



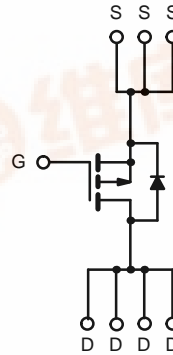
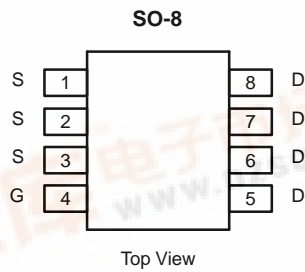
New Product

Si4427DY
Vishay Siliconix

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

| PRODUCT SUMMARY | | |
|-----------------|----------------------------|-----------|
| V_{DS} (V) | $r_{DS(on)}$ (Ω) | I_D (A) |
| -30 | 0.0105 @ $V_{GS} = -10$ V | -13.3 |
| | 0.0125 @ $V_{GS} = -4.5$ V | -12.2 |
| | 0.0195 @ $V_{GS} = -2.5$ V | -9.8 |

TrenchFET[®]
Power MOSFETs



| ABSOLUTE MAXIMUM RATINGS ($T_A = 25^\circ\text{C}$ UNLESS OTHERWISE NOTED) | | | | | |
|---|----------------|--------------------------|--------------|------------------|---|
| Parameter | Symbol | 10 secs | Steady State | Unit | |
| Drain-Source Voltage | V_{DS} | -30 | | V | |
| Gate-Source Voltage | V_{GS} | ± 12 | | | |
| Continuous Drain Current ($T_J = 150^\circ\text{C}$) ^a | I_D | $T_A = 25^\circ\text{C}$ | -13.3 | -9.4 | A |
| | | $T_A = 70^\circ\text{C}$ | -10.7 | -7.5 | |
| Pulsed Drain Current | I_{DM} | -50 | | | |
| continuous Source Current (Diode Conduction) ^a | I_S | -2.5 | -1.3 | | |
| Maximum Power Dissipation ^a | P_D | $T_A = 25^\circ\text{C}$ | 3.0 | 1.5 | W |
| | | $T_A = 70^\circ\text{C}$ | 1.9 | 0.9 | |
| Operating Junction and Storage Temperature Range | T_J, T_{stg} | -55 to 150 | | $^\circ\text{C}$ | |

| THERMAL RESISTANCE RATINGS | | | | | |
|--|------------|-----------------|---------|------|--------------------|
| Parameter | Symbol | Typical | Maximum | Unit | |
| Maximum Junction-to-Ambient ^a | R_{thJA} | $t \leq 10$ sec | 32 | 42 | $^\circ\text{C/W}$ |
| | | Steady State | 68 | 85 | |
| Maximum Junction-to-Foot (Drain) | R_{thJF} | 15 | 18 | | |

Notes:
a. Surface Mounted on 1" x 1" FR4 Board.

Si4427DY

Vishay Siliconix

New Product



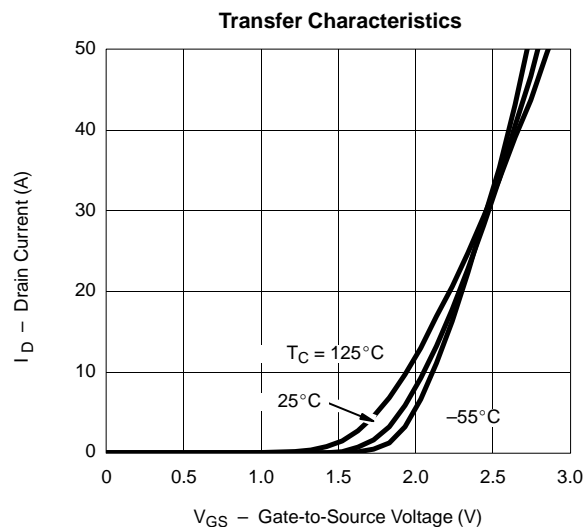
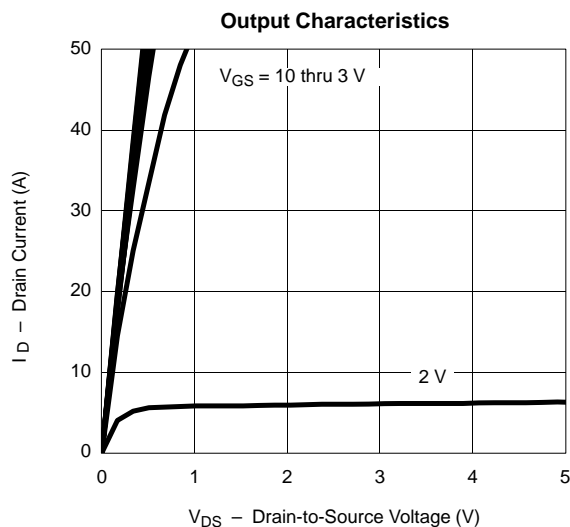
SPECIFICATIONS (T_J = 25 °C UNLESS OTHERWISE NOTED)

