



## N-Channel 30-V MOSFET

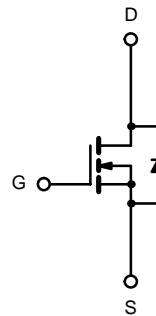
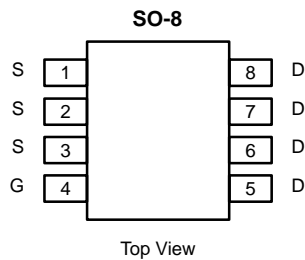
PRODUCT SUMMARY		
$V_{DS}$ (V)	$r_{DS(on)}$ ( $\Omega$ )	$I_D$ (A)
30	0.006 @ $V_{GS} = 10$ V	17
	0.0085 @ $V_{GS} = 4.5$ V	14

### FEATURES

- TrenchFET® Power MOSFETS
- 100%  $R_G$  Tested

### APPLICATIONS

- Buck Converter
- Synchronous Rectifier
  - Secondary Rectifier



N-Channel MOSFET

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>	$I_D$	$T_A = 25^\circ\text{C}$	17	12	A
		$T_A = 70^\circ\text{C}$	14	9	
Pulsed Drain Current	$I_{DM}$	$\pm 50$			
Continuous Source Current (Diode Conduction) <sup>a</sup>	$I_S$	2.7	1.40		
Maximum Power Dissipation <sup>a</sup>	$P_D$	$T_A = 25^\circ\text{C}$	3.0	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 RESISTANCE RATINGS					
Parameter	Symbol	Typical	Maximum	Unit	
Maximum Junction-to-Ambient (MOSFET) <sup>a</sup>	$R_{thJA}$	$t \leq 10$ sec	34	41	$^\circ\text{C/W}$
		Steady State	67	80	
Maximum Junction-to-Foot (Drain)	$R_{thJF}$	15	19		

Notes

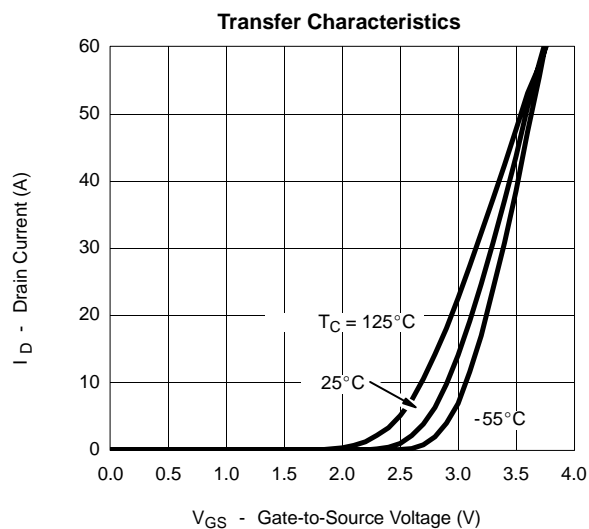
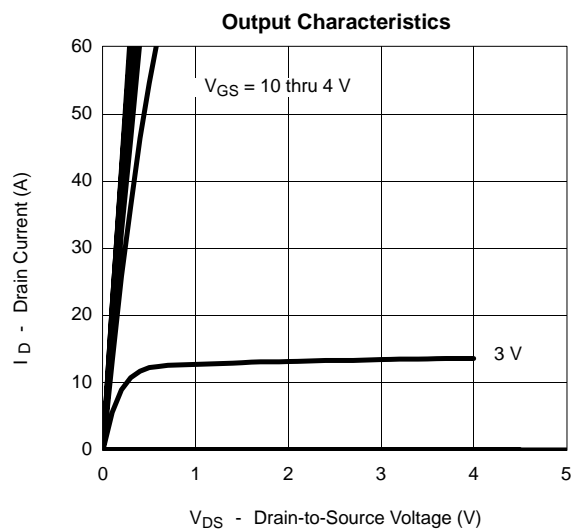
a. Surface Mounted on 1" x 1" FR4 Board.

