



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

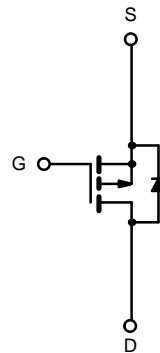
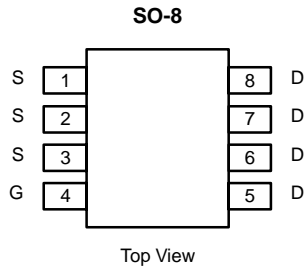
PRODUCT SUMMARY		
$V_{DS}$ (V)	$r_{DS(on)}$ ( $\Omega$ )	$I_D$ (A)
-20	0.017 @ $V_{GS} = -4.5$ V	-9
	0.023 @ $V_{GS} = -2.5$ V	-7
	0.032 @ $V_{GS} = -1.8$ V	-6

### FEATURES

- TrenchFET® Power MOSFETS

### APPLICATIONS

- Load Switch
  - Game Stations
  - Notebooks
  - Desktops



P-Channel MOSFET

ABSOLUTE MAXIMUM RATINGS ( $T_A = 25^\circ\text{C}$ UNLESS OTHERWISE NOTED)					
Parameter	Symbol	10 secs	Steady State	Unit	
Drain-Source Voltage	$V_{DS}$	-20		V	
Gate-Source Voltage	$V_{GS}$	$\pm 8$			
Continuous Drain Current ( $T_J = 150^\circ\text{C}$ ) <sup>a</sup>	$I_D$	$T_A = 25^\circ\text{C}$	-9	-6.5	A
		$T_A = 70^\circ\text{C}$	-7	-5.0	
Pulsed Drain Current	$I_{DM}$	-30			
continuous Source Current (Diode Conduction) <sup>a</sup>	$I_S$	-2.1	-1.3		
Maximum Power Dissipation <sup>a</sup>	$P_D$	$T_A = 25^\circ\text{C}$	2.5	1.35	W
		$T_A = 70^\circ\text{C}$	1.6	0.87	
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>	$R_{thJA}$	$t \leq 10$ sec	38	50	$^\circ\text{C/W}$
		Steady State	71	92	
Maximum Junction-to-Foot (Drain)	$R_{thJF}$	19	25		

Notes

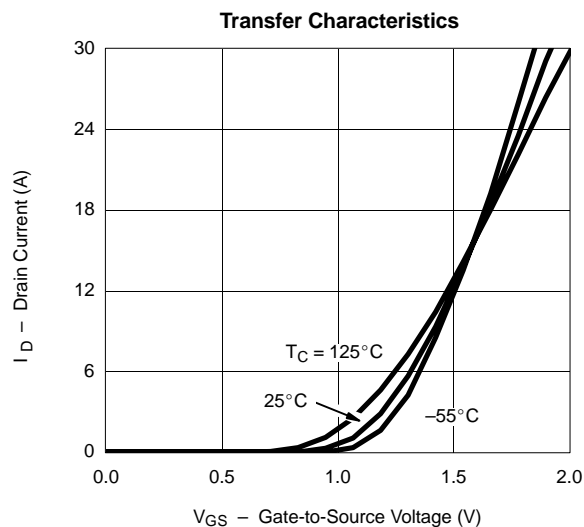
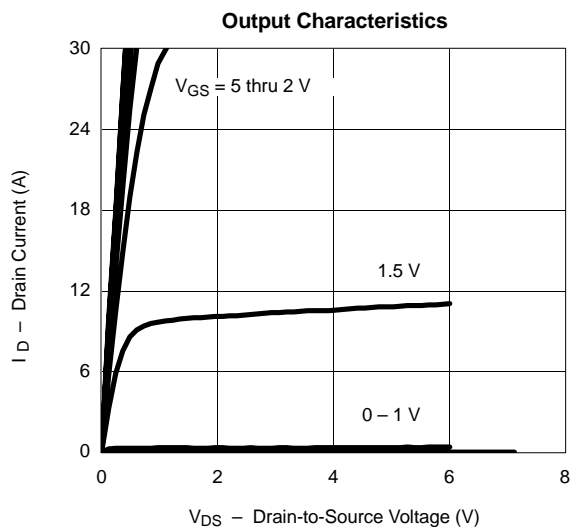
a Surface Mounted on 1" x 1" FR4 Board.

