

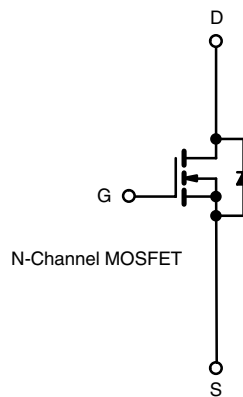
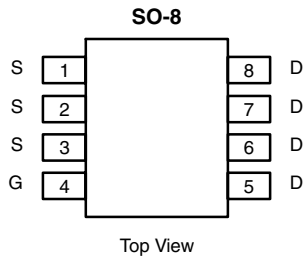


## N-Channel 30-V (D-S) MOSFET

PRODUCT SUMMARY		
$V_{DS}$ (V)	$r_{DS(on)}$ ( $\Omega$ )	$I_D$ (A)
30	0.012 @ $V_{GS} = 10$ V	12.4
	0.020 @ $V_{GS} = 4.5$ V	9.6

### FEATURES

- TrenchFET® Power MOSFET
- High Efficiency PWM Optimized
- 100%  $R_g$  Tested
- 100% UIS Tested



Ordering Information: Si4892DY-T1  
Si4892DY-T1-E3 (Lead (Pb)-free)

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		$V_{GS}$	$\pm 20$		
Continuous Drain Current ( $T_J = 150^\circ\text{C}$ ) <sup>a</sup>	$T_A = 25^\circ\text{C}$	$I_D$	12.4	8.8	A
	$T_A = 70^\circ\text{C}$		9.9	7.0	
Pulsed Drain Current		$I_{DM}$	$\pm 50$		
Continuous Source Current (Diode Conduction) <sup>a</sup>		$I_S$	2.60	1.3	
Avalanche Current	L = 0.1 mH	$I_{AS}$	20		
Single-Pulse Avalanche Energy		$E_{AS}$	20		mJ
Maximum Power Dissipation <sup>a</sup>	$T_A = 25^\circ\text{C}$	$P_D$	3.1	1.6	W
	$T_A = 70^\circ\text{C}$		2.0	1.0	
Operating Junction and Storage Temperature Range		$T_J, T_{stg}$	-55 to 150		$^\circ\text{C}$

THERMAL RATINGS RESISTANCE					
Parameter		Symbol	Typical	Maximum	Unit
Maximum Junction-to-Ambient (MOSFET) <sup>a</sup>	t $\leq$ 10 sec	$R_{thJA}$	34	40	$^\circ\text{C/W}$
	Steady State		70	80	
Maximum Junction-to-Foot (Drain)	Steady State	$R_{thJF}$	17	20	

**Notes**

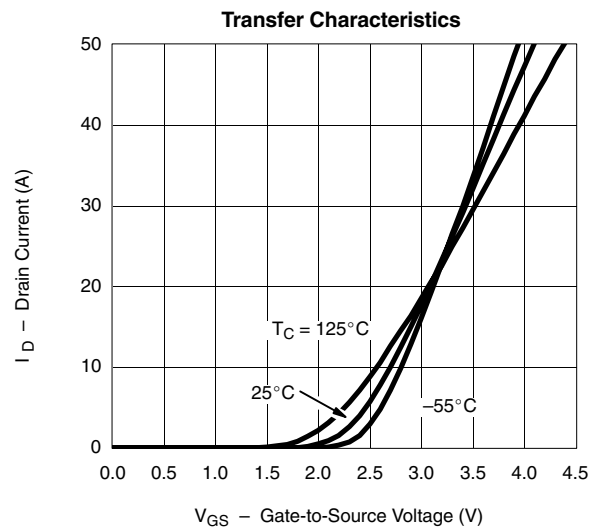
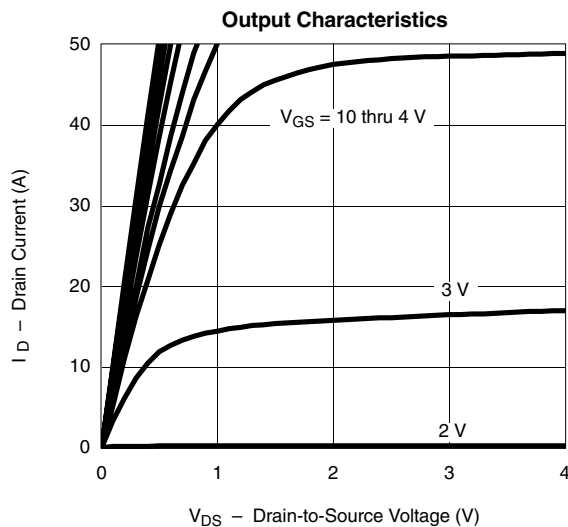
a. Surface Mounted on 1" x 1" FR4 Board.

