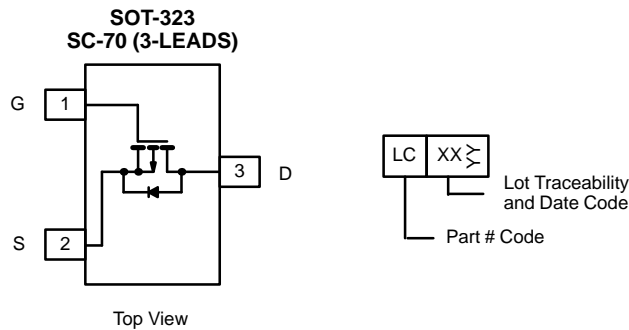


## P-Channel 1.8-V (G-S) MOSFET

**TrenchFET<sup>®</sup>**  
Power MOSFETs  
1.8-V Rated

PRODUCT SUMMARY		
$V_{DS}$ (V)	$r_{DS(on)}$ ( $\Omega$ )	$I_D$ (A)
-12	0.290 @ $V_{GS} = -4.5$ V	$\pm 0.91$
	0.435 @ $V_{GS} = -2.5$ V	$\pm 0.74$
	0.580 @ $V_{GS} = -1.8$ V	$\pm 0.64$



ABSOLUTE MAXIMUM RATINGS ( $T_A = 25^\circ\text{C}$ UNLESS OTHERWISE NOTED)					
Parameter		Symbol	5 secs	Steady State	Unit
Drain-Source Voltage		$V_{DS}$	-12		V
Gate-Source Voltage		$V_{GS}$	$\pm 8$		
Continuous Drain Current ( $T_J = 150^\circ\text{C}$ ) <sup>a</sup>	$T_A = 25^\circ\text{C}$	$I_D$	$\pm 0.91$	$\pm 0.85$	A
	$T_A = 70^\circ\text{C}$		$\pm 0.72$	$\pm 0.68$	
Pulsed Drain Current		$I_{DM}$	$\pm 3$		
Continuous Diode Current (Diode Conduction) <sup>a</sup>		$I_S$	-0.28	-0.24	
Maximum Power Dissipation <sup>a</sup>	$T_A = 25^\circ\text{C}$	$P_D$	0.34	0.29	W
	$T_A = 70^\circ\text{C}$		0.22	0.19	
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 <sup>a</sup>	$t \leq 5$ sec	$R_{thJA}$	315	375	$^\circ\text{C/W}$
	Steady State		360	430	
Maximum Junction-to-Foot (Drain)	Steady State	$R_{thJF}$	285	340	

Notes

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

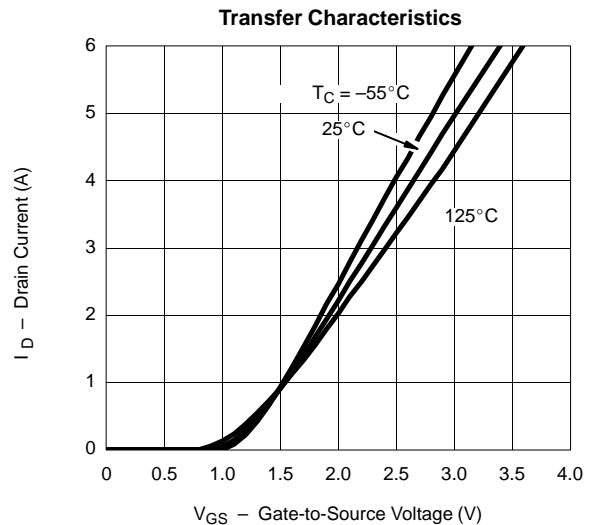
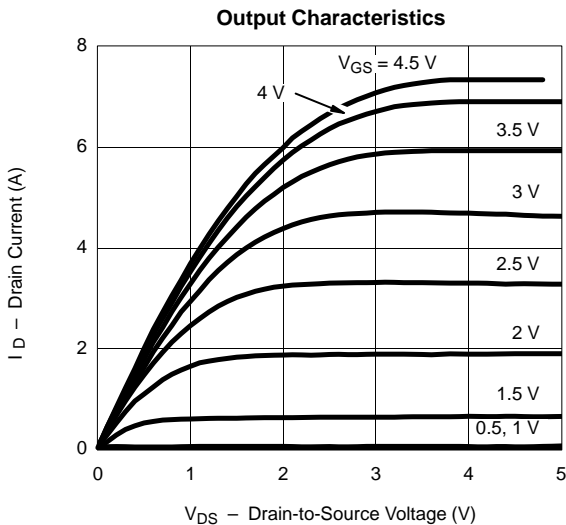