| Parameter | Symbol | Test Condition | Min | Typ | Max | Unit |
|---|---------------------|---|---|--------|--------|------|
| Static | | | | | | |
| Gate Threshold Voltage | V _{GS(th)} | V _{DS} = V _{GS} , I _D = -250 μA | -0.60 | | | V |
| Gate-Body Leakage | I _{GSS} | V _{DS} = 0 V, V _{GS} = ±12 V | | | ±100 | nA |
| Zero Gate Voltage Drain Current | I _{DSS} | V _{DS} = -24 V, V _{GS} = 0 V | | | -1 | μA |
| | | V _{DS} = -24 V, V _{GS} = 0 V, T _J = 55 °C | | | -5 | |
| On-State Drain Current ^a | I _{D(on)} | V _{DS} ≤ -5 V, V _{GS} = -10 V | -50 | | | A |
| Drain-Source On-State Resistance ^a | r _{DS(on)} | V _{GS} = -10 V, I _D = -13.3 A | | 0.0086 | 0.0105 | Ω |
| | | V _{GS} = -4.5 V, I _D = -12.2 A | | 0.0105 | 0.0125 | |
| | | V _{GS} = -2.5 V, I _D = -9.8 A | | 0.0165 | 0.0195 | |
| Forward Transconductance ^a | g _{fs} | V _{DS} = -15 V, I _D = -13.3 A | | 40 | | S |
| Diode Forward Voltage ^a | V _{SD} | I _S = -2.5 A, V _{GS} = 0 V | | -0.8 | -1.2 | V |
| Dynamic^b | | | | | | |
| Total Gate Charge | Q _g | V _{DS} = -15 V, V _{GS} = -4.5 V, I _D = -13.3 A | | 47 | 70 | nC |
| Gate-Source Charge | Q _{gs} | | | 20 | | |
| Gate-Drain Charge | Q _{gd} | | | 8.3 | | |
| 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 | 25 | ns |
| Rise Time | t _r | | | 12 | 20 | |
| Turn-Off Delay Time | t _{d(off)} | | | 220 | 330 | |
| Fall Time | t _f | | | 70 | 110 | |
| Source-Drain Reverse Recovery Time | t _{rr} | | I _F = -2.5 A, di/dt = 100 A/μs | | 50 | |

Notes

- a. Pulse test; pulse width ≤ 300 μs, duty cycle ≤ 2%.
- b. Guaranteed by design, not subject to production testing.

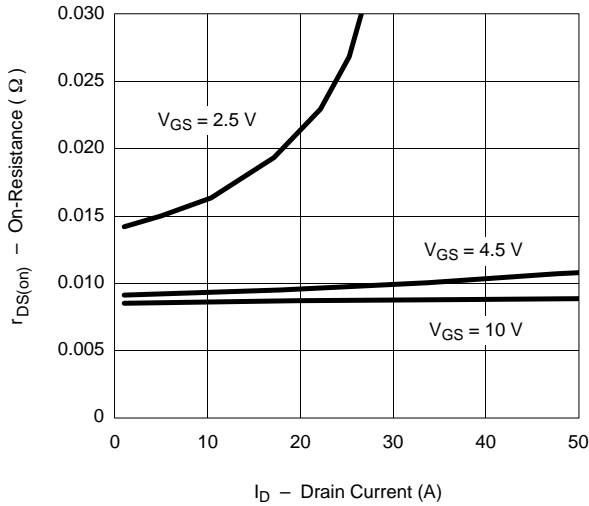
TYPICAL CHARACTERISTICS (25 °C UNLESS NOTED)



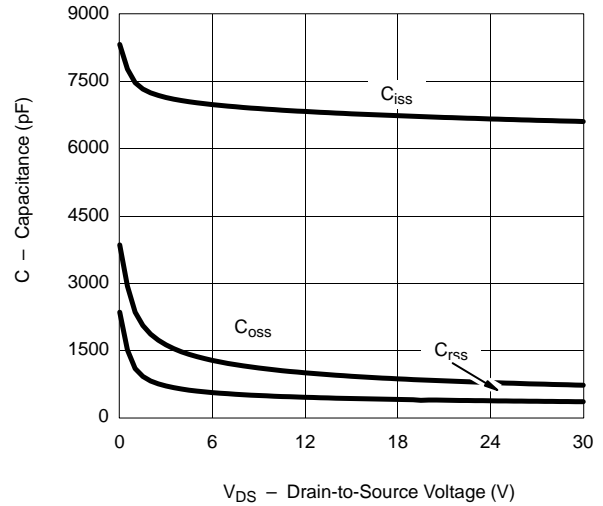


TYPICAL CHARACTERISTICS (25°C UNLESS NOTED)