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

Parameter	Symbol	Test Condition	Min	Typ	Max	Unit
<b>Static</b>						
Gate Threshold Voltage	$V_{GS(th)}$	$V_{DS} = V_{GS}, I_D = -250\ \mu\text{A}$	-0.45			V
Gate-Body Leakage	$I_{GSS}$	$V_{DS} = 0\ \text{V}, V_{GS} = \pm 8\ \text{V}$			$\pm 100$	nA
Zero Gate Voltage Drain Current	$I_{DSS}$	$V_{DS} = -16\ \text{V}, V_{GS} = 0\ \text{V}$			-1	$\mu\text{A}$
		$V_{DS} = -16\ \text{V}, V_{GS} = 0\ \text{V}, T_J = 70^\circ\text{C}$			-10	
On-State Drain Current <sup>a</sup>	$I_{D(on)}$	$V_{DS} = -5\ \text{V}, V_{GS} = -4.5\ \text{V}$	20			A
Drain-Source On-State Resistance <sup>a</sup>	$r_{DS(on)}$	$V_{GS} = -4.5\ \text{V}, I_D = -7.4\ \text{A}$		0.014	0.017	$\Omega$
		$V_{GS} = -2.5\ \text{V}, I_D = -6.3\ \text{A}$		0.018	0.023	
		$V_{GS} = -1.8\ \text{V}, I_D = -5.5\ \text{A}$		0.024	0.032	
Forward Transconductance <sup>a</sup>	$g_{fs}$	$V_{DS} = -15\ \text{V}, I_D = -7.4\ \text{A}$		28		S
Diode Forward Voltage <sup>a</sup>	$V_{SD}$	$I_S = -1.3\ \text{A}, V_{GS} = 0\ \text{V}$		-0.64	-1.1	V
<b>Dynamic<sup>b</sup></b>						
Total Gate Charge	$Q_g$	$V_{DS} = -10\ \text{V}, V_{GS} = -5\ \text{V}, I_D = -7.4\ \text{A}$		30.5	50	nC
Gate-Source Charge	$Q_{gs}$		5.3			
Gate-Drain Charge	$Q_{gd}$		3.8			
Turn-On Delay Time	$t_{d(on)}$	$V_{DD} = -10\ \text{V}, R_L = 15\ \Omega$ $I_D \cong -1\ \text{A}, V_{GEN} = -4.5\ \text{V}, R_G = 6\ \Omega$		30	50	ns
Rise Time	$t_r$		30	50		
Turn-Off Delay Time	$t_{d(off)}$		110	200		
Fall Time	$t_f$		65	110		
Source-Drain Reverse Recovery Time	$t_{rr}$	$I_F = -1.3\ \text{A}, di/dt = 100\ \text{A}/\mu\text{s}$		45	80	