SPECIFICATIONS (T <sub>J</sub> = 25 °C UNLESS OTHERWISE NOTED)						
Parameter	Symbol	Test Condition	Min	Typ	Max	Unit
<b>Static</b>						
Gate Threshold Voltage	V <sub>GS(th)</sub>	V <sub>DS</sub> = V <sub>GS</sub> , I <sub>D</sub> = -250 μA	-0.45			V
Gate-Body Leakage	I <sub>GSS</sub>	V <sub>DS</sub> = 0 V, V <sub>GS</sub> = ±8 V			±100	nA
Zero Gate Voltage Drain Current	I <sub>DSS</sub>	V <sub>DS</sub> = -9.6 V, V <sub>GS</sub> = 0 V			-1	μA
		V <sub>DS</sub> = -9.6 V, V <sub>GS</sub> = 0 V, T <sub>J</sub> = 70 °C			-5	
On-State Drain Current <sup>a</sup>	I <sub>D(on)</sub>	V <sub>DS</sub> = -5 V, V <sub>GS</sub> = -4.5 V	-3			A
Drain-Source On-State Resistance <sup>a</sup>	r <sub>DS(on)</sub>	V <sub>GS</sub> = -4.5 V, I <sub>D</sub> = -1 A		0.240	0.290	Ω
		V <sub>GS</sub> = -2.5 V, I <sub>D</sub> = -0.5 A		0.350	0.435	
		V <sub>GS</sub> = -1.8 V, I <sub>D</sub> = -0.3 A		0.480	0.580	
Forward Transconductance <sup>a</sup>	g <sub>fs</sub>	V <sub>DS</sub> = -5 V, I <sub>D</sub> = -1 A		3.5		S
Diode Forward Voltage <sup>a</sup>	V <sub>SD</sub>	I <sub>S</sub> = -1 A, V <sub>GS</sub> = 0 V			-1.2	V
<b>Dynamic<sup>b</sup></b>						
Total Gate Charge	Q <sub>g</sub>	V <sub>DS</sub> = -6 V, V <sub>GS</sub> = -4.5 V, I <sub>D</sub> = -1 A		3.2	5	nC
Gate-Source Charge	Q <sub>gs</sub>			0.59		
Gate-Drain Charge	Q <sub>gd</sub>			0.56		
Turn-On Delay Time	t <sub>d(on)</sub>	V <sub>DD</sub> = -6 V, R <sub>L</sub> = 4 Ω I <sub>D</sub> ≅ -1 A, V <sub>GEN</sub> = -4.5 V, R <sub>G</sub> = 6 Ω		7.5	12	ns
Rise Time	t <sub>r</sub>			32	45	
Turn-Off Delay Time	t <sub>d(off)</sub>			17	25	
Fall Time	t <sub>f</sub>			11.5	20	
Source-Drain Reverse Recovery Time	t <sub>rr</sub>		I <sub>F</sub> = -1 A, di/dt = 100 A/μs		32	

Notes

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

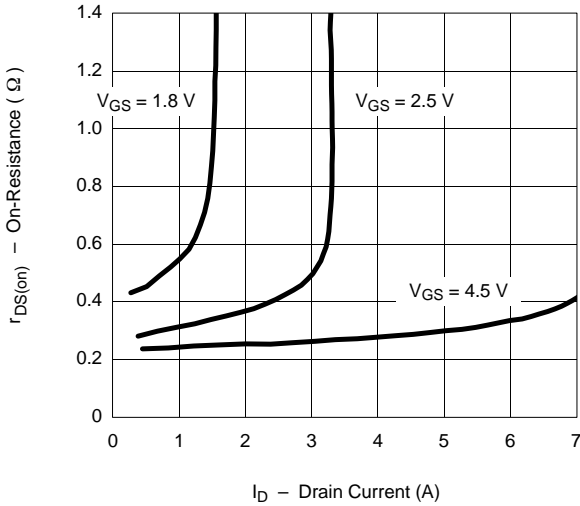
**TYPICAL CHARACTERISTICS (25 °C UNLESS NOTED)**



