



## N-Channel 200-V (D-S) MOSFET

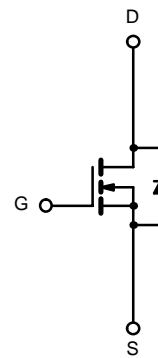
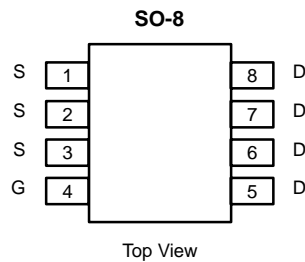
PRODUCT SUMMARY		
V <sub>DS</sub> (V)	r <sub>DS(on)</sub> (Ω)	I <sub>D</sub> (A)
200	0.240 @ V <sub>GS</sub> = 10 V	2.2
	0.260 @ V <sub>GS</sub> = 6.0 V	2.1

### FEATURES

- TrenchFET® Power MOSFET
- PWM Optimized for (Lowest Q<sub>g</sub> and Low R<sub>G</sub>)

### APPLICATIONS

- Primary Side Switch



N-Channel MOSFET

ABSOLUTE MAXIMUM RATINGS (T <sub>A</sub> = 25 °C UNLESS OTHERWISE NOTED)				
Parameter	Symbol	10 secs	Steady State	Unit
Drain-Source Voltage	V <sub>DS</sub>	200		V
Gate-Source Voltage	V <sub>GS</sub>	± 20		
Continuous Drain Current (T <sub>J</sub> = 150 °C) <sup>a</sup>	I <sub>D</sub>	T <sub>A</sub> = 25 °C	2.2	1.7
		T <sub>A</sub> = 70 °C	1.7	1.3
Pulsed Drain Current	I <sub>DM</sub>	8		A
Single Avalanch Current	I <sub>AS</sub>	3		
Single Avalanch Energy	E <sub>AS</sub>	0.45		
Continuous Source Current (Diode Conduction) <sup>a</sup>	I <sub>S</sub>	2.1	1.2	A
Maximum Power Dissipation <sup>a</sup>	P <sub>D</sub>	T <sub>A</sub> = 25 °C	2.5	1.5
		T <sub>A</sub> = 70 °C	1.6	0.9
Operating Junction and Storage Temperature Range	T <sub>J</sub> , T <sub>stg</sub>	-55 to 150		°C

THERMAL RESISTANCE RATINGS				
Parameter	Symbol	Typical	Maximum	Unit
Maximum Junction-to-Ambient <sup>a</sup>	R <sub>thJA</sub>	t ≤ 10 sec	37	50
		Steady State	68	85
Maximum Junction-to-Foot (Drain)	R <sub>thJF</sub>	17	21	°C/W

Notes

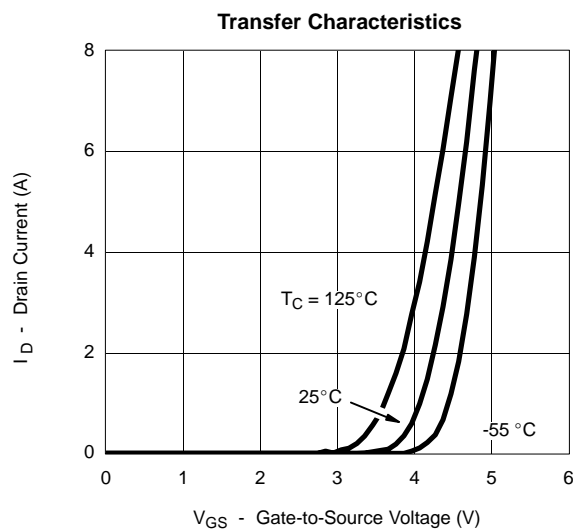
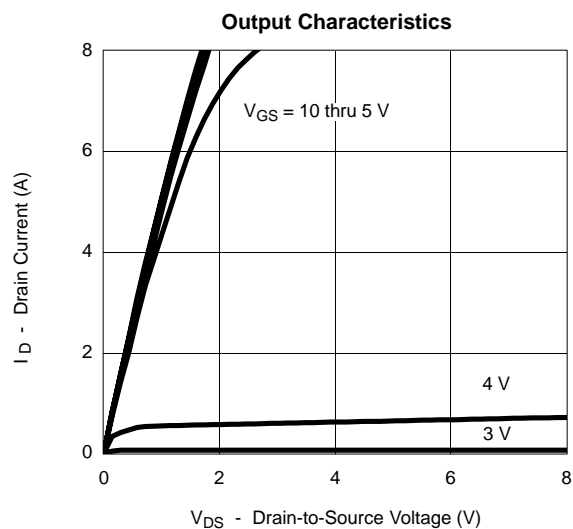
a. Surface Mounted on 1" x 1" FR4 Board.

