

## General Description

The CMS9435SC uses advanced trench technology to provide excellent RDS(ON). This device is suitable for use as a load switch or in PWM applications.

## Features

- P-Channel MOSFET
- Low ON-resistance
- Surface Mount Package
- RoHS Compliant

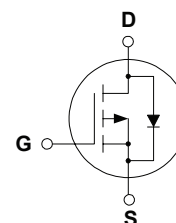
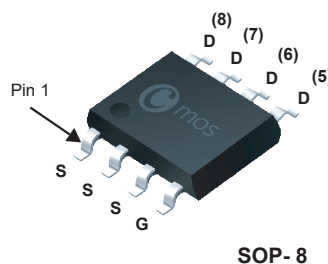
## Product Summary

| BVDSS | R <sub>DS(on)</sub> max. | ID    |
|-------|--------------------------|-------|
| -30V  | 48mΩ                     | -5.3A |

## Applications

- Load switch
- Power management
- Battery protection

## SOP-8 Pin Configuration



| Type      | Package | Marking   |
|-----------|---------|-----------|
| CMS9435SC | SOP- 8  | CMS9435SC |

Absolute Maximum Ratings (T<sub>A</sub>=25 °C Unless Otherwise Noted)

| Symbol                                | Parameter                                  | Rating     | Units |
|---------------------------------------|--------------------------------------------|------------|-------|
| V <sub>DS</sub>                       | Drain-Source Voltage                       | -30        | V     |
| V <sub>GS</sub>                       | Gate-Source Voltage                        | ±20        | V     |
| I <sub>D</sub> @T <sub>A</sub> =25 °C | Continuous Drain Current                   | -5.3       | A     |
| I <sub>D</sub> @T <sub>A</sub> =70 °C | Continuous Drain Current                   | -3.8       | A     |
| I <sub>DM</sub>                       | Pulsed Drain Current                       | -21        | A     |
| EAS                                   | Single Pulse Avalanche Energy <sup>1</sup> | 36         | mJ    |
| P <sub>D</sub> @T <sub>A</sub> =25 °C | Total Power Dissipation                    | 2.5        | W     |
| T <sub>STG</sub>                      | Storage Temperature Range                  | -55 to 150 | °C    |
| T <sub>J</sub>                        | Operating Junction Temperature Range       | 150        | °C    |

## Thermal Data

| Symbol           | Parameter                               | Typ. | Max. | Unit |
|------------------|-----------------------------------------|------|------|------|
| R <sub>θJA</sub> | Thermal Resistance, Junction-to-Ambient | ---  | 50   | °C/W |

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

| Symbol       | Parameter                         | Conditions                                                                   | Min. | Typ. | Max.      | Unit |
|--------------|-----------------------------------|------------------------------------------------------------------------------|------|------|-----------|------|
| $BV_{DSS}$   | Drain-Source Breakdown Voltage    | $V_{GS}=0V$ , $I_D=-250\mu A$                                                | -30  | ---  | ---       | V    |
| $R_{DS(ON)}$ | Static Drain-Source On-Resistance | $V_{GS}=-10V$ , $I_D=-5.3A$                                                  | ---  | 32   | 48        | mΩ   |
|              |                                   | $V_{GS}=-4.5V$ , $I_D=-4.2A$                                                 | ---  | 50   | 80        |      |
| $V_{GS(th)}$ | Gate Threshold Voltage            | $V_{GS}=V_{DS}$ , $I_D = -250\mu A$                                          | -1   | ---  | -3        | V    |
| $I_{DSS}$    | Drain-Source Leakage Current      | $V_{DS}=-24V$ , $V_{GS}=0V$                                                  | ---  | ---  | -1        | uA   |
| $I_{GSS}$    | Gate-Source Leakage Current       | $V_{GS} = \pm 20V$ , $V_{DS}=0V$                                             | ---  | ---  | $\pm 100$ | nA   |
| $g_{fs}$     | Forward Transconductance          | $V_{DS}=-10V$ , $I_D=-5.3A$                                                  | ---  | 5    | ---       | S    |
| $Q_g$        | Total Gate Charge                 | $V_{DS}=-15V$ , $V_{GS}=-10V$ , $I_D=-6A$                                    | ---  | 13   | ---       | nC   |
| $Q_{gs}$     | Gate-Source Charge                |                                                                              | ---  | 2    | ---       |      |
| $Q_{gd}$     | Gate-Drain Charge                 |                                                                              | ---  | 3    | ---       |      |
| $T_{d(on)}$  | Turn-On Delay Time                | $V_{DS}=-15V$ , $V_{GEN}=-10V$ , $R_L=15\Omega$<br>$R_G=6\Omega$ , $I_D=-1A$ | ---  | 10   | ---       | ns   |
| $T_r$        | Rise Time                         |                                                                              | ---  | 15   | ---       |      |
| $T_{d(off)}$ | Turn-Off Delay Time               |                                                                              | ---  | 75   | ---       |      |
| $T_f$        | Fall Time                         |                                                                              | ---  | 40   | ---       |      |
| $C_{iss}$    | Input Capacitance                 | $V_{DS}=-25V$ , $V_{GS}=0V$ , $f=1MHz$                                       | ---  | 580  | ---       | pF   |
| $C_{oss}$    | Output Capacitance                |                                                                              | ---  | 80   | ---       |      |
| $C_{rss}$    | Reverse Transfer Capacitance      |                                                                              | ---  | 50   | ---       |      |

