSS} | Gate-Source leak current | $V_{GS}=\pm 20V, V_{DS}=0V$ | | | ± 100 | nA |
| G_{FS} | Transconductance | $V_{DS}=15V, I_D=12A$ | | 56 | | S |
| V_{SD} | Forward Voltage | $V_{GS}=0V, I_S=1A$ | | 0.8 | 1.5 | V |
| C_{iss} | Input Capacitance | $V_{DS}=15V, V_{GS}=0V, f=1MHz$ | | 1200 | | pF |
| C_{oss} | Output Capacitance | | | 200 | | |
| C_{rss} | Reverse Transfer Capacitance | | | 105 | | |
| $T_{D(ON)}$ | Turn-on delay time | $V_{GS}=10V,$ $V_{DS}=15V, R_L=2.3\Omega, R_G=3\Omega$ | | 18 | | ns |
| T_r | Rise time | | | 6 | | |
| $T_{D(OFF)}$ | Turn-off delay time | | | 70 | | |
| T_f | Fall time | | | 17 | | |
| Q_g | Total Gate charge | $V_{GS}=10V, V_{DS}=10V, I_D=14A$ | | 20 | | nC |
| Q_{gs} | Gate to Source charge | | | 3 | | |
| Q_{gd} | Gate to Drain charge | | | 5 | | |



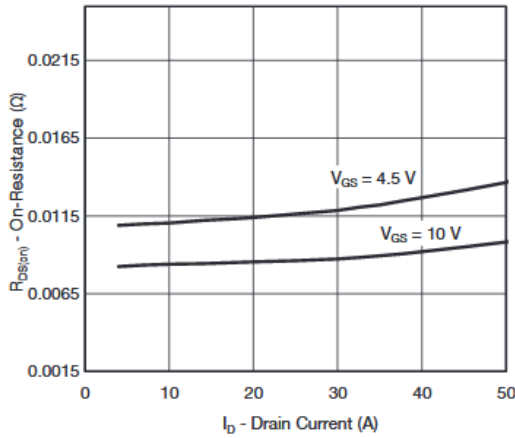
➤ **Typical Characteristics** ($T_A=25^\circ\text{C}$ unless otherwise noted)



