

P-Channel Enhancement Mode Field Effect Transistor

General Description

The CMSA5950A uses advanced technology to provide excellent RDS (ON) . This device is suitable to be used as the low side FET in SMPS,load switching and general purpose.

Features

- Fast switching speed
- Lower On-resistance
- 100% EAS Guaranteed
- Simple Drive Requirement

Absolute Maximum Ratings

| Symbol | Parameter | Rating | Units |
|----------------------|--|------------|------------|
| V_{DS} | Drain-Source Voltage | -100 | V |
| V_{GS} | Gate-Source Voltage | ± 20 | V |
| $I_D@T_C=25^\circ C$ | Continuous Drain Current | -50 | A |
| I_{DM} | Pulsed Drain Current | -150 | A |
| EAS | Single Pulse Avalanche Energy ¹ | 450 | mJ |
| $P_D@T_C=25^\circ C$ | Total Power Dissipation | 140 | W |
| T_{STG} | Storage Temperature Range | -55 to 150 | $^\circ C$ |
| T_J | Operating Junction Temperature Range | -55 to 150 | $^\circ C$ |

Thermal Data

| Symbol | Parameter | Typ. | Max. | Unit |
|-----------------|---------------------|------|------|--------------|
| $R_{\theta JA}$ | Junction-to-Ambient | --- | 25 | $^\circ C/W$ |
| $R_{\theta JC}$ | Junction-to-Case | --- | 1 | $^\circ C/W$ |

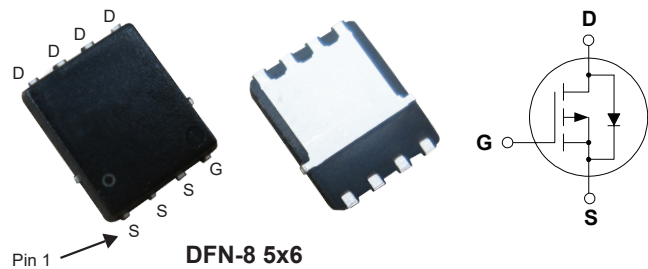
Product Summary

| BVDSS | RDSON | ID |
|-------|--------------|------|
| -100V | 52m Ω | -50A |

Applications

- Load Switch
- Power Management in Notebook Computer, Portable Equipment and Battery Powered Systems.

DFN-8 5x6 Pin Configuration



| Type | Package | Marking |
|-----------|-----------|-----------|
| CMSA5950A | DFN-8 5*6 | CMSA5950A |

P-Channel Enhancement Mode Field Effect Transistor

Electrical Characteristics (T_J=25°C , unless otherwise noted)

| Symbol | Parameter | Conditions | Min. | Typ. | Max. | Unit |
|---------------------|-----------------------------------|---|------|------|------|------|
| BV _{DSS} | Drain-Source Breakdown Voltage | V _{GS} =0V , I _D =-250uA | -100 | --- | --- | V |
| R _{DS(ON)} | Static Drain-Source On-Resistance | V _{GS} =-10V, I _D =-10A | --- | --- | 52 | mΩ |
| | | V _{GS} =-6V, I _D =-8A | --- | --- | 62 | |
| V _{GS(th)} | Gate Threshold Voltage | V _{GS} =V _{DS} , I _D =-250uA | -2 | --- | -4 | V |
| I _{DSS} | Drain-Source Leakage Current | V _{DS} =-100V, V _{GS} =0V , T _J =25°C | --- | --- | -1 | uA |
| I _{GSS} | Gate-Source Leakage Current | V _{GS} = ±20V , V _{DS} =0V | --- | --- | ±100 | nA |
| g _{fs} | Forward Transconductance | V _{DS} =-10V, I _D =-10A | --- | 21 | --- | S |
| R _g | Gate Resistance | V _{DS} =0V , V _{GS} =0V , f=1MHz | --- | 46 | --- | Ω |
| Q _g | Total Gate Charge | V _{DS} =-50V, I _D =-5A V _{GS} =-10V | --- | 41 | --- | nC |
| Q _{gs} | Gate-Source Charge | | --- | 8 | --- | |
| Q _{gd} | Gate-Drain Charge | | --- | 9 | --- | |
| T _{d(on)} | Turn-On Delay Time | V _{DD} =-50V, V _{GS} =-10V, R _G =6Ω I _D =-5A | --- | 14 | --- | ns |
| T _r | Rise Time | | --- | 40 | --- | |
| T _{d(off)} | Turn-Off Delay Time | | --- | 100 | --- | |
| T _f | Fall Time | | --- | 105 | --- | |
| C _{iss} | Input Capacitance | V _{DS} =-50V, V _{GS} =0V , f=1MHz | --- | 6100 | --- | pF |
| C _{oss} | Output Capacitance | | --- | 194 | --- | |
| C _{rss} | Reverse Transfer Capacitance | | --- | 13 | --- | |

Diode Characteristics

| Symbol | Parameter | Conditions | Min. | Typ. | Max. | Unit |
|-----------------|---------------------------|--|------|------|------|------|
| I _S | Continuous Source Current | V _G =V _D =0V , Force Current | --- | --- | -50 | A |
| I _{SM} | Pulsed Source Current | | --- | --- | -150 | A |
| V _{SD} | Diode Forward Voltage | V _{GS} =0V , I _F =-10A | --- | --- | -1.2 | V |

Note :

1.The test condition is V_{DD}=30V , V_{GS}=10V , L=1mH , I_{AS}=30A

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