**SPECIFICATIONS (T<sub>J</sub> = 25 °C UNLESS OTHERWISE NOTED)**

Parameter	Symbol	Test Condition	Min	Typ	Max	Unit
<b>Static</b>						
Gate Threshold Voltage	V <sub>GS(th)</sub>	V <sub>DS</sub> = V <sub>GS</sub> , I <sub>D</sub> = 250 μA	2.0		4	V
Gate-Body Leakage	I <sub>GSS</sub>	V <sub>DS</sub> = 0 V, V <sub>GS</sub> = ±20 V			±100	nA
Zero Gate Voltage Drain Current	I <sub>DSS</sub>	V <sub>DS</sub> = 160 V, V <sub>GS</sub> = 0 V			1	μA
		V <sub>DS</sub> = 160 V, V <sub>GS</sub> = 0 V, T <sub>J</sub> = 55°C			5	
On-State Drain Current <sup>a</sup>	I <sub>D(on)</sub>	V <sub>DS</sub> ≥ 5 V, V <sub>GS</sub> = 10 V	8			A
Drain-Source On-State Resistance <sup>a</sup>	r <sub>DS(on)</sub>	V <sub>GS</sub> = 10 V, I <sub>D</sub> = 2.2 A		0.195	0.240	Ω
		V <sub>GS</sub> = 6.0 V, I <sub>D</sub> = 2.1 A		0.210	0.260	
Forward Transconductance <sup>a</sup>	g <sub>fs</sub>	V <sub>DS</sub> = 15 V, I <sub>D</sub> = 2.2 A		8.0		S
Diode Forward Voltage <sup>a</sup>	V <sub>SD</sub>	I <sub>S</sub> = 2.1 A, V <sub>GS</sub> = 0 V		0.8	1.2	V
<b>Dynamic<sup>b</sup></b>						
Total Gate Charge	Q <sub>g</sub>	V <sub>DS</sub> = 100 V, V <sub>GS</sub> = 10 V, I <sub>D</sub> = 2.2 A		12	18	nC
Gate-Source Charge	Q <sub>gs</sub>			2.5		
Gate-Drain Charge	Q <sub>gd</sub>			3.8		
Gate Resistance	R <sub>G</sub>			2.5		Ω
Turn-On Delay Time	t <sub>d(on)</sub>	V <sub>DD</sub> = 100 V, R <sub>L</sub> = 100 Ω I <sub>D</sub> = 1.0 A, V <sub>GEN</sub> = 10 V, R <sub>G</sub> = 6 Ω		10	15	ns
Rise Time	t <sub>r</sub>			12	20	
Turn-Off Delay Time	t <sub>d(off)</sub>			15	25	
Fall Time	t <sub>f</sub>			15	25	
Source-Drain Reverse Recovery Time	t <sub>rr</sub>	I <sub>F</sub> = 2.1 A, di/dt = 100 A/μs		60	90	