## Diode Characteristics

| Symbol   | Parameter             | Conditions                   | Min. | Typ. | Max. | Unit |
|----------|-----------------------|------------------------------|------|------|------|------|
| $V_{SD}$ | Diode Forward Voltage | $V_{GS}=0V$ , $I_{SD}=-2.6A$ | ---  | ---  | -1.3 | V    |

Note :

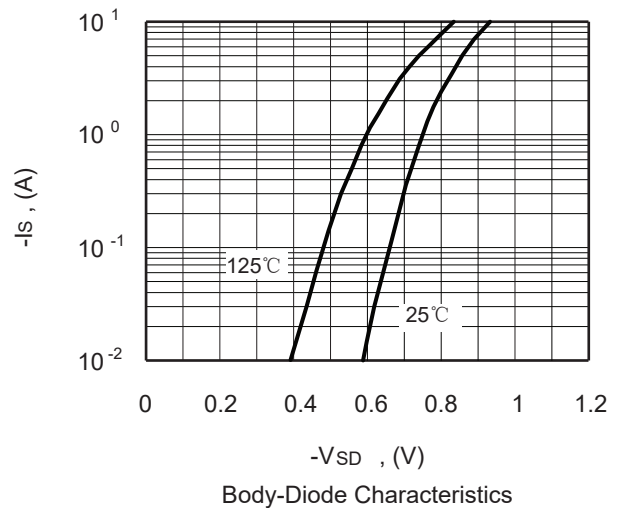
