



DESCRIPTION

The AM4435 is the P-Channel logic enhancement mode power field effect transistor is produced using high cell density. Advanced trench technology to provide excellent $R_{DS(ON)}$.

These devices are particularly suited for low voltage application such as cellular phone and notebook computer power management and other batter powered circuits where high-side switching.

The AM4435 is available in SOP8 Package

ORDERING INFORMATION

| Package Type | Part Number | |
|---|------------------------------------|------------|
| SOP-8 | M8 | AM4435M8R |
| | | AM4435M8VR |
| Note | R: Tape & Reel V: Green Package | |
| AiT provides all Pb free products Suffix " V " means Green Package | | |

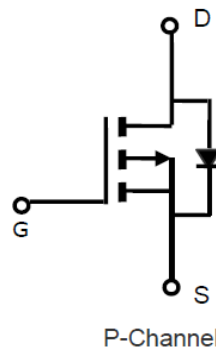
FEATURES

- -30V/-8.0A, $R_{DS(ON)}=16m\Omega(\text{typ})@V_{GS}=-10V$
- -30V/-5.0A, $R_{DS(ON)}=26m\Omega(\text{typ})@V_{GS}=-4.5V$
- Super high density cell design for extremely low $R_{DS(ON)}$
- Exceptional on-resistance and maximum DC current capability
- Full RoHS compliance
- Available in SOP8 Package

APPLICATION

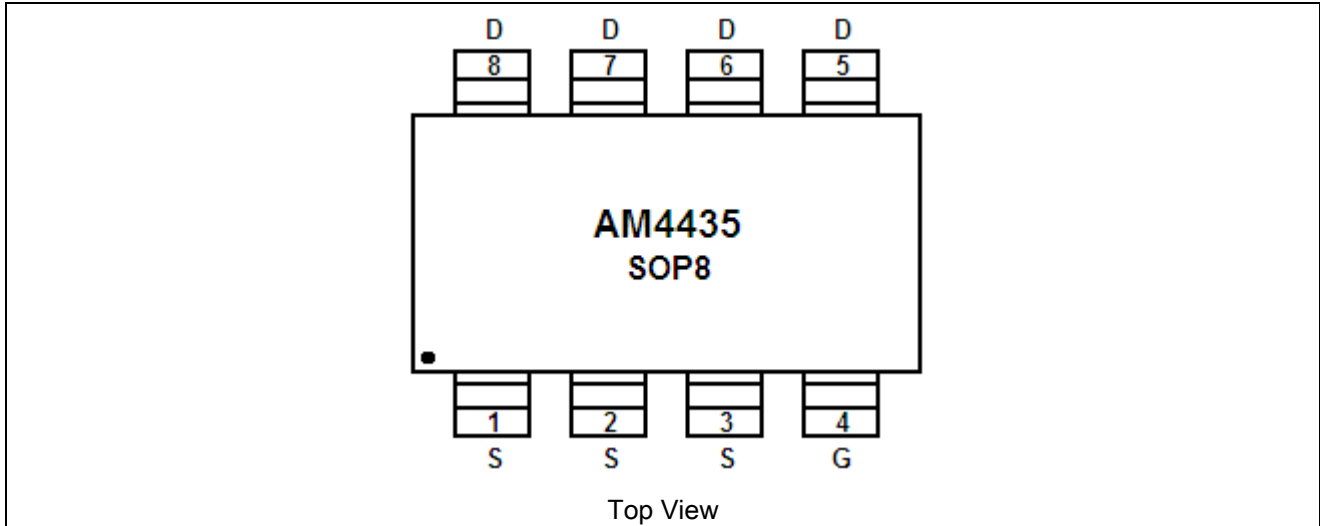
- Inverter
- Synchronous Buck
- Power Management in Note book
- Portable Equipment
- Battery Powered System
- DC/DC Converter
- Load Switch
- DSC
- LCD Display inverter