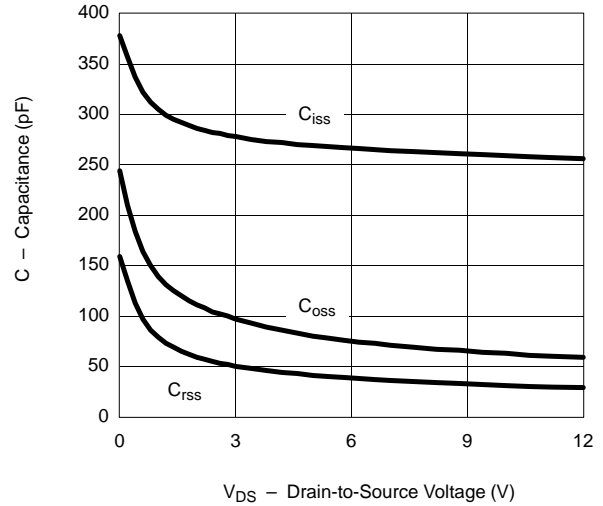


**TYPICAL CHARACTERISTICS (25°C UNLESS NOTED)**

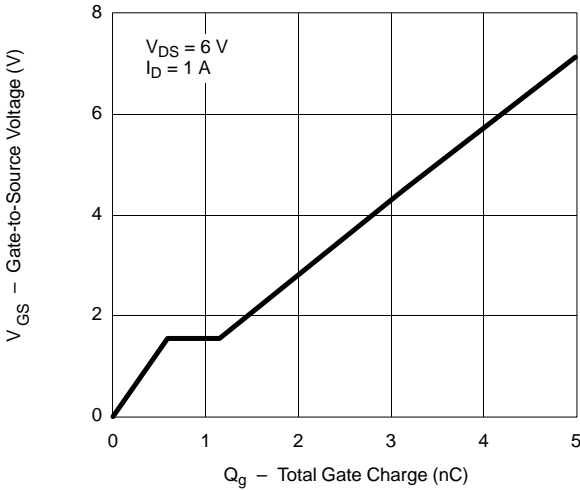
On-Resistance vs. Drain Current



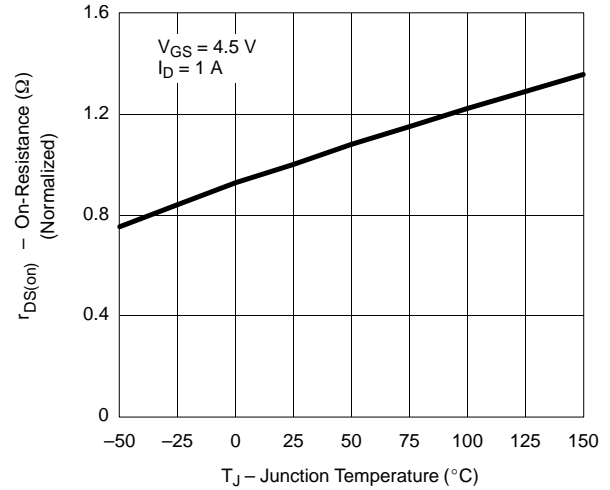
Capacitance