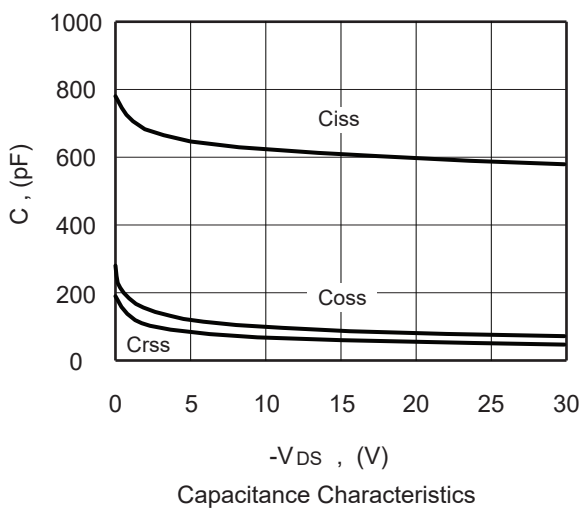
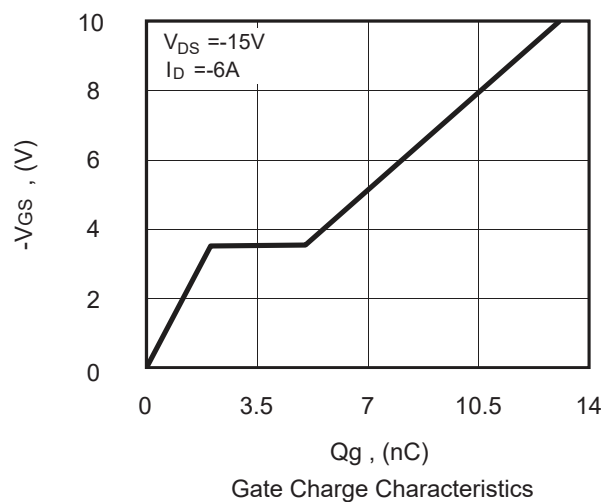
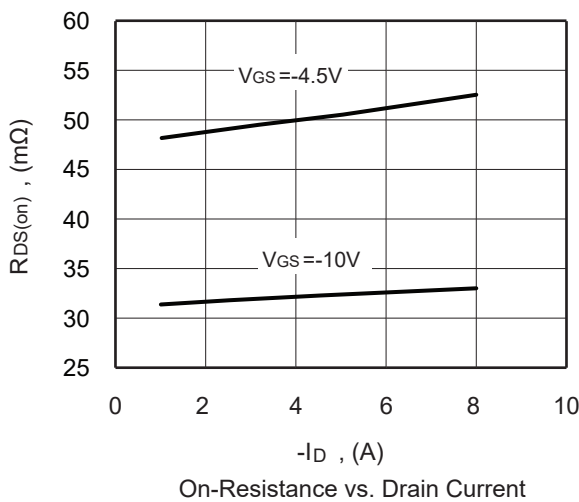
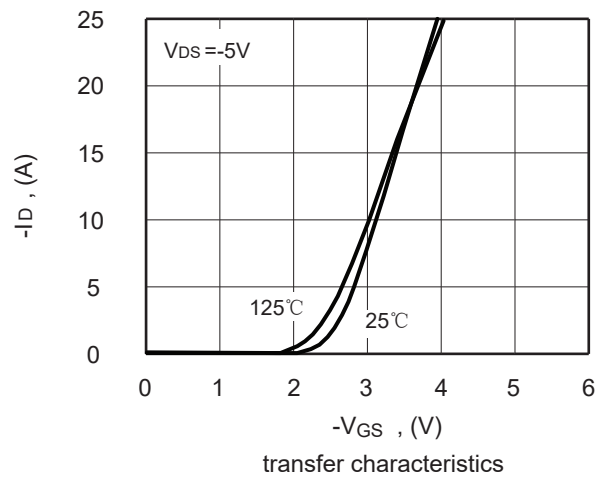
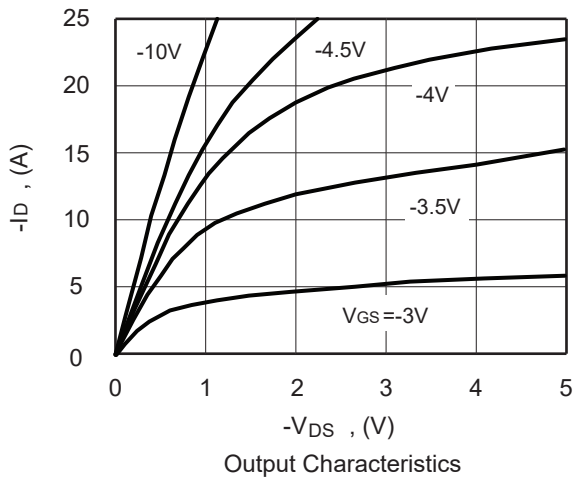
1.The EAS data shows Max. rating . The test condition is  $V_{DD}=-25V$  ,  $V_{GS}=-10V$  ,  $L=0.5mH$  ,  $I_{AS}=-12A$ .

This product has been designed and qualified for the consumer market.

