



P-Channel 30-V (D-S) MOSFET

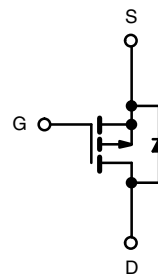
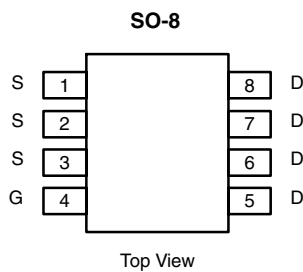
| PRODUCT SUMMARY | | |
|-----------------|---------------------------|-----------|
| V_{DS} (V) | $r_{DS(on)}$ (Ω) | I_D (A) |
| -30 | 0.02 @ $V_{GS} = -10$ V | -8.0 |
| | 0.035 @ $V_{GS} = -4.5$ V | -6.0 |

FEATURES

- Lead (Pb)-Free Version is RoHS Compliant



RoHS
COMPLIANT



P-Channel MOSFET

Ordering Information: Si4435DY-T1-REV A
Si4435DY-T1-A-E3 (Lead (Pb)-Free)

| ABSOLUTE MAXIMUM RATINGS ($T_A = 25^\circ$ UNLESS OTHERWISE NOTED) | | | |
|---|----------------|--------------------------|------------------|
| Parameter | Symbol | Limit | Unit |
| Drain-Source Voltage | V_{DS} | -30 | V |
| Gate-Source Voltage | V_{GS} | ± 20 | |
| Continuous Drain Current ($T_J = 150^\circ\text{C}$) ^a | I_D | $T_A = 25^\circ\text{C}$ | -8.0 |
| | | $T_A = 70^\circ\text{C}$ | -6.4 |
| Pulsed Drain Current | I_{DM} | -50 | A |
| Continuous Source Current (Diode Conduction) ^a | I_S | -2.1 | |
| Maximum Power Dissipation ^a | P_D | $T_A = 25^\circ\text{C}$ | 2.5 |
| | | $T_A = 70^\circ\text{C}$ | 1.6 |
| Operating Junction and Storage Temperature Range | T_J, T_{stg} | -55 to 150 | $^\circ\text{C}$ |

| THERMAL RESISTANCE RATINGS | | | |
|--|------------|-------|---------------------------|
| Parameter | Symbol | Limit | Unit |
| Maximum Junction-to-Ambient ^a | R_{thJA} | 50 | $^\circ\text{C}/\text{W}$ |

Notes

a. Surface Mounted on FR4 Board, $t \leq 10$ sec.

For SPICE model information via the Worldwide Web: <http://www.vishay.com/www/product/spice.htm>

SPECIFICATIONS (T_J = 25 °C UNLESS OTHERWISE NOTED)

| Parameter | Symbol | Test Condition | Min | Typ ^a | Max | Unit |
|---|---------------------|---|------|------------------|-------|------|
| Static | | | | | | |
| Gate Threshold Voltage | V _{GS(th)} | V _{DS} = V _{GS} , I _D = -250 μA | -1.0 | -2.0 | -3.0 | V |
| Gate-Body Leakage | I _{GSS} | V _{DS} = 0 V, V _{GS} = ±20 V | | | ±100 | nA |
| Zero Gate Voltage Drain Current | I _{DSS} | V _{DS} = -30 V, V _{GS} = 0 V | | | -1 | μA |
| | | V _{DS} = -30 V, V _{GS} = 0 V, T _J = 70 °C | | | -5 | |
| On-State Drain Current ^b | I _{D(on)} | V _{DS} ≤ -5 V, V _{GS} = -10 V | -40 | | | A |
| | | V _{DS} ≤ -5 V, V _{GS} = -4.5 V | -10 | | | |
| Drain-Source On-State Resistance ^b | r _{DS(on)} | V _{GS} = -10 V, I _D = -8.0 A | | 0.015 | 0.02 | Ω |
| | | V _{GS} = -4.5 V, I _D = -5.0 A | | 0.022 | 0.035 | |
| Forward Transconductance ^b | g _{fs} | V _{DS} = -15 V, I _D = -8.0 A | | 20 | | S |
| Diode Forward Voltage ^b | V _{SD} | I _S = -2.1 A, V _{GS} = 0 V | | -0.75 | -1.2 | V |
| Dynamic^a | | | | | | |
| Total Gate Charge | Q _g | V _{DS} = -15 V, V _{GS} = -10 V, I _D = -4.6 A | | 47 | 60 | nC |
| Gate-Source Charge | Q _{gs} | | | 9.5 | | |
| Gate-Drain Charge | Q _{gd} | | | 8 | | |
| Gate Resistance | R _G | | | 2.75 | 4.1 | Ω |
| Turn-On Delay Time | t _{d(on)} | V _{DD} = -15 V, R _L = 15 Ω I _D ≈ -1 A, V _{GEN} = -10 V, R _G = 6 Ω | | 16 | 30 | ns |
| Rise Time | t _r | | | 17 | 30 | |
| Turn-Off Delay Time | t _{d(off)} | | | 75 | 120 | |
| Fall Time | t _f | | | 31 | 80 | |
| Source-Drain Reverse Recovery Time | t _{rr} | I _F = -2.1 A, di/dt = 100 A/μs | | 40 | 80 | |