## Notes

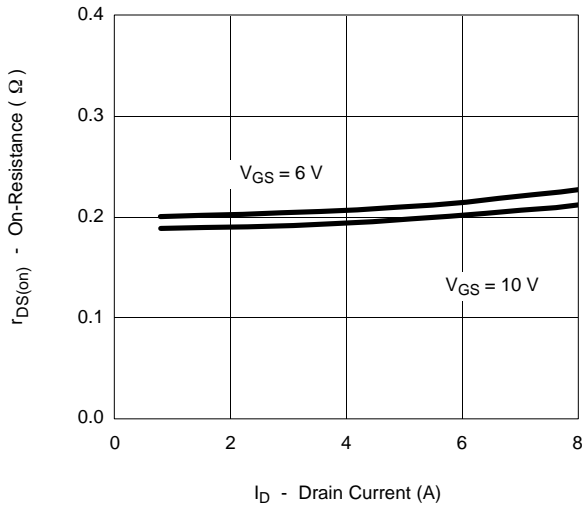
- a. Pulse test; pulse width ≤ 300 μs, duty cycle ≤ 2%.  
b. Guaranteed by design, not subject to production testing.

**TYPICAL CHARACTERISTICS (25 °C UNLESS NOTED)**

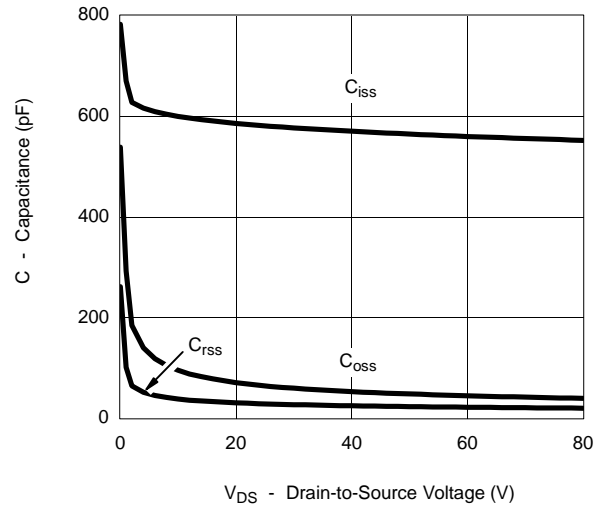


