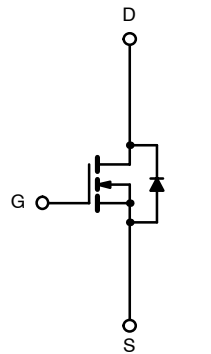
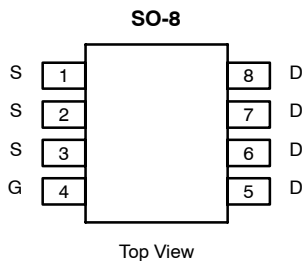




N-Channel 30-V (D-S) MOSFET

| PRODUCT SUMMARY | | |
|-----------------|---------------------------|-----------|
| V_{DS} (V) | $r_{DS(on)}$ (Ω) | I_D (A) |
| 30 | 0.012 @ $V_{GS} = 10$ V | 12.5 |
| | 0.018 @ $V_{GS} = 4.5$ V | 10.2 |

TrenchFET[®]
Power MOSFETs



Ordering Information: Si4894DY
Si4894DY-T1 (with Tape and Reel)

| 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} | ± 20 | | |
| Continuous Drain Current ($T_J = 150^\circ\text{C}$) ^a | $T_A = 25^\circ\text{C}$ | I_D | 12.5 | 8.5 | A |
| | $T_A = 70^\circ\text{C}$ | | 10 | 6.8 | |
| Pulsed Drain Current | | I_{DM} | 20 | | |
| Continuous Source Current (Diode Conduction) ^a | | I_S | 2.7 | 1.3 | A |
| Maximum Power Dissipation ^a | $T_A = 25^\circ\text{C}$ | P_D | 3.0 | 1.4 | 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 | $t \leq 10$ sec | R_{thJA} | 35 | 42 | $^\circ\text{C/W}$ |
| | Steady State | | 73 | 90 | |
| Maximum Junction-to-Foot (Drain) | Steady State | R_{thJF} | 16 | 20 | |

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

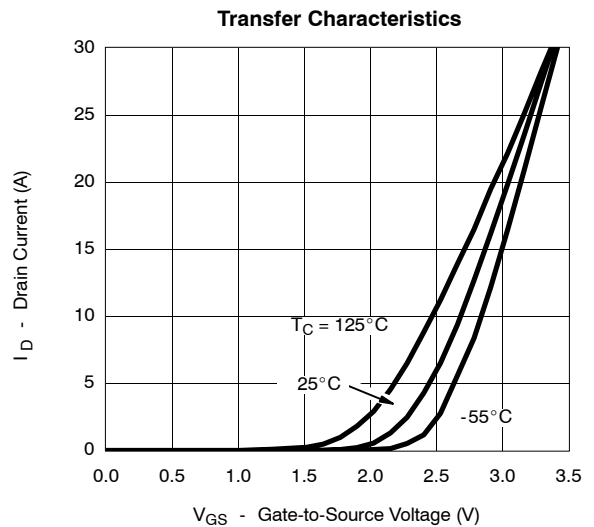
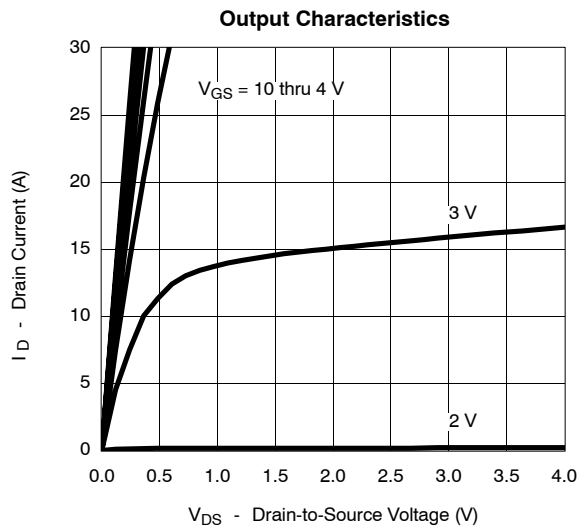