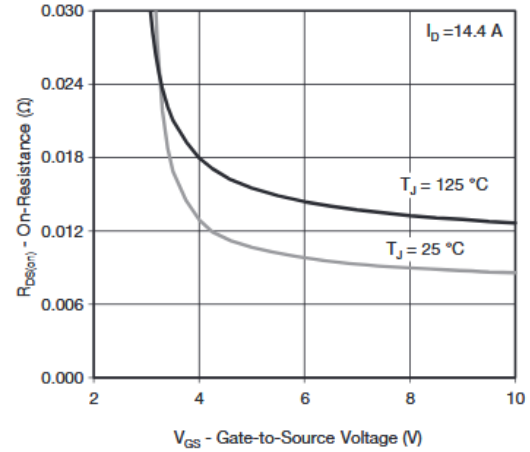
Output Characteristics



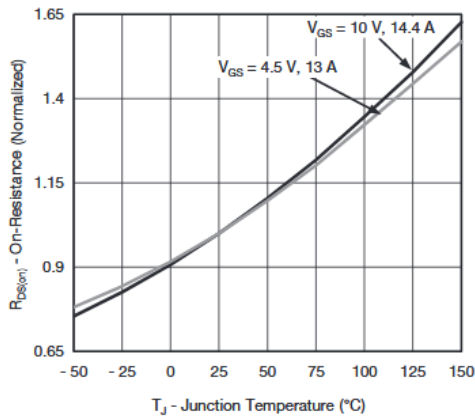
Transfer Characteristics



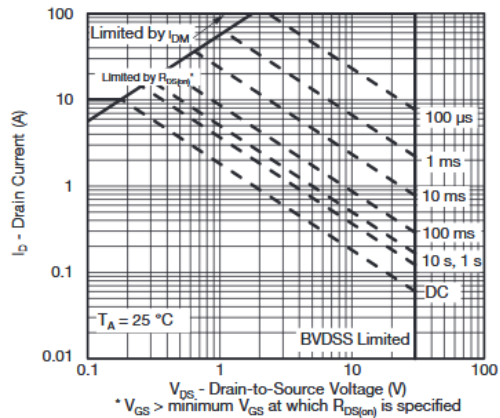
On-Resistance vs. Drain Current



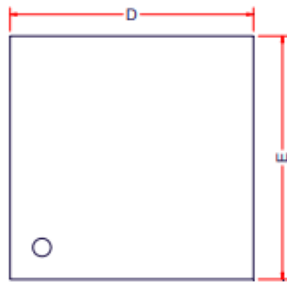
On-Resistance vs. Gate-to-Source Voltage



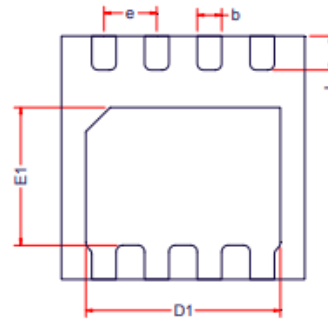
On-Resistance vs. Junction Temperature



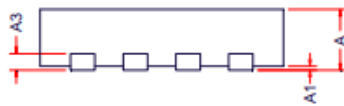
Safe Operating Area, Junction-to-Ambient

➤ Package Information


TOP VIEW



BOTTOM VIEW

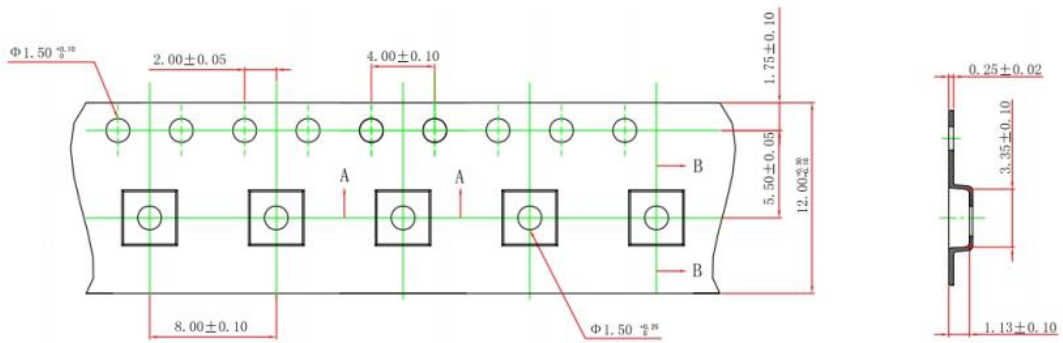
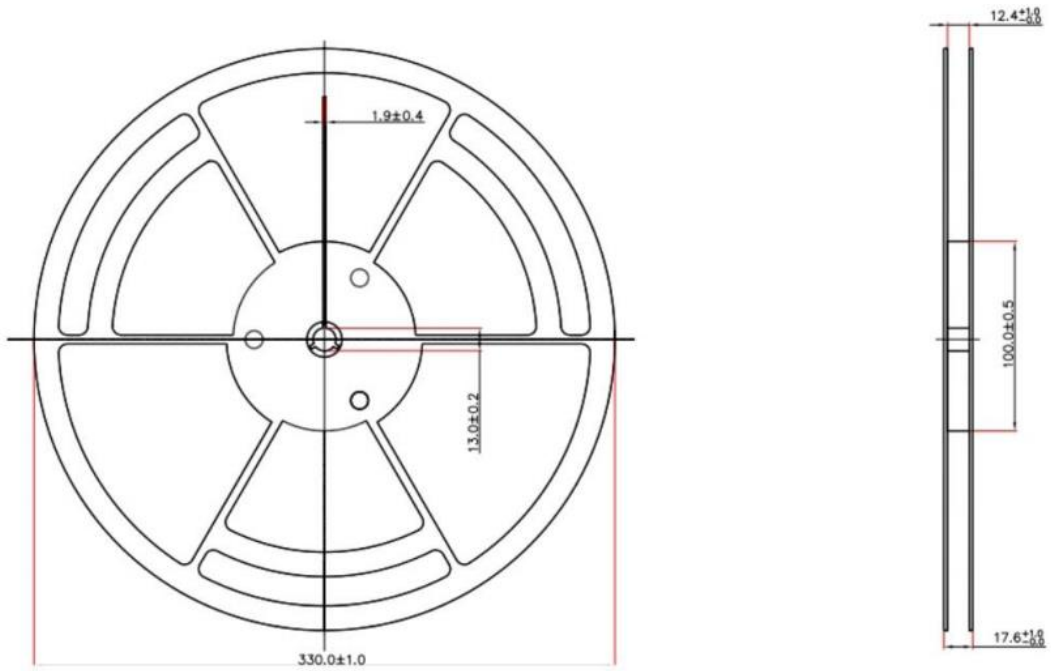