P-CHANNEL MOSFET





PIN DESCRIPTION



| Pin # | Symbol | Function |
|-------|--------|----------|
| 1 | S | Source |
| 2 | S | Source |
| 3 | S | Source |
| 4 | G | Gate |
| 5 | D | Drain |
| 6 | D | Drain |
| 7 | D | Drain |
| 8 | D | Drain |



ABSOLUTE MAXIMUM RATINGS

$T_A = 25^\circ\text{C}$ Unless otherwise specified

| | |
|--|--|
| V_{DSS} , Drain-Source Voltage | -30V |
| V_{GSS} , Gate-Source Voltage | $\pm 20\text{V}$ |
| I_D , Continuous Drain Current ($T_J=150^\circ\text{C}$) | $V_{GS} = -10\text{V}$ -9A |
| I_{DM} , Pulsed Drain Current | -30A |
| I_S , Continuous Source Current (Diode Conduction) | -2.3A |
| T_J , Operation Junction Temperature | $-55^\circ\text{C} \sim 150^\circ\text{C}$ |
| T_{STG} , Storage Temperature Range | $-55^\circ\text{C} \sim 150^\circ\text{C}$ |
| P_D , Power Dissipation | |
| $T_A=25^\circ\text{C}$ | 2.8W |
| $T_A=70^\circ\text{C}$ | 1.8W |

Stresses above may cause permanent damage to the device. These are stress ratings only and functional operation of the device at these or any other conditions beyond those indicated in the Electrical Characteristics are not implied. Exposure to absolute maximum rating conditions for extended periods may affect device reliability.

THERMAL INFORMATION

| Parameter | Symbol | Min | Typ | Max | Unit |
|--|-----------------|-----|-----|-----|---------------------------|
| Thermal Resistance-Junction to Ambient | $R_{\theta JA}$ | | | 70 | $^\circ\text{C}/\text{W}$ |



ELECTRICAL CHARACTERISTICS

T_A = 25°C Unless otherwise specified

| Parameter | Symbol | Conditions | Min | Typ | Max | Unit |
|---------------------------------|----------------------|--|------|------|------|------|
| Drain-Source Breakdown Voltage | V _{(BR)DSS} | V _{GS} = 0V, I _D = -250μA | -30 | - | - | V |
| Gate Threshold Voltage | V _{GS(th)} | V _{DS} = V _{GS} , I _D = -250μA | -1.0 | - | -2.5 | V |
| Gate Leakage Current | I _{GSS} | V _{DS} = 0V, V _{GS} = ±20V | - | - | ±100 | nA |
| Zero Gate Voltage Drain Current | I _{DSS} | V _{DS} = -24V, V _{GS} = 0V | - | - | -1 | μA |
| | | V _{DS} = -24V, V _{GS} = 0V T _J = 55°C | - | - | -5 | |
| On-State Drain Current | I _{D(ON)} | V _{DS} ≤ -5V, V _{GS} ≤ -4.5V | -40 | - | - | A |
| Drain-source On-Resistance | R _{DS(ON)} | V _{GS} = -10V, I _D = -9.0A | - | 16 | 21 | mΩ |
| | | V _{GS} = -4.5V, I _D = -5.0A | - | 26 | 34 | |
| Forward Transconductance | G _{fs} | V _{DS} = -15V, I _D = -9.0A | - | 24 | - | S |
| Source-Drain Diode | | | | | | |
| Diode Forward Voltage | V _{SD} | I _S = -2.3A, V _{GS} = 0V | - | -0.8 | -1.2 | V |
| Dynamic Parameters | | | | | | |
| Total Gate Charge | Q _g | V _{DS} = -15V, V _{GS} = -10V I _D = -9.0A | - | 16 | 24 | nC |
| Gate-Source Charge | Q _{GS} | | - | 2.3 | - | |
| Gate-Drain Charge | Q _{GD} | | - | 4.5 | - | |
| Input Capacitance | C _{iss} | V _{DS} = -15V, V _{GS} = 0V f = 1MHz | - | 1650 | - | pF |
| Output Capacitance | C _{oss} | | - | 350 | - | |
| Reverse Transfer Capacitance | C _{rss} | | - | 235 | - | |
| Turn-On Time | t _{d(on)} | V _{DD} = -15V, R _L = 15Ω I _D = -1.0A, V _{GEN} = -10V R _G = 6Ω | - | 16 | 30 | nS |
| | T _r | | - | 17 | 30 | |
| Turn-Off Time | t _{d(off)} | | - | 65 | 110 | |
| | T _f | | - | 35 | 80 | |