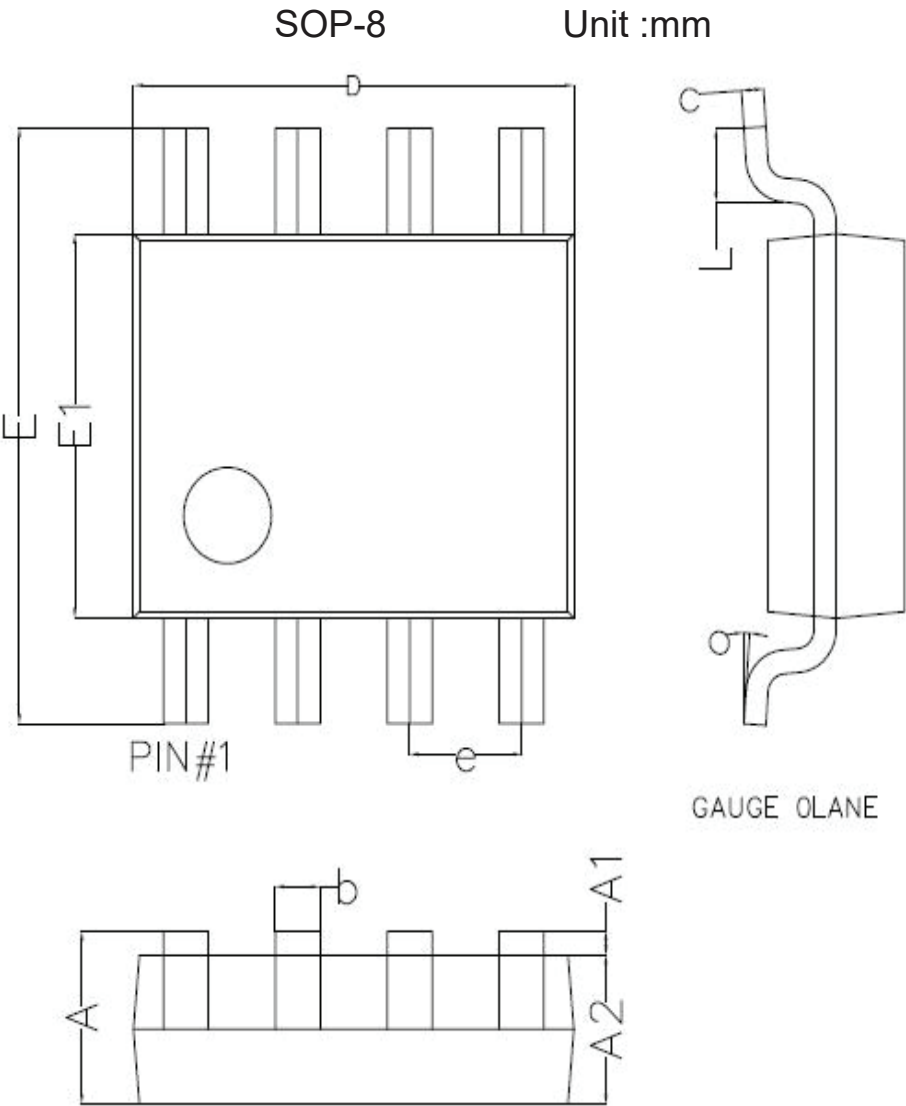
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Typical Characteristics



Package Dimension



| Symbol | Dim in mm   |       |      |
|--------|-------------|-------|------|
|        | Min         | Nor   | Max  |
| A      | 1.35        | 1.55  | 1.75 |
| A1     | 0.02        | 0.065 | 0.10 |
| A2     | 1.35        | 1.45  | 1.55 |
| b      | 0.33        | 0.42  | 0.51 |
| c      | 0.17        | 0.21  | 0.25 |
| D      | 4.80        | 4.90  | 5.00 |
| e      | 1.270 (BSC) |       |      |
| E      | 5.80        | 6.00  | 6.20 |
| E1     | 3.80        | 3.90  | 4.00 |
| L      | 0.4         | 0.835 | 1.27 |
| θ      | 0°          | 4°    | 8°   |