**TYPICAL CHARACTERISTICS (25°C UNLESS NOTED)**

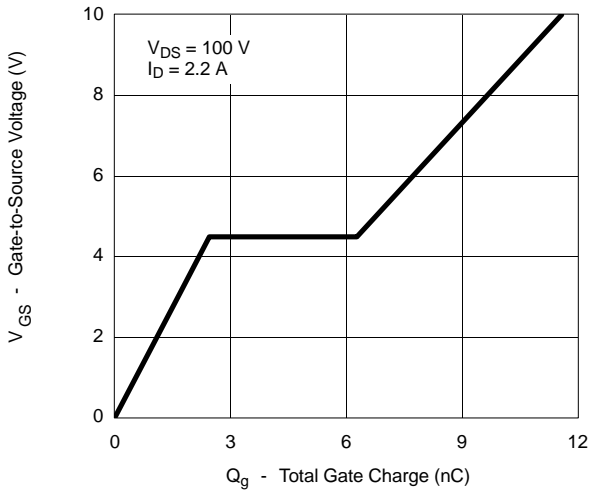
**On-Resistance vs. Drain Current**



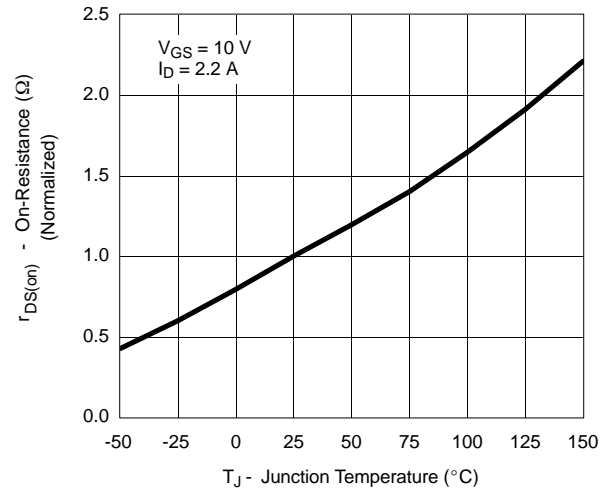
**Capacitance**



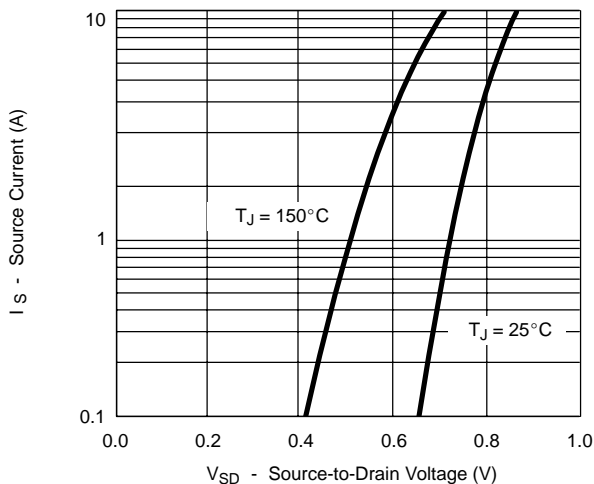
**Gate Charge**



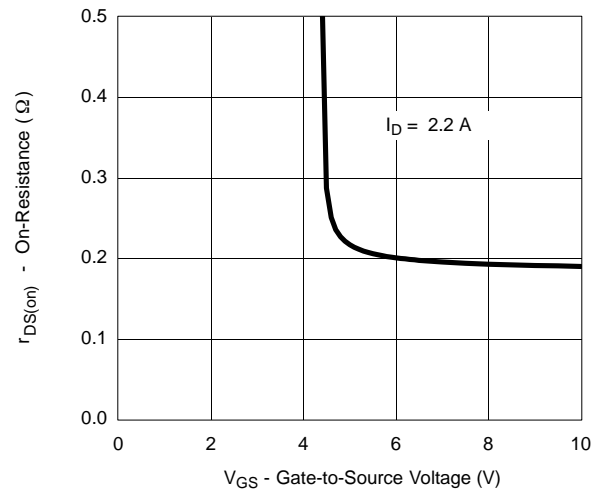
**On-Resistance vs. Junction Temperature**