**MOSFET SPECIFICATIONS ( $T_J = 25^\circ\text{C}$  UNLESS OTHERWISE NOTED)**

Parameter	Symbol	Test Condition	Min	Typ	Max	Unit
<b>Static</b>						
Gate Threshold Voltage	$V_{GS(th)}$	$V_{DS} = V_{GS}, I_D = 250\ \mu\text{A}$	0.80			V
Gate-Body Leakage	$I_{GSS}$	$V_{DS} = 0\ \text{V}, V_{GS} = \pm 20\ \text{V}$			$\pm 100$	nA
Zero Gate Voltage Drain Current	$I_{DSS}$	$V_{DS} = 30\ \text{V}, V_{GS} = 0\ \text{V}$			1	$\mu\text{A}$
		$V_{DS} = 30\ \text{V}, V_{GS} = 0\ \text{V}, T_J = 70^\circ\text{C}$			5	
On-State Drain Current <sup>a</sup>	$I_{D(on)}$	$V_{DS} \geq 5\ \text{V}, V_{GS} = 10\ \text{V}$	50			A
Drain-Source On-State Resistance <sup>a</sup>	$r_{DS(on)}$	$V_{GS} = 10\ \text{V}, I_D = 12.4\ \text{A}$		0.010	0.012	$\Omega$
		$V_{GS} = 4.5\ \text{V}, I_D = 9.6\ \text{A}$		0.016	0.020	
Forward Transconductance <sup>a</sup>	$g_{fs}$	$V_{DS} = 15\ \text{V}, I_D = 12.4\ \text{A}$		27		S
Diode Forward Voltage <sup>a</sup>	$V_{SD}$	$I_S = 2.6\ \text{A}, V_{GS} = 0\ \text{V}$		0.75	1.2	V
<b>Dynamic<sup>b</sup></b>						
Total Gate Charge	$Q_g$	$V_{DS} = 15\ \text{V}, V_{GS} = 5.0\ \text{V}, I_D = 12.4\ \text{A}$		8.7	10.5	nC
Gate-Source Charge	$Q_{gs}$			2.4		
Gate-Drain Charge	$Q_{gd}$			3.5		
Gate Resistance	$R_g$		0.5	1.1	1.9	$\Omega$
Turn-On Delay Time	$t_{d(on)}$	$V_{DD} = 15\ \text{V}, R_L = 15\ \Omega$ $I_D \cong 1\ \text{A}, V_{GEN} = 10\ \text{V}, R_G = 6\ \Omega$		10	20	ns
Rise Time	$t_r$			11	20	
Turn-Off Delay Time	$t_{d(off)}$			24	50	
Fall Time	$t_f$			10	20	
Source-Drain Reverse Recovery Time	$t_{rr}$	$I_F = 2.6\ \text{A}, di/dt = 100\ \text{A}/\mu\text{s}$		50	75	nC
Reverse Recovery Charge	$Q_{rr}$			38		