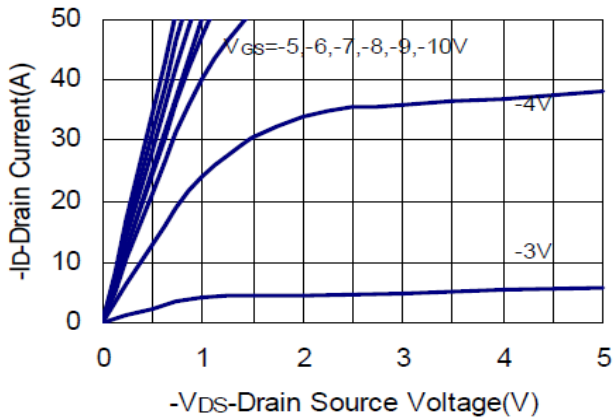
Note : Pulse test: pulse width ≤ 300us, duty cycle ≤ 2%



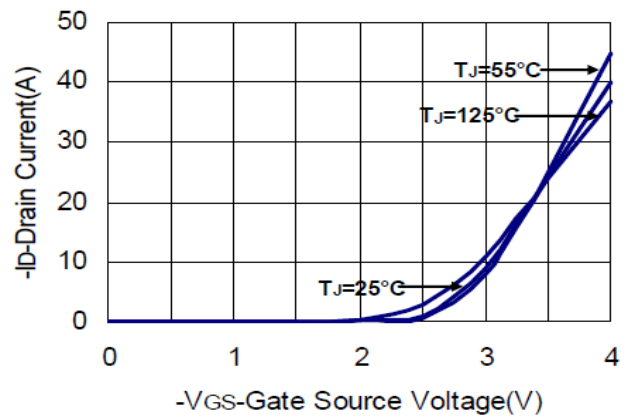
TYPICAL CHARACTERISTICS

$T_A=25^{\circ}\text{C}$ Unless Specified

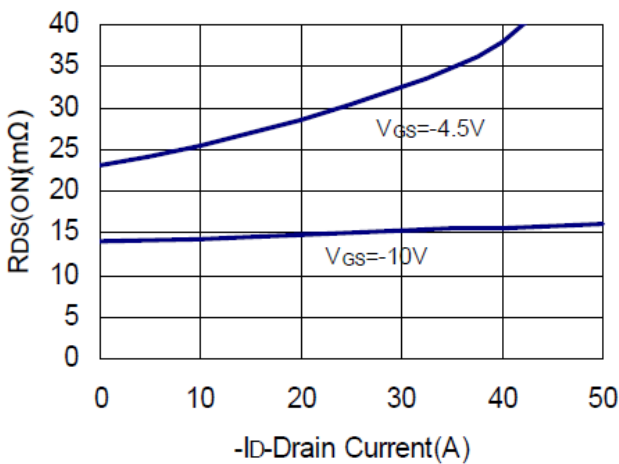
1. Output Characteristics



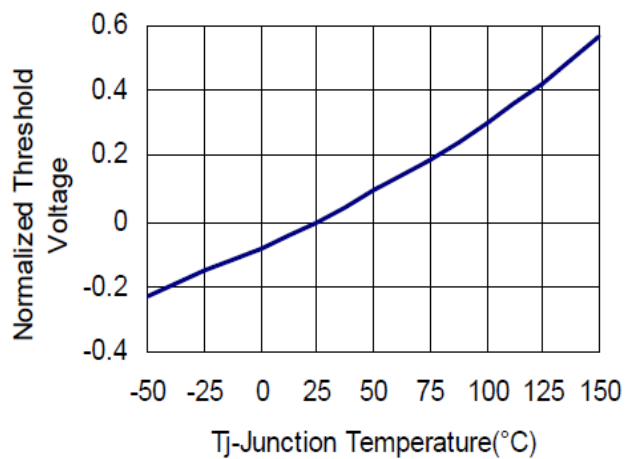
2. Transfer Characteristics