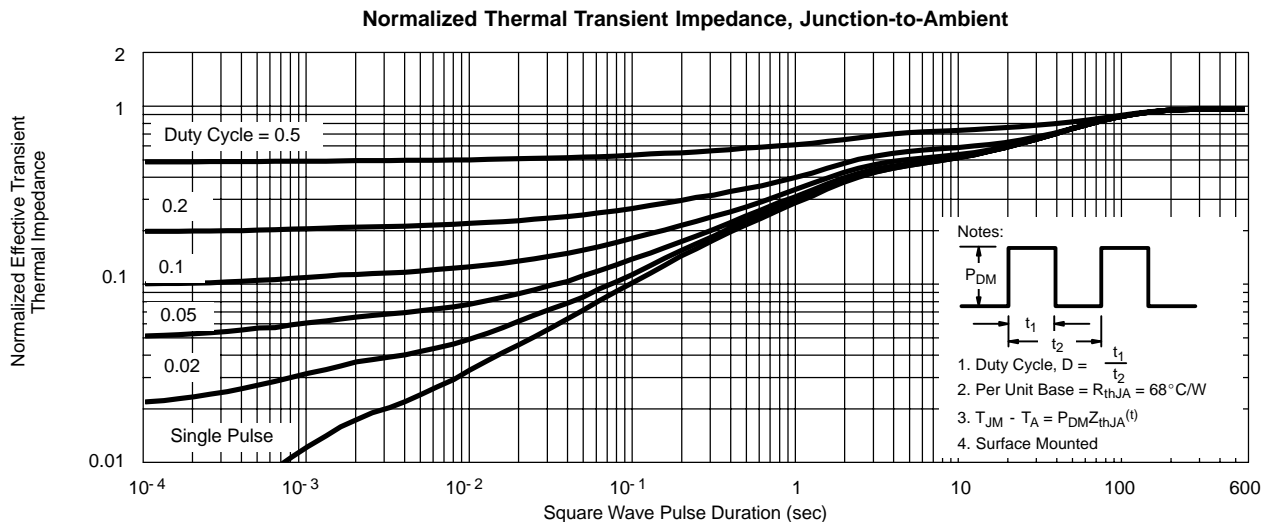
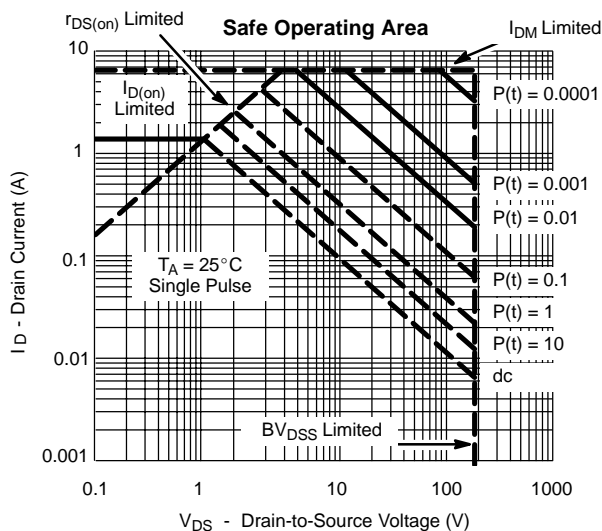
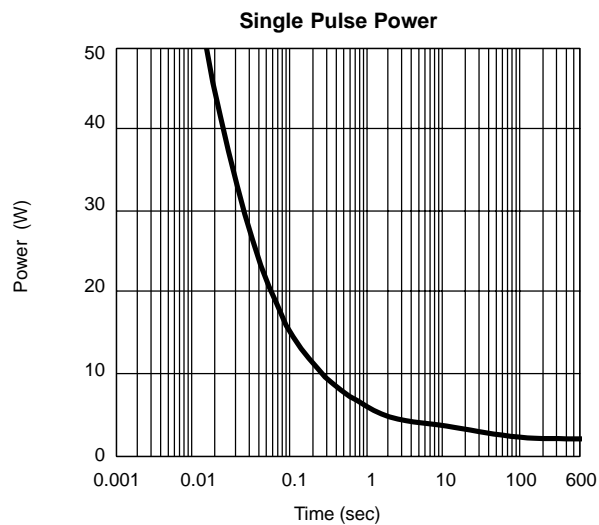
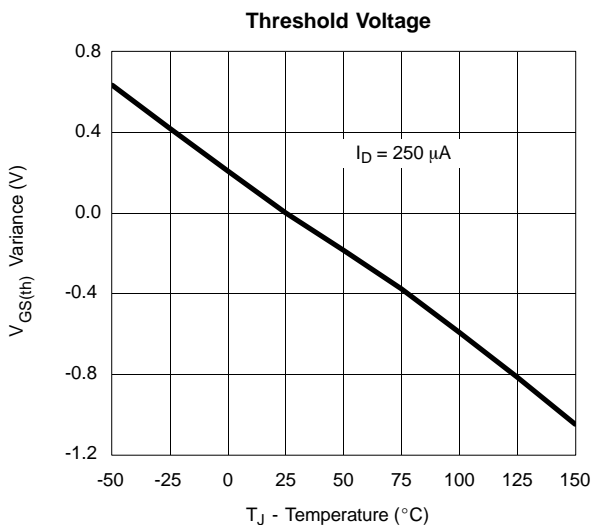
**Source-Drain Diode Forward Voltage**



**On-Resistance vs. Gate-to-Source Voltage**



**TYPICAL CHARACTERISTICS (25°C UNLESS NOTED)**





**TYPICAL CHARACTERISTICS (25°C UNLESS NOTED)**

Normalized Thermal Transient Impedance, Junction-to-Foot