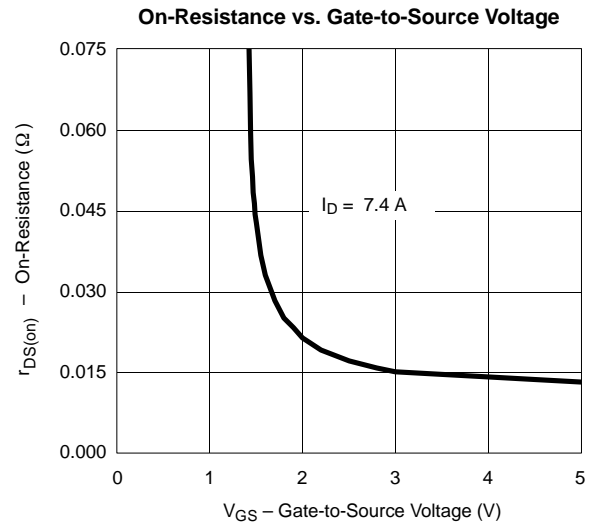
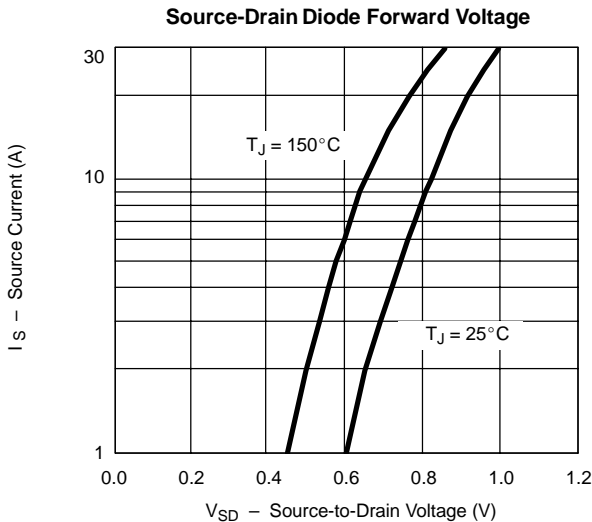
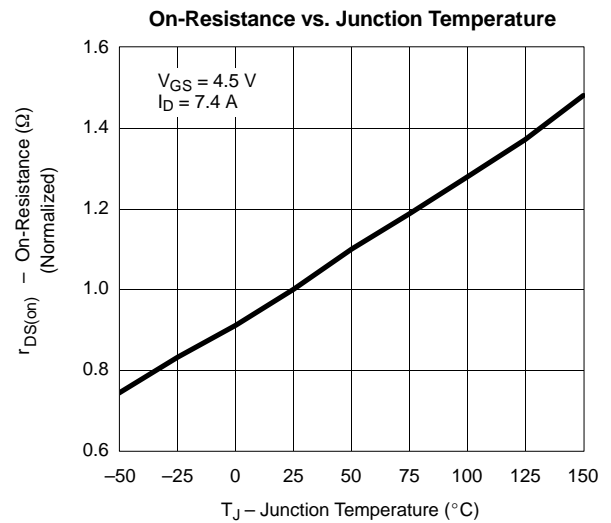
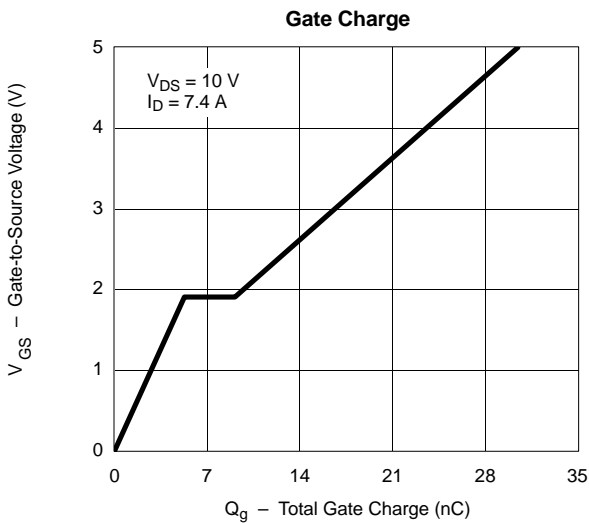
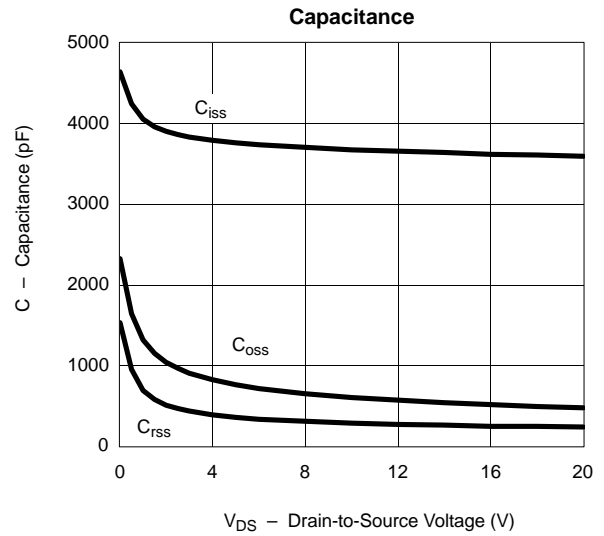
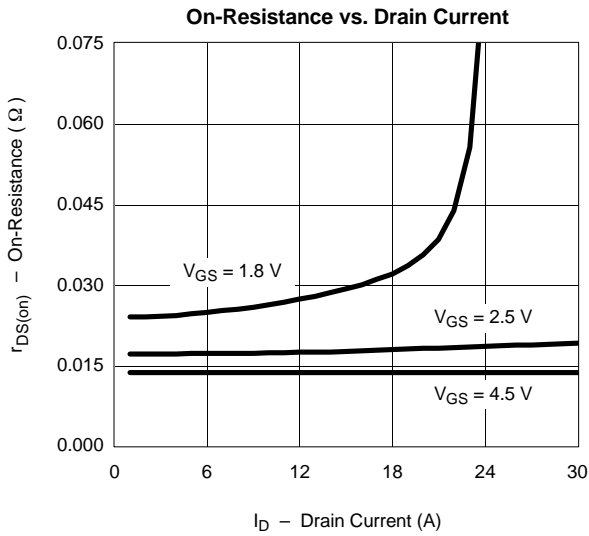
## Notes