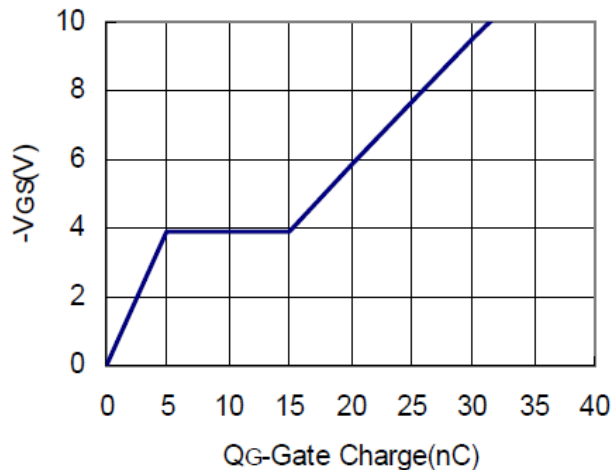
3. Drain Source On Resistance



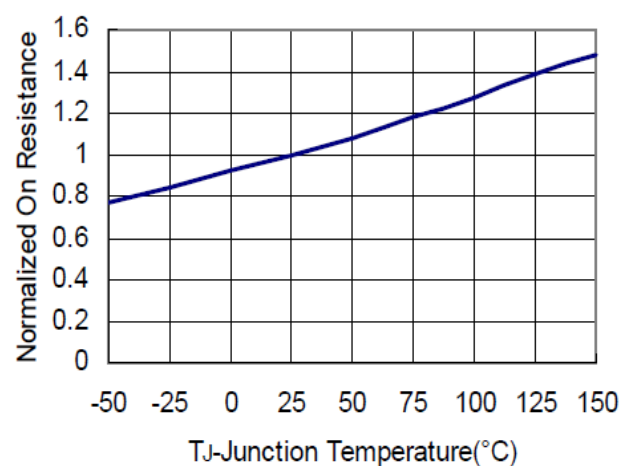
4. Gate Threshold Voltage



5. Gate Charge

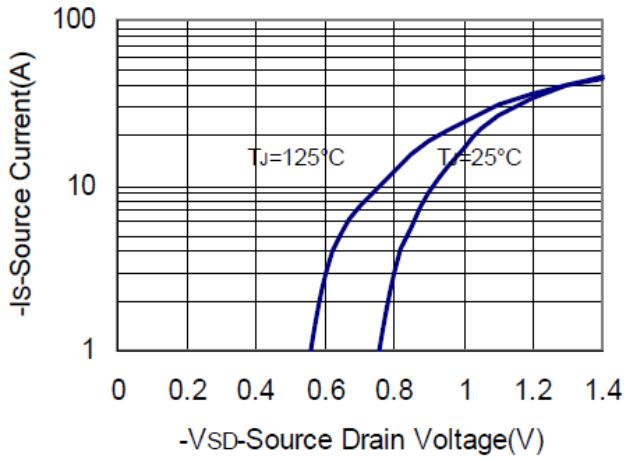


6. Drain Source On Resistance

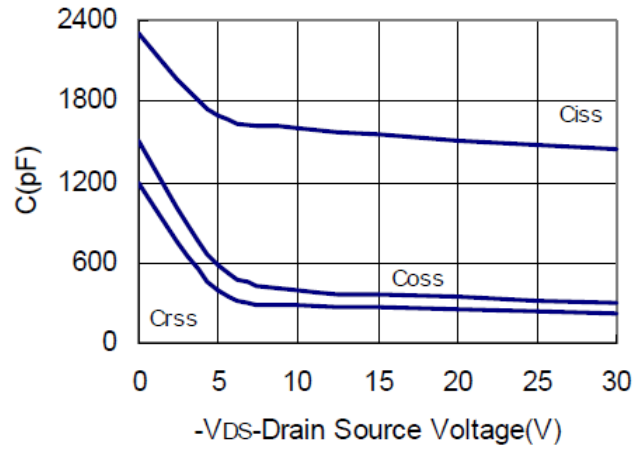




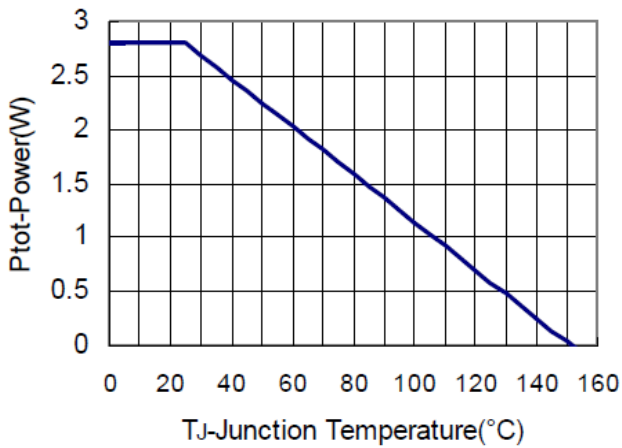
7. Source Drain Diode Forward