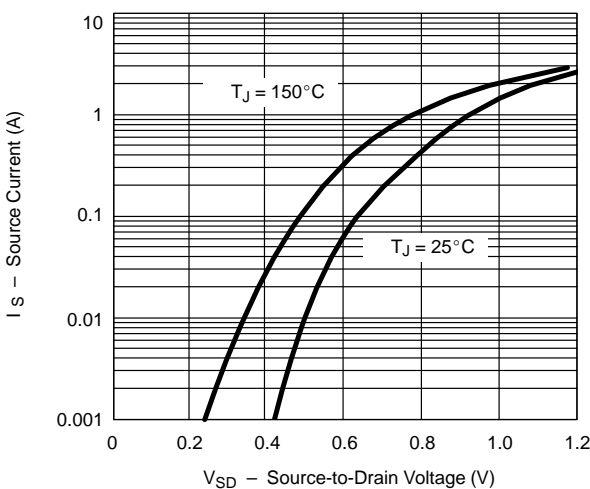
Gate Charge



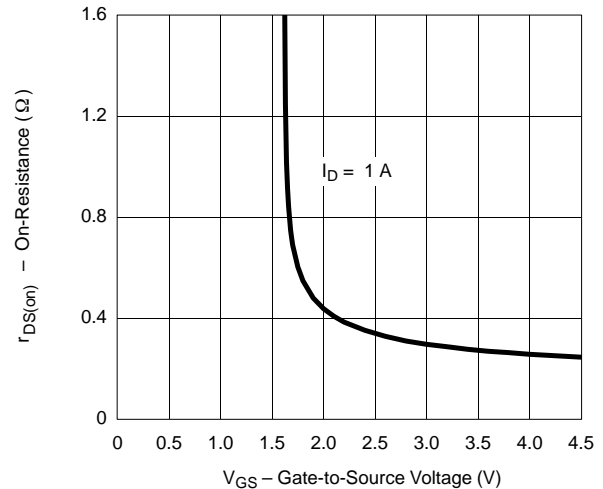
On-Resistance vs. Junction Temperature



Source-Drain Diode Forward Voltage

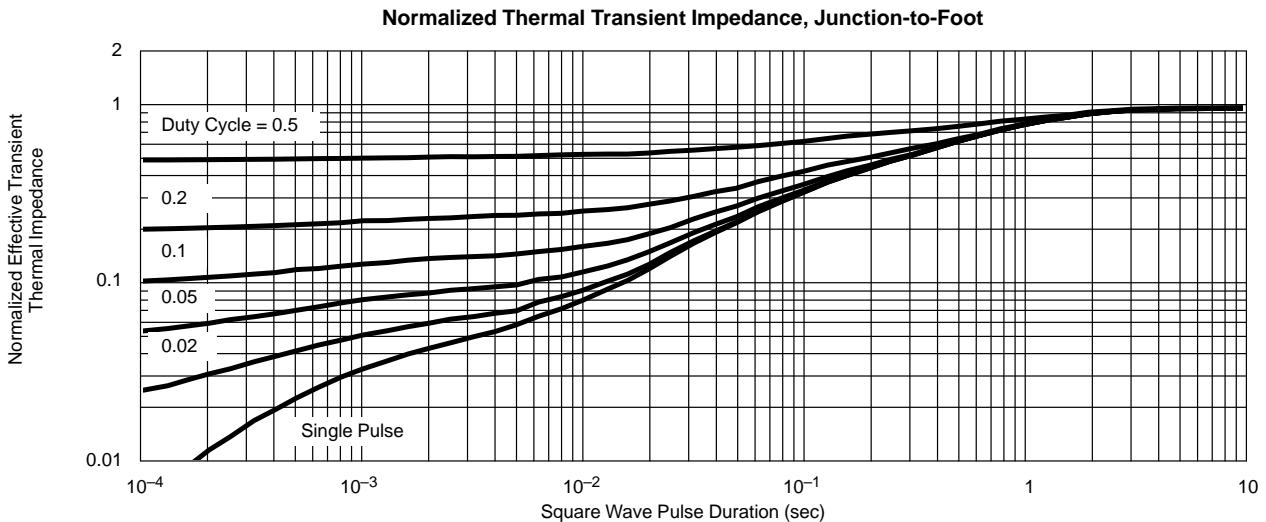
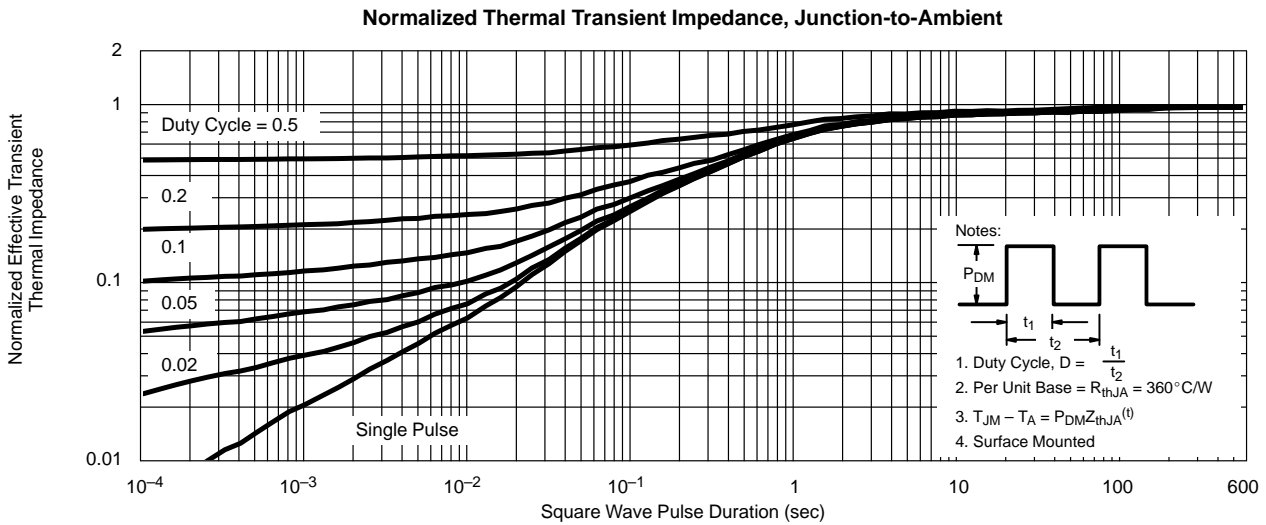