| SPECIFICATIONS (T _J = 25 °C UNLESS OTHERWISE NOTED) | | | | | | | |
|--|---------------------|--|---|-------|-------|------|-----|
| Parameter | Symbol | Test Condition | Min | Typ | Max | Unit | |
| Static | | | | | | | |
| Gate Threshold Voltage | V _{GS(th)} | V _{DS} = V _{GS} , I _D = 250 μA | 0.8 | | | 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 = 55 °C | | | 5 | | |
| On-State Drain Current ^a | I _{D(on)} | V _{DS} ≥ 5 V, V _{GS} = 10 V | 30 | | | A | |
| Drain-Source On-State Resistance ^a | r _{DS(on)} | V _{GS} = 10 V, I _D = 12.5 A | | 0.010 | 0.012 | Ω | |
| | | V _{GS} = 4.5 V, I _D = 10.2 A | | 0.015 | 0.018 | | |
| Forward Transconductance ^a | g _{fs} | V _{DS} = 15 V, I _D = 12.5 A | | 30 | | S | |
| Diode Forward Voltage ^a | V _{SD} | I _S = 2.7 A, V _{GS} = 0 V | | 0.7 | 1.1 | V | |
| Dynamic^b | | | | | | | |
| Total Gate Charge | Q _g | V _{DS} = 15 V, V _{GS} = 5 V, I _D = 12.5 A | | 11.5 | 17 | nC | |
| | | | V _{DS} = 15 V, V _{GS} = 10 V, I _D = 12.5 A | | 20 | | 30 |
| | | | | | | | 3.0 |
| Gate-Source Charge | Q _{gs} | | | 4.5 | | | |
| Gate-Drain Charge | Q _{gd} | | | | | | |
| Gate Resistance | R _g | | 1 | | 2.4 | 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 | | 10 | 20 | ns | |
| Rise Time | t _r | | | 5 | 10 | | |
| Turn-Off Delay Time | t _{d(off)} | | | 30 | 60 | | |
| Fall Time | t _f | | | 10 | 20 | | |
| Source-Drain Reverse Recovery Time | t _{rr} | | I _F = 2.7 A, di/dt = 100 A/μs | | 30 | | 60 |

