

• General Description

AP4435DY combines advanced MOSFET technology with a low resistance package to provide extremely low $R_{DS(ON)}$. This device is most suitable to load-switch or PWM applications.

• Applications

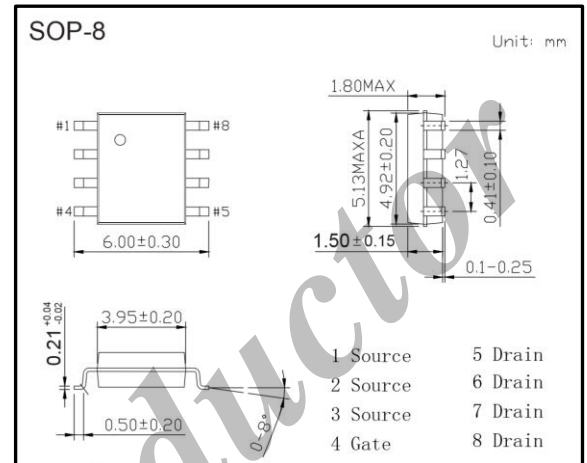
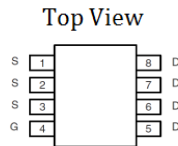
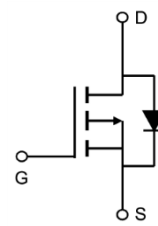
- DC-DC converter for portable devices
- Load switch
- Battery switch

• Product Summary

| | |
|-------------------------------------|----------------|
| V_{DS} | 30V |
| $R_{DS(ON)}$ (at $V_{GS} = -10V$) | < 20m Ω |
| $R_{DS(ON)}$ (at $V_{GS} = -4.5V$) | < 35m Ω |

• Absolute Maximum Ratings $T_a = 25^\circ C$

| Parameter | Symbol | Rating | Unit |
|--|-----------------|------------|--------------|
| Drain-Source Voltage | V_{DS} | -30 | V |
| Gate-Source Voltage | V_{GS} | ± 20 | V |
| Continuous Drain Current | I_D | -8.8 | A |
| Pulsed Drain Current | I_{DM} | -50 | |
| Power Dissipation | P_D | 2.5 | W |
| Thermal Resistance, Junction-to-Ambient | $R_{\theta JA}$ | 50 | $^\circ C/W$ |
| Operating Junction and Storage Temperature Range | T_J, T_{STG} | -55 to 150 | $^\circ C$ |



• **Electrical Characteristics Ta = 25°C**

| Parameter | Symbol | Test Conditions | Min | Typ | Max | Unit |
|--|--------------|---|-------|-------|-----------|------------|
| Drain-Source Breakdown Voltage | V_{DSS} | $I_D = -250\mu A, V_{GS} = 0V$ | -30 | | | V |
| Zero Gate Voltage Drain Current | I_{DSS} | $V_{DS} = -30V, V_{GS} = 0V$ | | | -1 | μA |
| | | $V_{DS} = -15V, V_{GS} = 0V, T_j = 70^\circ C$ | | | -5 | |
| Gate-Body Leakage Current | I_{GSS} | $V_{DS} = 0V, V_{GS} = \pm 20V$ | | | ± 100 | nA |
| Gate Threshold Voltage | $V_{GS(th)}$ | $V_{DS} = V_{GS}, I_D = -250\mu A$ | -1.0 | -1.7 | -3 | V |
| Drain-Source On-State Resistance * | $R_{DS(on)}$ | $V_{GS} = -10V, I_D = -8.0A$ | | 15 | 20 | m Ω |
| | | $V_{GS} = -4.5V, I_D = -5.0A$ | | 22 | 35 | |
| On-State Drain Current | $I_{D(on)}$ | $V_{GS} = -10V, V_{DS} = -5V$ | -15 | | | A |
| Forward Transconductance * | g_{FS} | $V_{DS} = -15V, I_D = -8A$ | | 11 | | S |
| Total Gate Charge | Q_g | $V_{GS} = -10V, V_{DS} = -15V, I_D = -4.6A$ | | 47 | 60 | nC |
| Gate Source Charge | Q_{gs} | | 7.1 | | | |
| Gate Drain Charge | Q_{gd} | | 8 | | | |
| Turn-On Delay Time | $t_{D(on)}$ | $V_{DD} = -15V, R_L = 15\Omega, I_D = -1A, V_{GEN} = -10V, R_{GEN} = 6\Omega$ | | 16 | 24 | ns |
| Turn-On Rise Time | t_r | | 76 | 110 | | |
| Turn-Off Delay Time | $t_{D(off)}$ | | 130 | 200 | | |
| Turn-Off Fall Time | t_f | | 90 | 140 | | |
| Source-Drain Reverse Recovery Time | t_{rr} | $I_F = -2.5A, d_i/d_t = 100A/\mu s$ | | 34 | 51 | |
| Continuous Source Current (Diode Conduction) | I_S | | | | -2 | A |
| Diode Forward Voltage | V_{SD} | $I_S = -1A, V_{GS} = 0V$ | -0.65 | -0.81 | -0.95 | V |

* Pulse test; pulse width $\leq 300\mu s$, duty cycle $\leq 2\%$.

• **Ordering Information**

| Ordering Part Number | Package | MOQ |
|----------------------|---------|------------------|
| AP4435DY | SOP-8 | 2,500 pcs / reel |

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