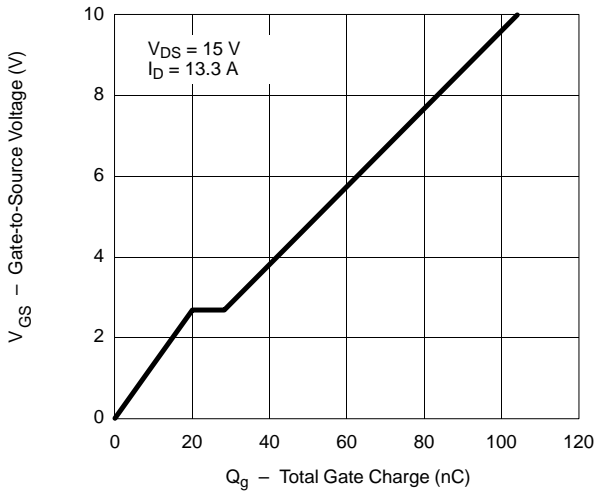
On-Resistance vs. Drain Current



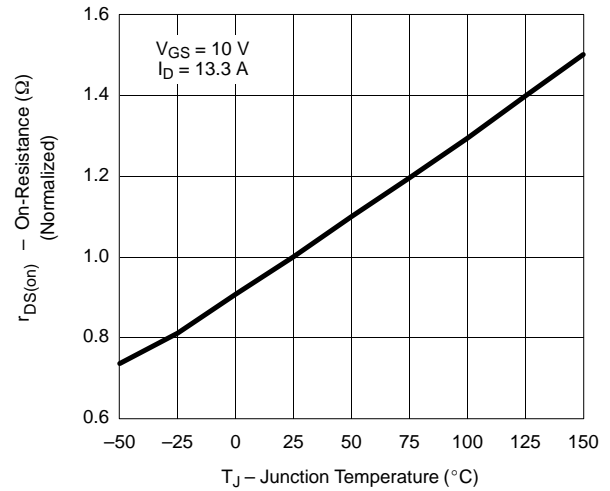
Capacitance



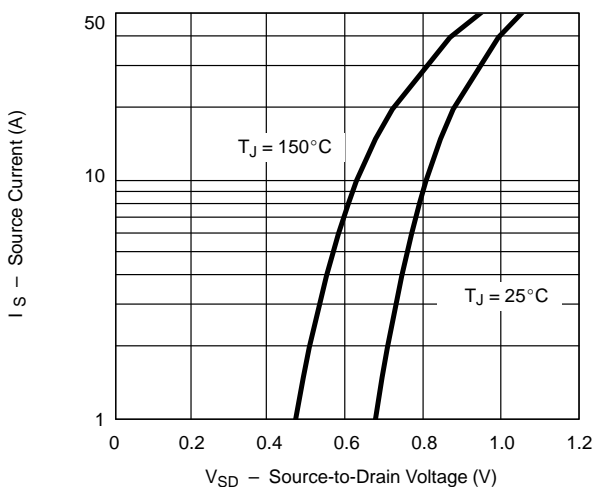
Gate Charge



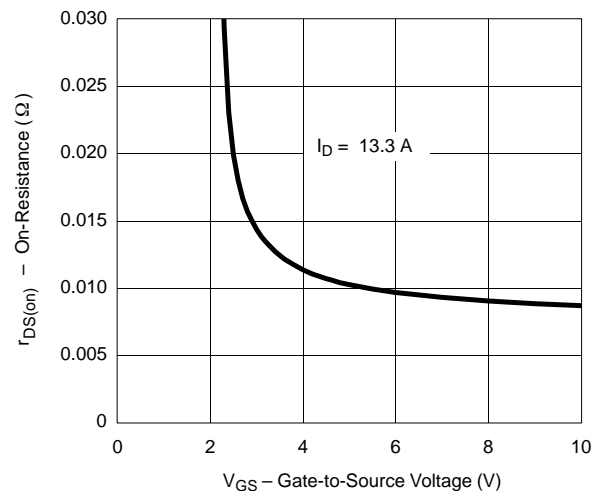
On-Resistance vs. Junction Temperature



Source-Drain Diode Forward Voltage



On-Resistance vs. Gate-to-Source Voltage





TYPICAL CHARACTERISTICS (25°C UNLESS NOTED)