**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	$V_{GS(th)}$	$V_{DS} = V_{GS}, I_D = 250 \mu\text{A}$	1.0		3.0	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	$I_{DSS}$	$V_{DS} = 24 \text{ V}, V_{GS} = 0 \text{ V}$			1	$\mu\text{A}$
		$V_{DS} = 24 \text{ V}, V_{GS} = 0 \text{ V}, T_J = 70^\circ\text{C}$			5	
On-State Drain Current <sup>a</sup>	$I_{D(on)}$	$V_{DS} \geq 5 \text{ V}, V_{GS} = 10 \text{ V}$	40			A
Drain-Source On-State Resistance <sup>a</sup>	$r_{DS(on)}$	$V_{GS} = 10 \text{ V}, I_D = 17 \text{ A}$		0.0046	0.006	$\Omega$
		$V_{GS} = 4.5 \text{ V}, I_D = 14 \text{ A}$		0.0066	0.0085	
Forward Transconductance <sup>a</sup>	$g_{fs}$	$V_{DS} = 15 \text{ V}, I_D = 17 \text{ A}$		57		S
Diode Forward Voltage <sup>a</sup>	$V_{SD}$	$I_S = 2.7 \text{ A}, V_{GS} = 0 \text{ V}$		0.72	1.1	V
<b>Dynamic<sup>b</sup></b>						
Total Gate Charge	$Q_g$	$V_{DS} = 15 \text{ V}, V_{GS} = 4.5 \text{ V}, I_D = 17 \text{ A}$		21	30	nC
Gate-Source Charge	$Q_{gs}$		8			
Gate-Drain Charge	$Q_{gd}$		7.2			
Gate-Resistance	$R_G$		0.5	1.5	2.6	$\Omega$
Turn-On Delay Time	$t_{d(on)}$	$V_{DD} = 15 \text{ V}, R_L = 15 \Omega$ $I_D \cong 1 \text{ A}, V_{GEN} = 10 \text{ V}, R_G = 6 \Omega$		16	25	ns
Rise Time	$t_r$		10	20		
Turn-Off Delay Time	$t_{d(off)}$		57	90		
Fall Time	$t_f$		16	25		
Source-Drain Reverse Recovery Time	$t_{rr}$	$I_F = 2.7 \text{ A}, di/dt = 100 \text{ A}/\mu\text{s}$		40	70	

