

General Description

The CMSC63P04L combines advanced trench MOSFET technology with a low resistance package to provide extremely low RDS(ON).

This device is ideal for load switch and battery protection applications.

Features

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

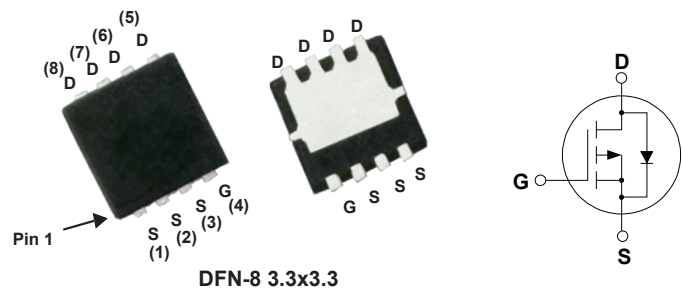
Product Summary

| BVDSS | RDSON | ID |
|-------|-------|------|
| -40V | 14mΩ | -50A |

Applications

- Battery protection
- Load switch
- Uninterruptible power supply

DFN-8 3.3x3.3 Pin Configuration



| Type | Package | Marking |
|------------|---------------|---------|
| CMSC63P04L | DFN-8 3.3*3.3 | 63P04L |

Absolute Maximum Ratings (TA=25 °C Unless Otherwise Noted)

| Symbol | Parameter | Rating | Units |
|---------------------------------------|--|------------|-------|
| V _{DS} | Drain-Source Voltage | -40 | V |
| V _{GS} | Gate-Source Voltage | ±20 | V |
| I _D @T _C =25°C | Continuous Drain Current | -50 | A |
| I _D @T _C =100°C | Continuous Drain Current | -32 | A |
| I _{DM} | Pulsed Drain Current | -105 | A |
| EAS | Single Pulse Avalanche Energy ¹ | 196 | mJ |
| P _D @T _C =25°C | Total Power Dissipation | 50 | W |
| T _{STG} | Storage Temperature Range | -55 to 150 | °C |
| T _J | Operating Junction Temperature Range | -55 to 150 | °C |

Thermal Data

| Symbol | Parameter | Typ. | Max. | Unit |
|------------------|---|------|------|------|
| R _{θJA} | Thermal Resistance, Junction-to-Ambient | --- | 25 | °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 | $V_{GS}=0V, I_D=-250\mu A$ | -40 | --- | --- | V |
| $R_{DS(ON)}$ | Static Drain-Source On-Resistance | $V_{GS}=-10V, I_D=-20A$ | --- | --- | 14 | m Ω |
| | | $V_{GS}=-4.5V, I_D=-15A$ | --- | --- | 18 | |
| $V_{GS(th)}$ | Gate Threshold Voltage | $V_{GS}=V_{DS}, I_D = -250\mu A$ | -1 | --- | -2.5 | V |
| I_{DSS} | Drain-Source Leakage Current | $V_{DS}=-32V, V_{GS}=0V$ | --- | --- | -1 | μA |
| I_{GSS} | Gate-Source Leakage Current | $V_{GS} = \pm 20V, V_{DS}=0V$ | --- | --- | ± 100 | nA |
| R_g | Gate Resistance | $V_{DS}=0V, V_{GS}=0V, f=1MHz$ | --- | 4.7 | --- | Ω |
| Q_g | Total Gate Charge | $V_{DS}=-20V, I_D=-12A$ $V_{GS}=-4.5V$ | --- | 26 | --- | nC |
| Q_{gs} | Gate-Source Charge | | --- | 8 | --- | |
| Q_{gd} | Gate-Drain Charge | | --- | 7 | --- | |
| $T_{d(on)}$ | Turn-On Delay Time | $V_{DD}=-15V, V_{GS} = -10V, I_D = -1A$ $R_G=3.3\Omega$ | --- | 40 | --- | ns |
| T_r | Rise Time | | --- | 35 | --- | |
| $T_{d(off)}$ | Turn-Off Delay Time | | --- | 100 | --- | |
| T_f | Fall Time | | --- | 10 | --- | |
| C_{iss} | Input Capacitance | $V_{DS}=-15V, V_{GS}=0V, f=1MHz$ | --- | 3700 | --- | pF |
| C_{oss} | Output Capacitance | | --- | 330 | --- | |
| C_{rss} | Reverse Transfer Capacitance | | --- | 200 | --- | |

Diode Characteristics

| Symbol | Parameter | Conditions | Min. | Typ. | Max. | Unit |
|----------|-----------------------|--------------------------|------|------|------|------|
| V_{SD} | Diode Forward Voltage | $V_{GS}=0V, I_{SD}=-20A$ | --- | 0.88 | -1.2 | V |

Notes:

1. The test condition is $V_{DS}=-30V, V_{GS}=-10V, L=0.5mH, I_D = -28A$.

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