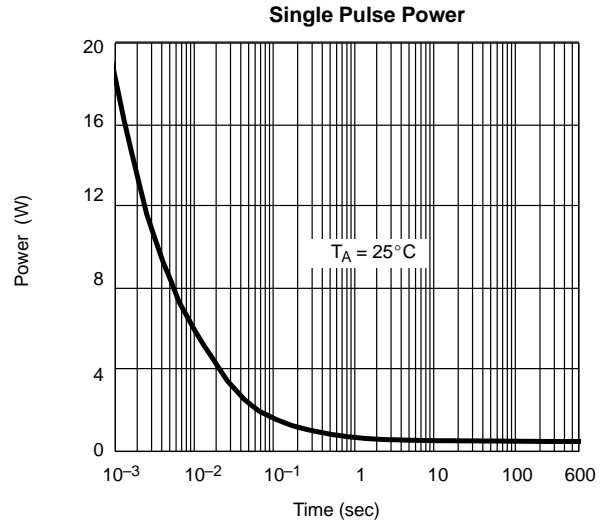
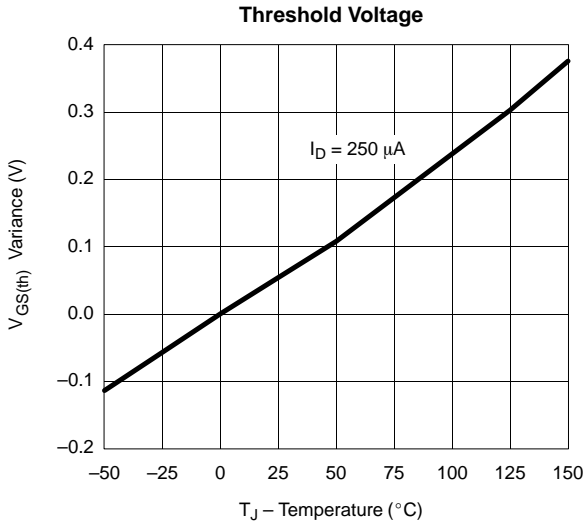


On-Resistance vs. Gate-to-Source Voltage





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





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