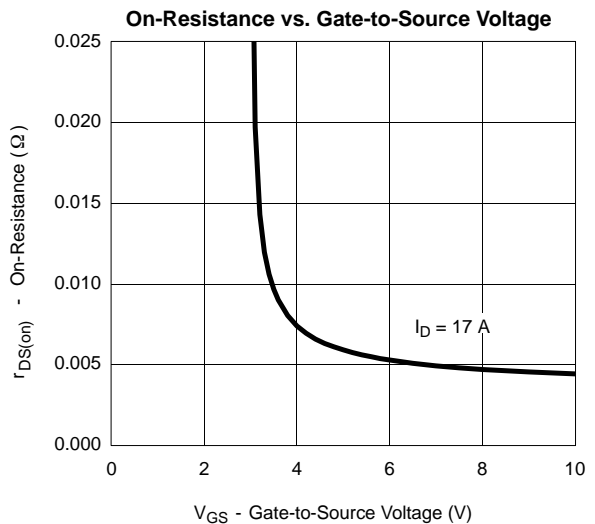
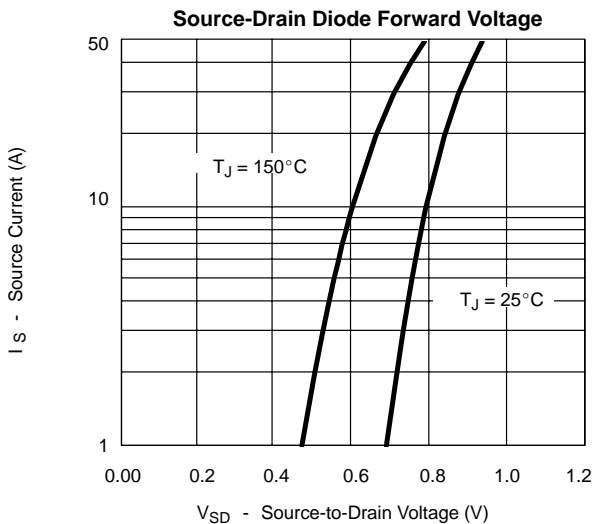
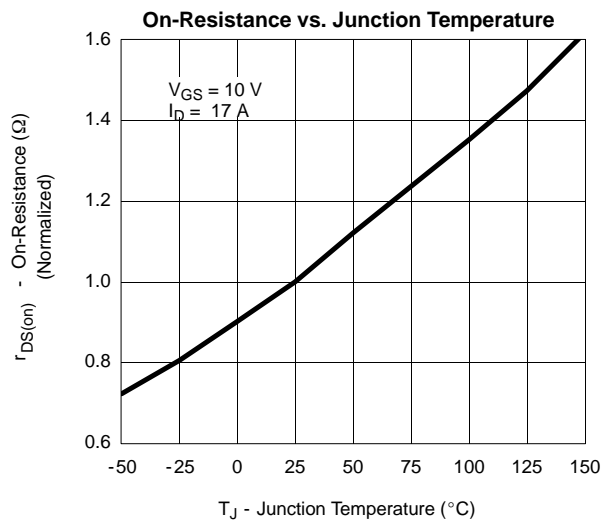
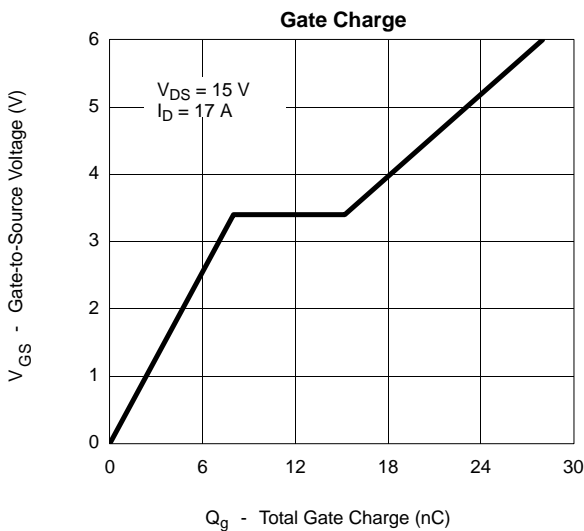
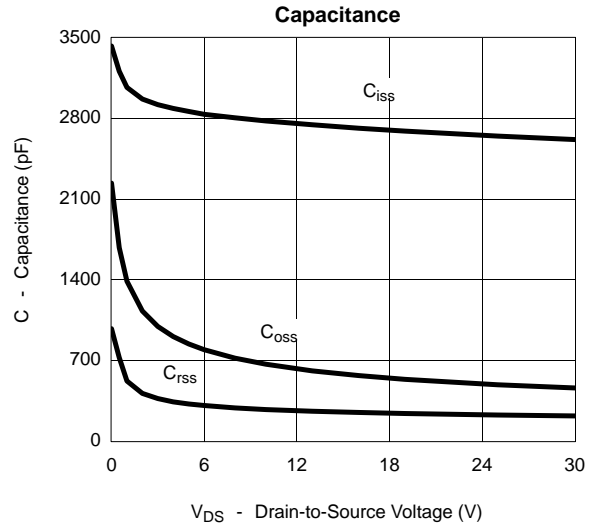
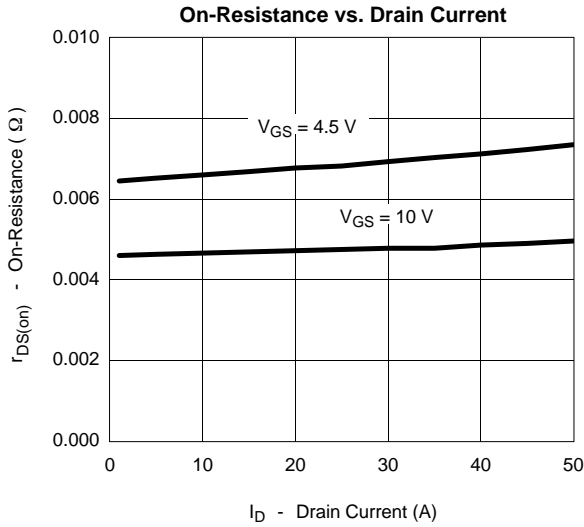
## Notes