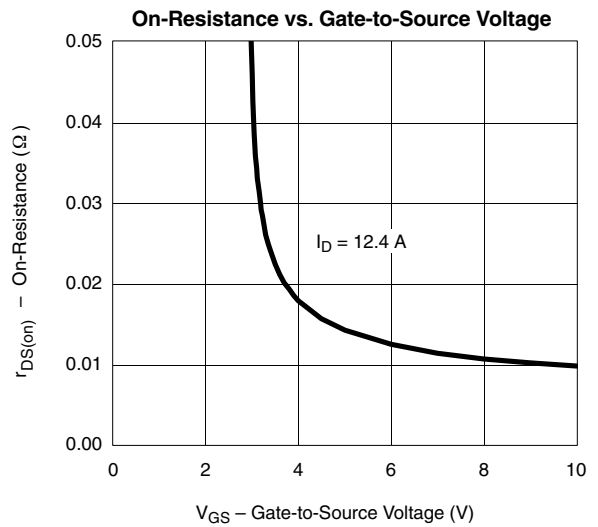
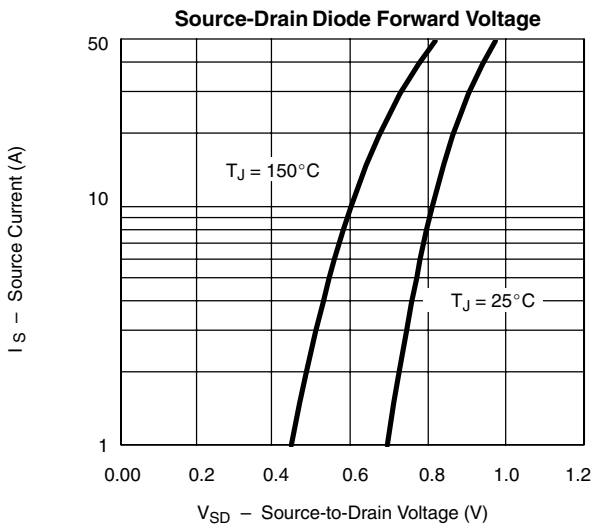
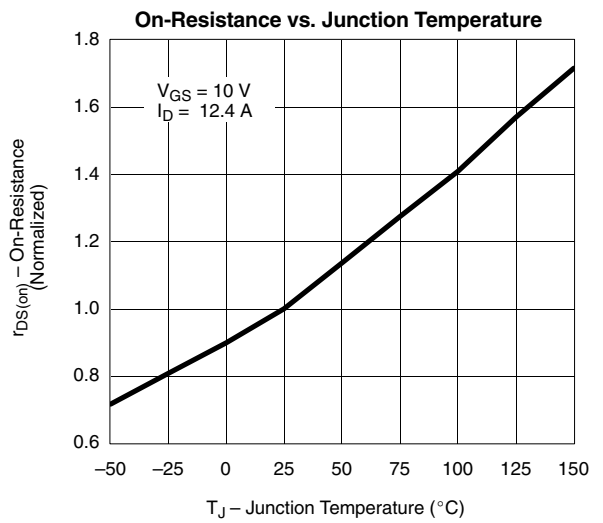
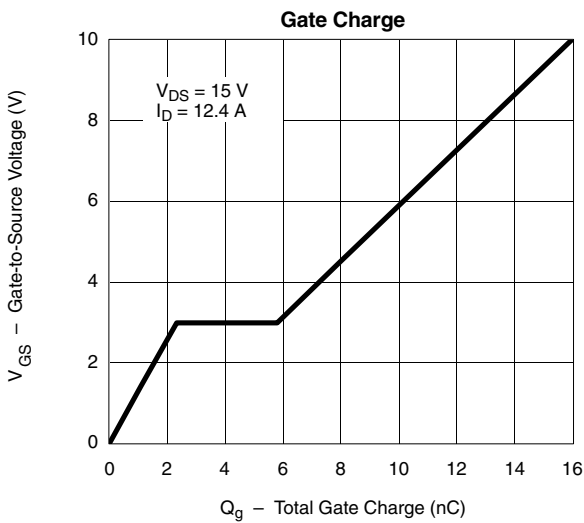
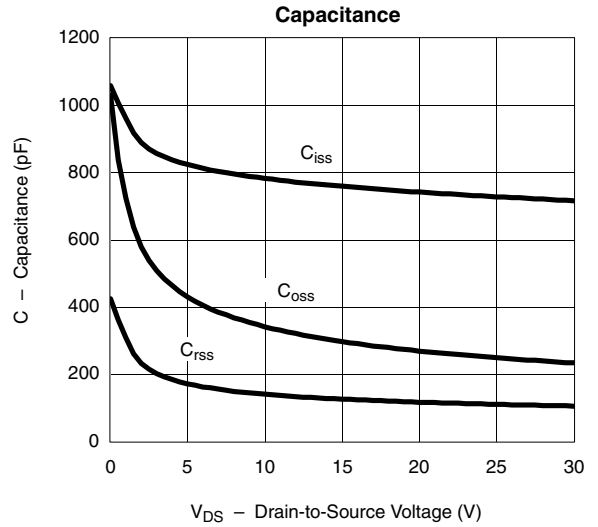
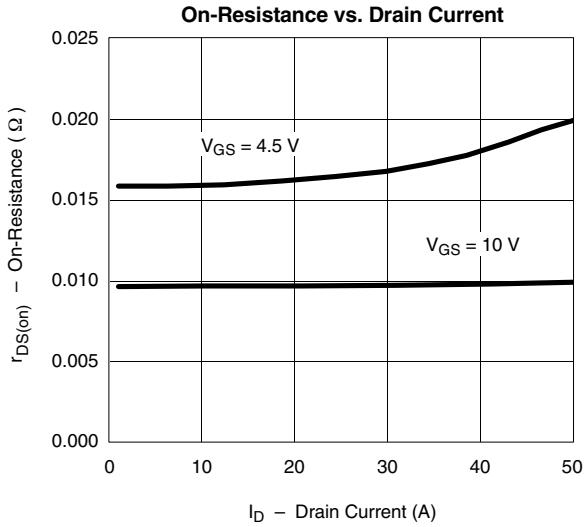
## Notes

- a. Pulse test; pulse width  $\leq 300\ \mu\text{s}$ , duty cycle  $\leq 2\%$ .  
b. Guaranteed by design, not subject to production testing.

**TYPICAL CHARACTERISTICS ( $25^\circ\text{C}$  UNLESS NOTED)**



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