



H9435S/H9435DS

P-Channel Enhancement-Mode MOSFET (-30V, -5.3A)

Features

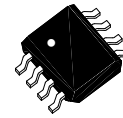
- $R_{DS(on)}=60m\Omega @ V_{GS}=-10V, I_D=-5.3A$
- $R_{DS(on)}=90m\Omega @ V_{GS}=-4.5V, I_D=-4.2A$
- Advanced Trench Process Technology
- High Density Cell Design for Ultra Low On-Resistance
- Fully Characterized Avalanche Voltage and Current
- Improved Shoot-Through FOM

Absolute Maximum Ratings ($T_A=25^\circ C$, unless otherwise noted)

| Symbol | Parameter | Ratings | Units |
|-----------------|--|-------------|--------------|
| V_{DS} | Drain-Source Voltage | -30 | V |
| V_{GS} | Gate-Source Voltage | ± 20 | V |
| I_D | Drain Current (Continuous) | -5.3 | A |
| I_{DM} | Drain Current (Pulsed) ^{*1} | -20 | A |
| P_D | Total Power Dissipation @ $T_A=25^\circ C$ | 2.5 | W |
| T_j, T_{stg} | Operating and Storage Temperature Range | -55 to +150 | $^\circ C$ |
| $R_{\theta JC}$ | Thermal Resistance Junction to Case | 30 | $^\circ C/W$ |
| $R_{\theta JA}$ | Thermal Resistance Junction to Ambient (PCB mounted) ^{*2} | 50 | $^\circ C/W$ |

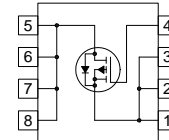
*1: Maximum DC current limited by the package

*2: 1-in² 2oz Cu PCB board



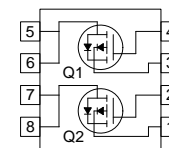
8-Lead Plastic **SO-8**
Package Code: S

H9435S Symbol & Pin Assignment



Pin 1 / 2 / 3: Source
Pin 4: Gate
Pin 5 / 6 / 7 / 8: Drain

H9435DS Symbol & Pin Assignment



Pin 1: Source 1
Pin 2: Gate 1
Pin 3: Source 2
Pin 4: Gate 2
Pin 5 / 6 Drain2
Pin 7 / 8: Drain1



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

| Symbol | Characteristic | Test Conditions | Min. | Typ. | Max. | Unit |
|--------|----------------|-----------------|------|------|------|------|
|--------|----------------|-----------------|------|------|------|------|

• Static

| | | | | | | |
|---------------------|----------------------------------|---|----|----|------|----|
| BV _{DSS} | Drain-Source Breakdown Voltage | V _{GS} =0V, I _D =-250uA | 30 | - | - | V |
| R _{DS(on)} | Drain-Source On-State Resistance | V _{GS} =-4.5V, I _D =-4.2A | - | 82 | 90 | mΩ |
| | | V _{GS} =-10V, I _D =-5.3A | - | 50 | 60 | |
| V _{GS(th)} | Gate Threshold Voltage | V _{DS} =V _{GS} , I _D =-250uA | -1 | - | -3 | V |
| I _{DSS} | Zero Gate Voltage Drain Current | V _{DS} =-24V, V _{GS} =0V | - | - | -1 | uA |
| I _{GSS} | Gate-Body Leakage Current | V _{GS} =±20V, V _{DS} =0V | - | - | ±100 | nA |
| g _{FS} | Forward Transconductance | V _{DS} =-15V, I _D =-5.3A | 4 | 7 | - | S |

• Dynamic

| | | | | | | |
|---------------------|------------------------------|---|---|--------|---|----|
| Q _g | Total Gate Charge | V _{DS} =-15V, I _D =-5.3A, V _{GS} =-10V | - | 9.52 | - | nC |
| Q _{gs} | Gate-Source Charge | | - | 3.43 | - | |
| Q _{gd} | Gate-Drain Charge | | - | 1.71 | - | |
| C _{iss} | Input Capacitance | V _{DS} =-15V, V _{GS} =0V, f=1MHz | - | 551.57 | - | PF |
| C _{oss} | Output Capacitance | | - | 90.96 | - | |
| C _{rss} | Reverse Transfer Capacitance | | - | 60.79 | - | |
| t _{d(on)} | Turn-on Delay Time | V _{DD} =10V, R _L =15Ω, I _D =-1A, V _{GEN} =-10V, R _G =6Ω | - | 10.8 | - | Ns |
| t _r | Turn-on Rise Time | | - | 2.33 | - | |
| t _{d(off)} | Turn-off Delay Time | | - | 22.53 | - | |
| t _f | Turn-off Fall Time | | - | 3.87 | - | |

• Drain-Source Diode Characteristics

| | | | | | | |
|-----------------|------------------------------------|--|---|---|------|---|
| I _S | Maximum Diode Forward Current | | - | - | -1.9 | A |
| V _{SD} | Drain-Source Diode Forward Voltage | V _{GS} =0V, I _S =-5.3A | - | - | -1.3 | V |

Note: Pulse Test: Pulse Width ≤300us, Duty Cycle≤2%