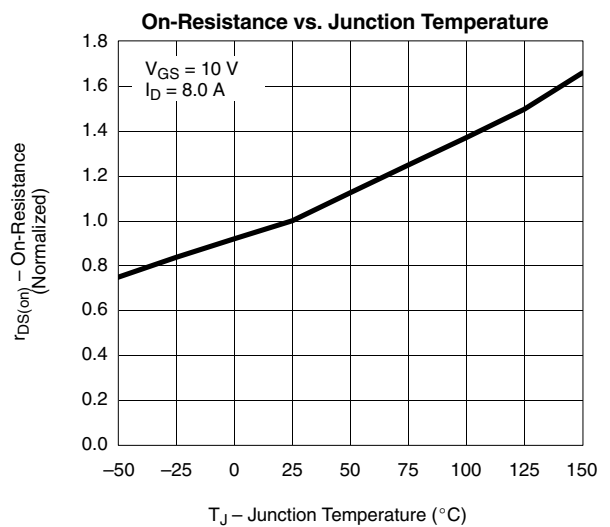
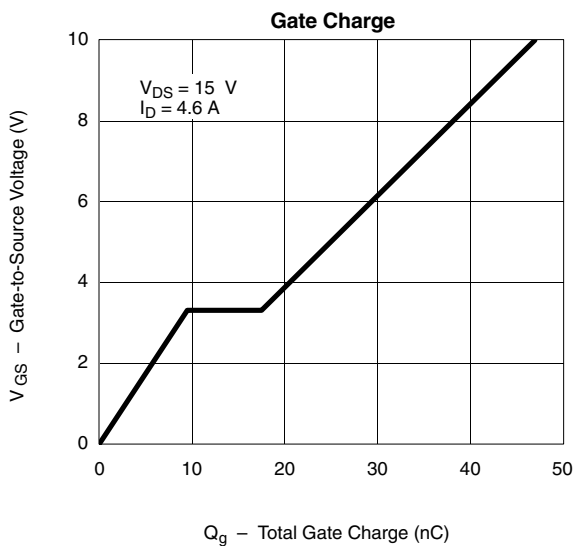
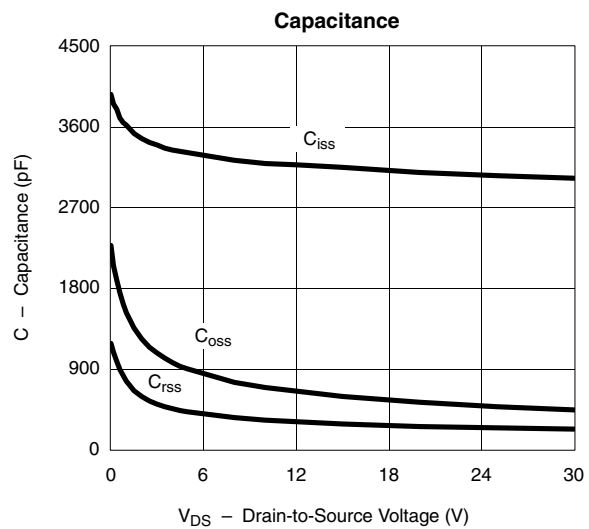
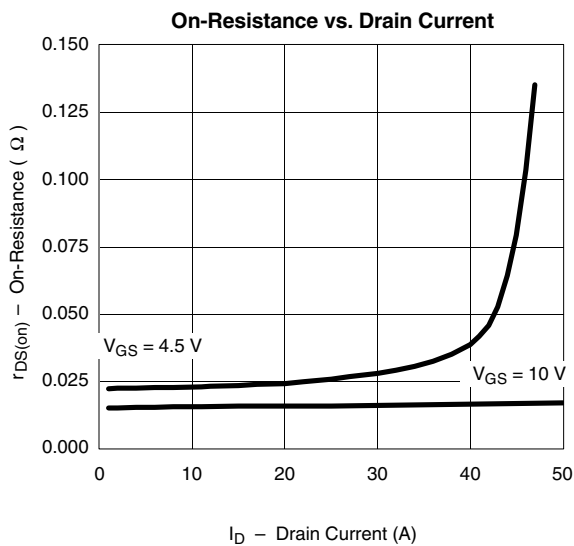
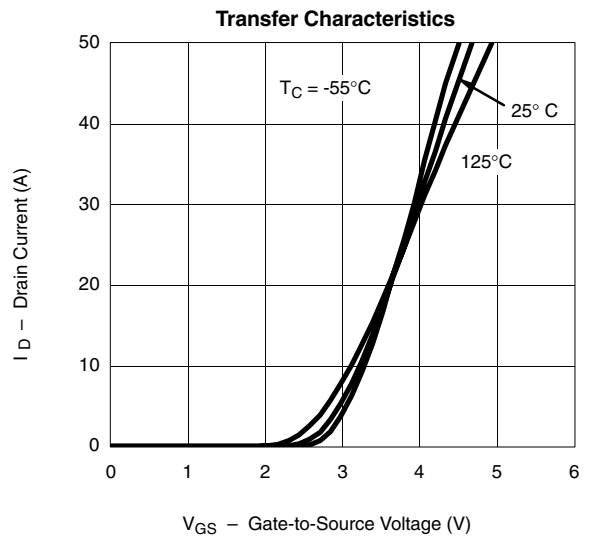
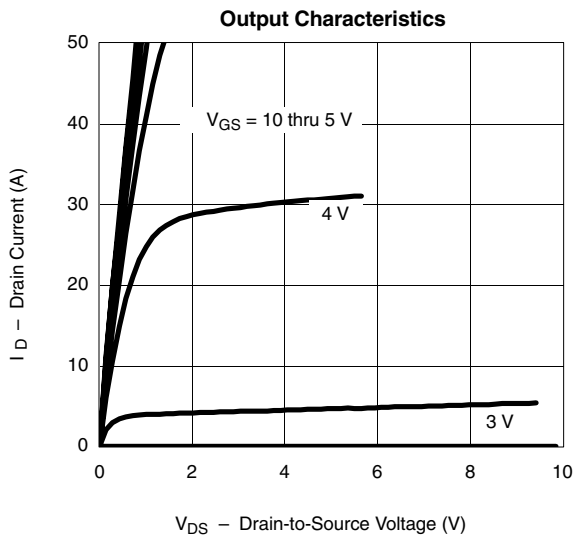
Notes