SIDE VIEW

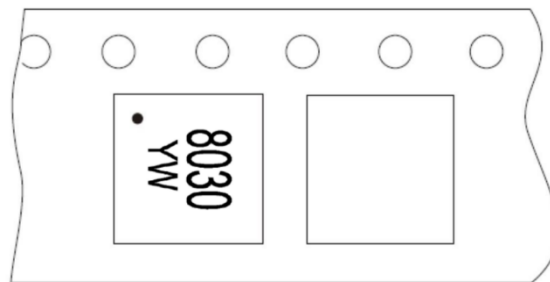
DFN3x3-8L

| Symbol | Dimensions in Millimeters | | |
|--------|---------------------------|------|------|
| | Min. | Typ. | Max. |
| A | 0.70 | 0.75 | 0.80 |
| A1 | 0.00 | 0.02 | 0.05 |
| A2 | 0.20Ref | | |
| D | 2.90 | 3.00 | 3.10 |
| E | 2.90 | 3.00 | 3.10 |
| D1 | 2.35 | 2.40 | 2.45 |
| E1 | 1.65 | 1.70 | 1.75 |
| b | 0.25 | 0.30 | 0.35 |
| e | 0.65BSC | | |
| L | 0.37 | 0.42 | 0.47 |

➤ Tape and Reel



SECTION B-B





➤ **History Version**

| | | |
|------|--------------------|------------|
| V2.0 | Product datasheet | |
| V2.1 | ADD I _s | 2023-11-21 |

DISCLAIMER

SSCSEMI RESERVES THE RIGHT TO MAKE CHANGES WITHOUT FURTHER NOTICE TO ANY PRODUCTS HEREIN TO IMPROVE RELIABILITY, FUNCTION OR DESIGN. SSCSEMI DOES NOT ASSUME ANY LIABILITY ARISING OUT OF THE APPLICATION OR USE OF ANY PRODUCT OR CIRCUIT DESCRIBED HEREIN; NEITHER DOES IT CONVEY ANY LICIENCE UNDER ITS PATENT RIGHTS, NOR THE RIGHTS OF OTHERS.

THE GRAPHS PROVIDED IN THIS DOCUMENT ARE STATISTICAL SUMMARIES BASED ON A LIMITED NUMBER OF SAMPLES AND ARE PROVIDED FOR INFORMATIONAL PURPOSE ONLY. THE PERFORMANCE CHARACTERISTICS LISTED IN THEM ARE NOT TESTED OR GUARANTEED. IN SOME GRAPHS, THE DATA PRESENTED MAY BE OUTSIDE THE SPECIFIED OPERATING RANGE (E.G. OUTSIDE SPECIFIED POWER SUPPLY RANGE) AND THEREFORE OUTSIDE THE WARRANTED RANGE.

OUR PRODUCT SPECIFICATIONS ARE ONLY VALID IF OBTAINED THROUGH THE COMPANY'S OFFICIAL WEBSITE, CRM SYSTEM, OR OUR SALES PERSONNEL CHANNELS. IF CHANGES OR SPECIAL VERSIONS ARE INVOLVED, THEY MUST BE STAMPED WITH A QUALITY SEAL AND MARKED WITH A SPECIAL VERSION NUMBER TO BE VALID.