Notes

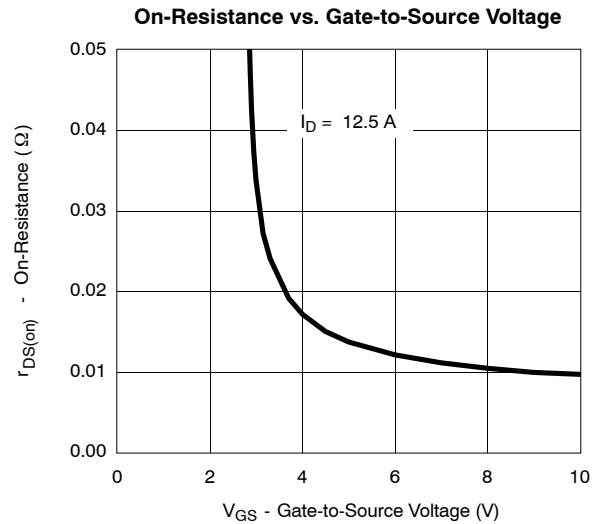
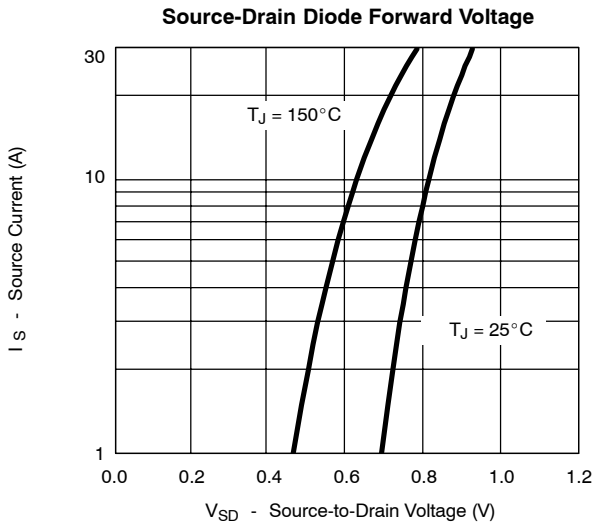
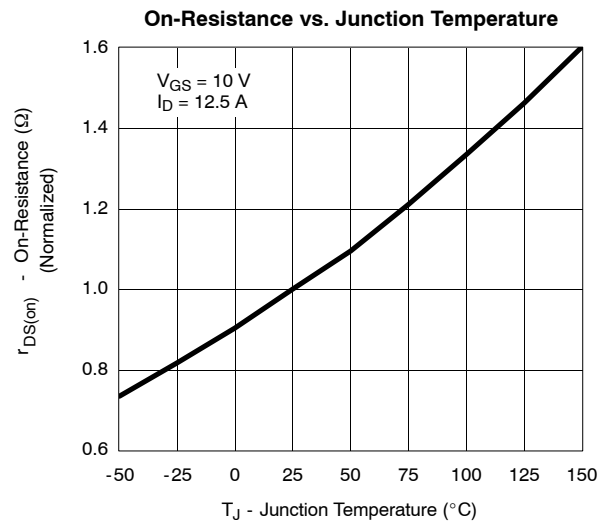
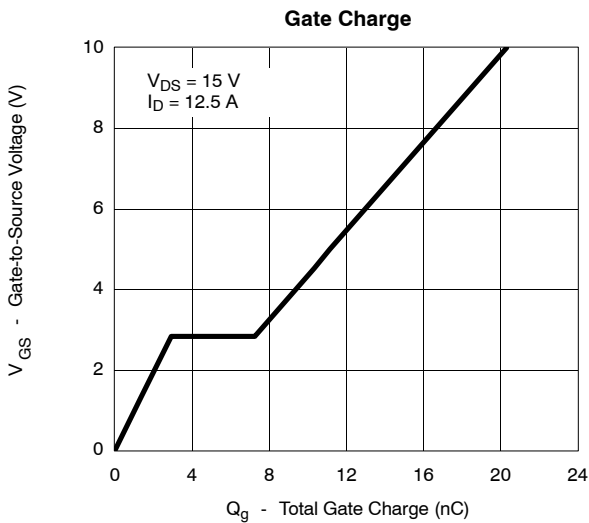
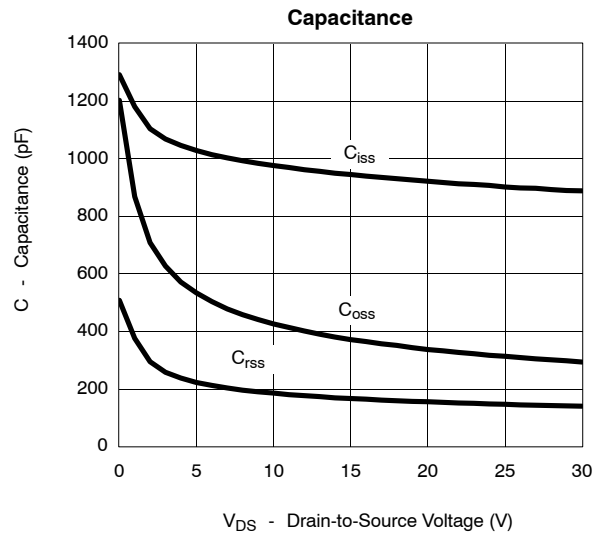
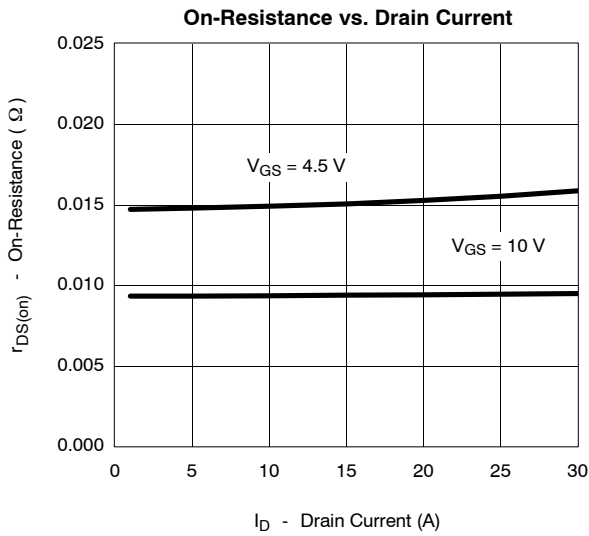
- a. Pulse test; pulse width ≤ 300 μs, duty cycle ≤ 2%.
- b. Guaranteed by design, not subject to production testing.

TYPICAL CHARACTERISTICS (25 °C UNLESS NOTED)





TYPICAL CHARACTERISTICS (25°C UNLESS NOTED)



TYPICAL CHARACTERISTICS (25°C UNLESS NOTED)