- a. Guaranteed by design, not subject to production testing. Values shown are for Product Revision A.
b. Pulse test; pulse width ≤ 300 μs, duty cycle ≤ 2%.

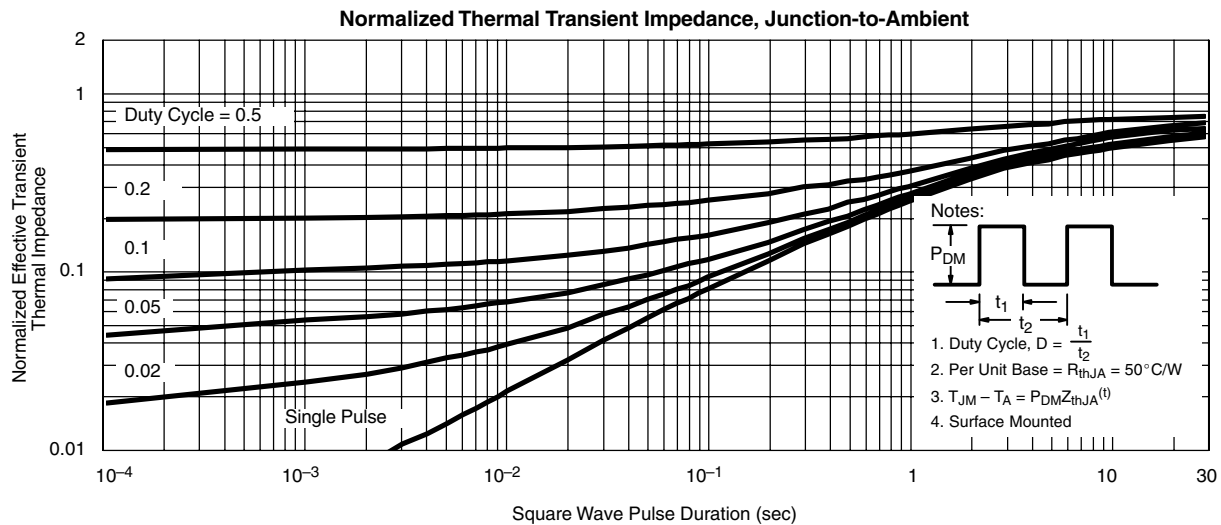
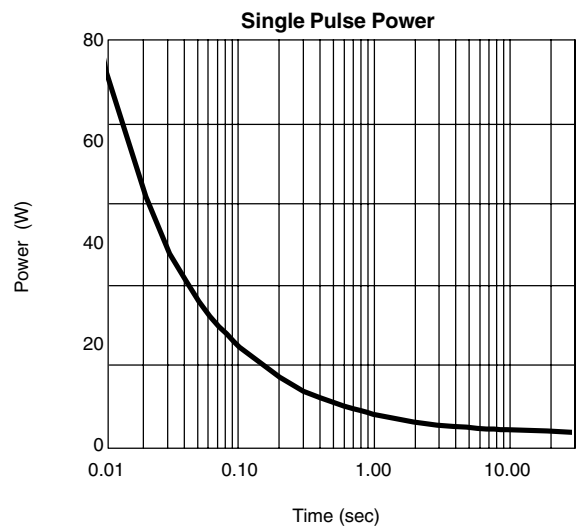
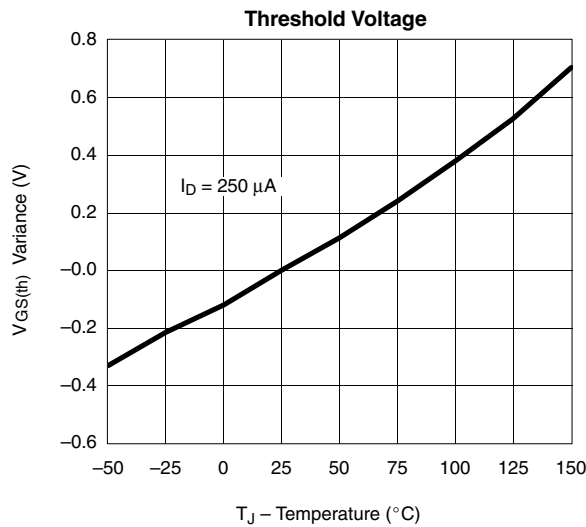
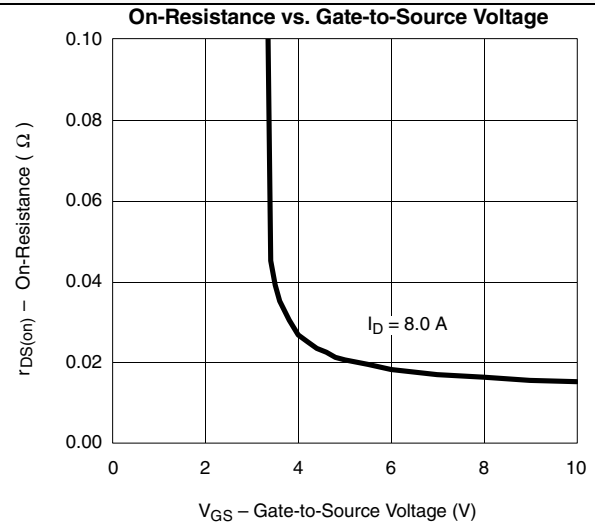
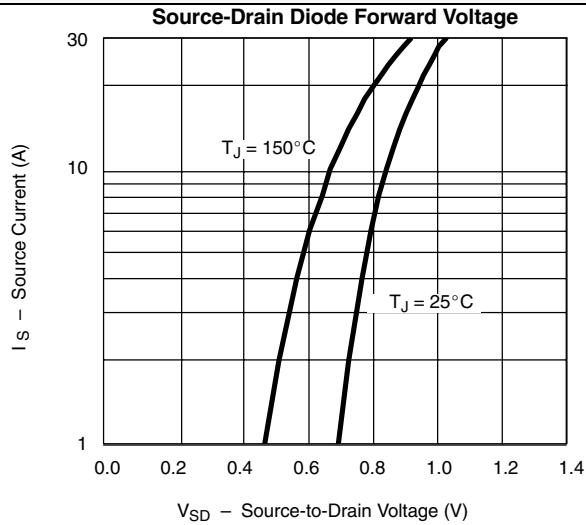
Stresses beyond those listed under "Absolute Maximum Ratings" may cause permanent damage to the device. These are stress ratings only, and functional operation of the device at these or any other conditions beyond those indicated in the operational sections of the specifications is not implied. Exposure to absolute maximum rating conditions for extended periods may affect device reliability.



TYPICAL CHARACTERISTICS, PRODUCT REVISION A (25°C UNLESS NOTED)



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