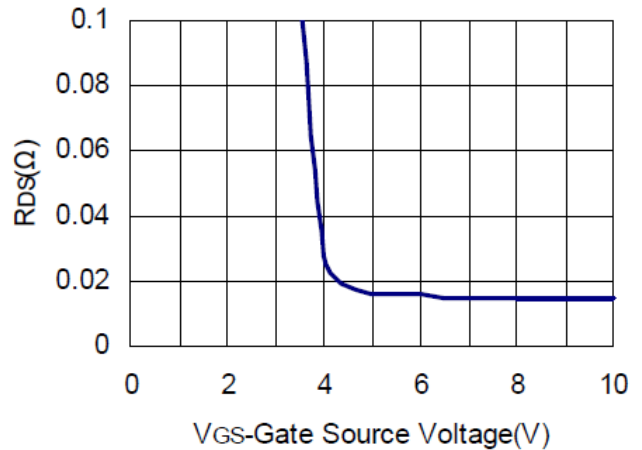
8. Capacitance



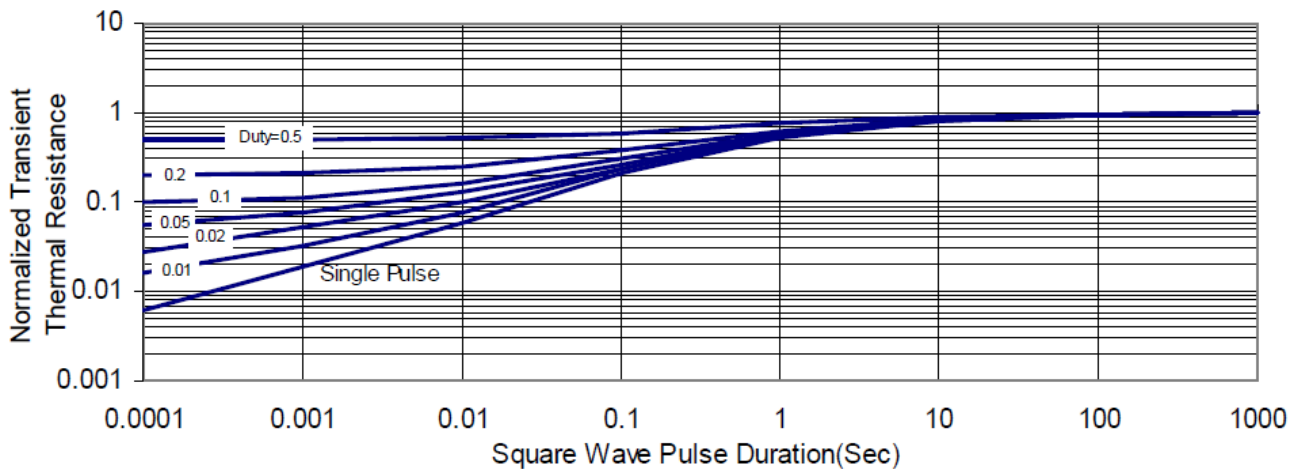
9. Power Dissipation



10. On Resistance VS Gate Source Voltage



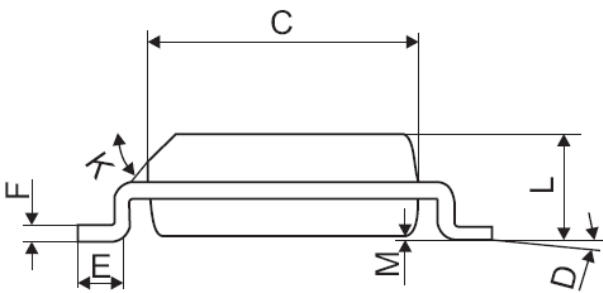
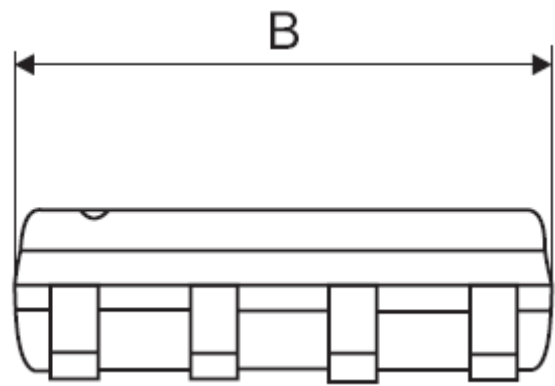
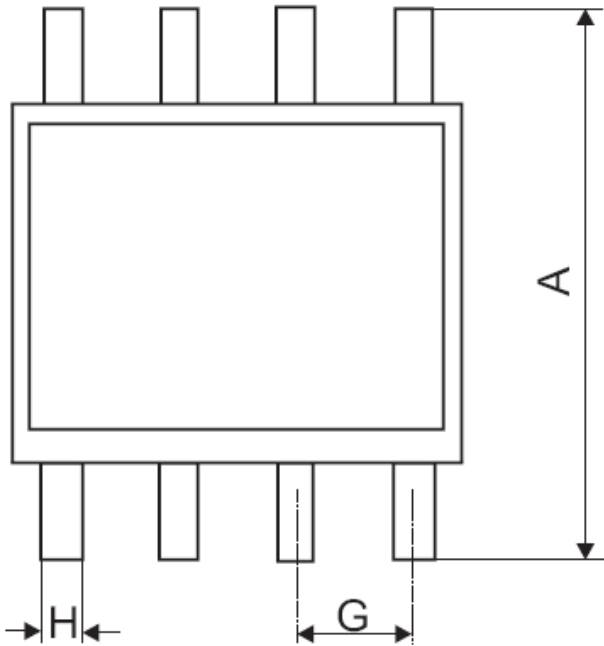
11. Thermal Transient Impedance





PACKAGE INFORMATION

Dimension in SOP-8 (Unit: mm)



| Symbol | Min | Max |
|----------|-------|-------|
| A | 1.400 | 1.750 |
| A1 | 0.100 | 0.250 |
| A2 | 1.300 | 1.500 |
| B | 0.330 | 0.510 |
| C | 0.190 | 0.250 |
| D | 4.800 | 5.300 |
| E | 3.700 | 4.100 |
| e | - | - |
| H | 5.790 | 6.200 |
| L | 0.380 | 1.270 |
| y | - | 0.100 |
| θ | 0° | 8° |



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