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

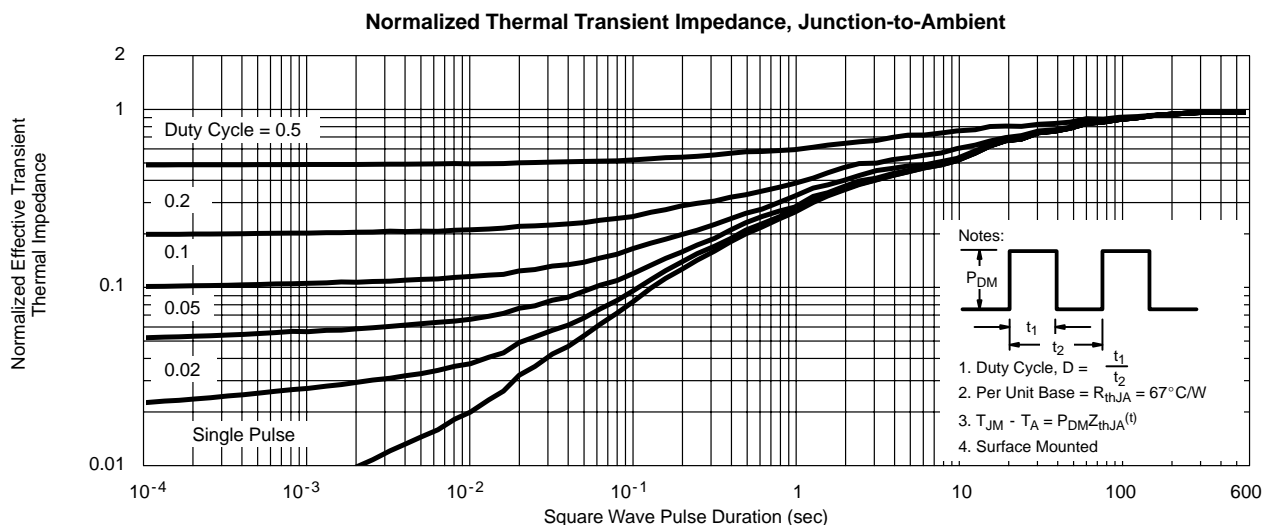
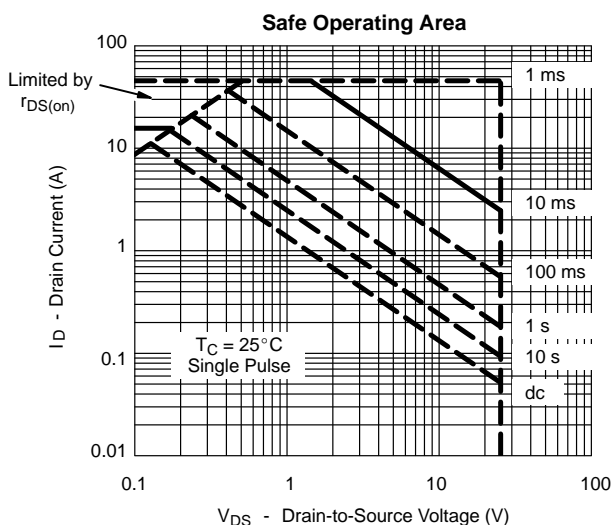
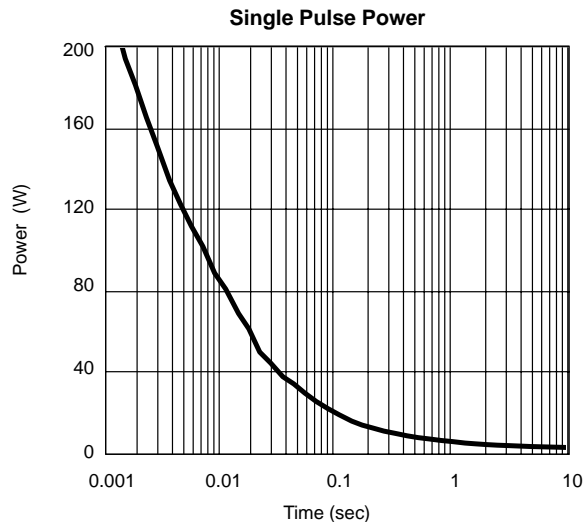
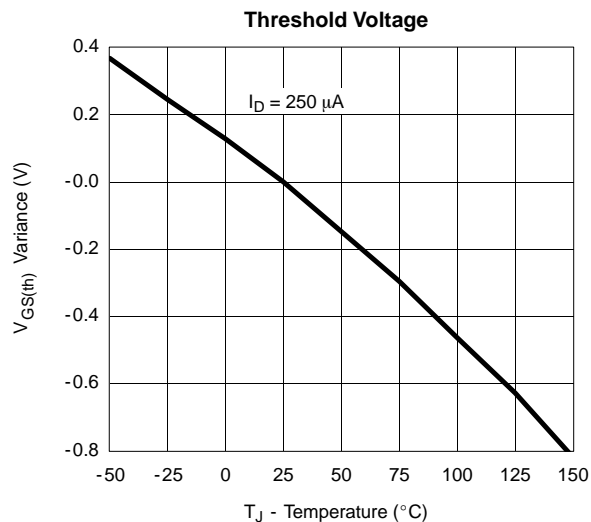
**TYPICAL CHARACTERISTICS ( $25^\circ\text{C}$  UNLESS NOTED)**



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