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

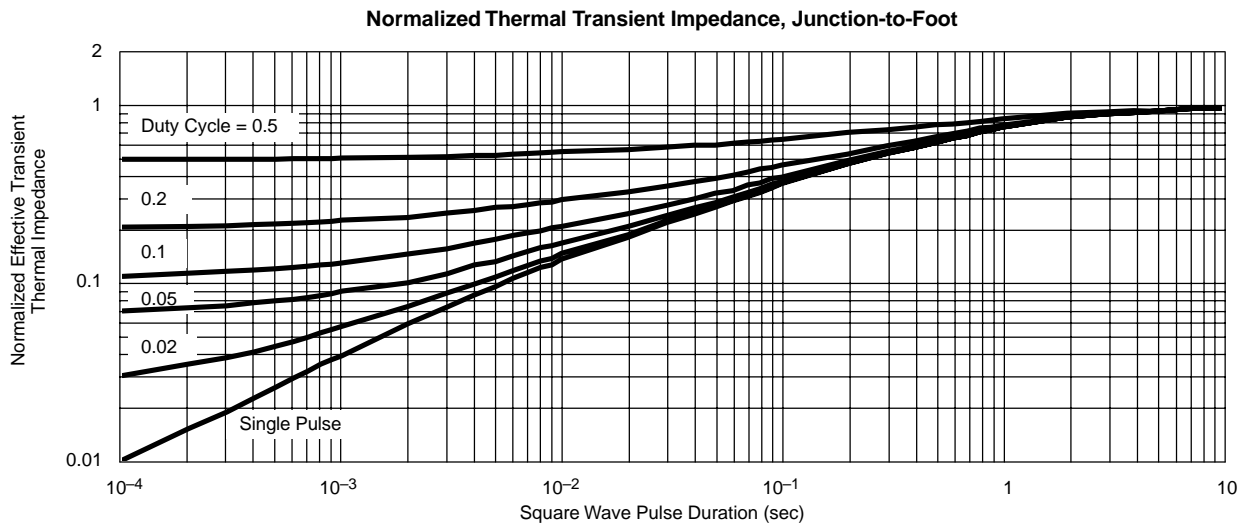
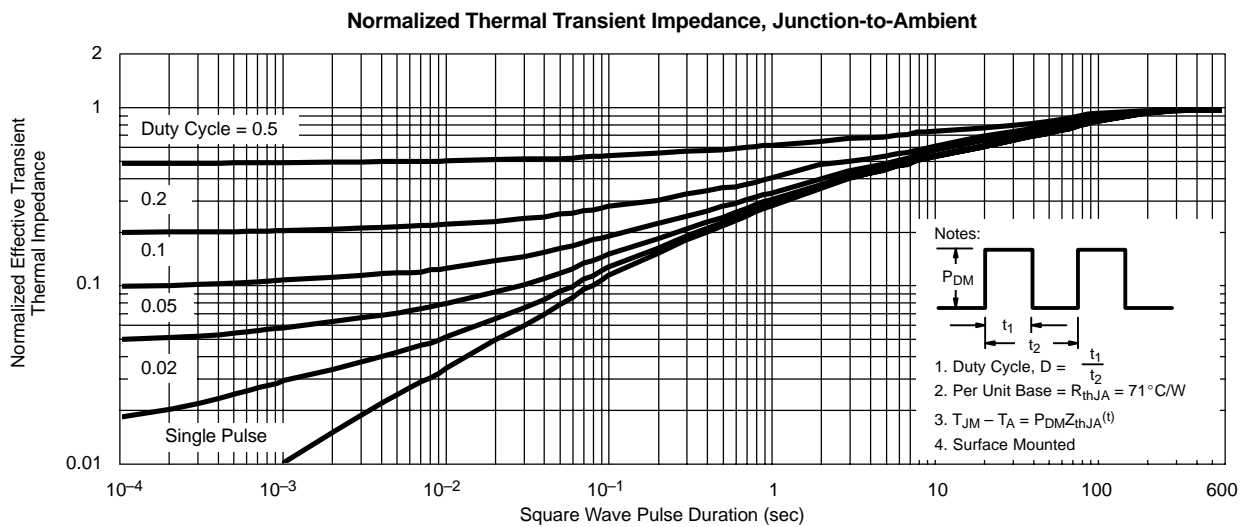
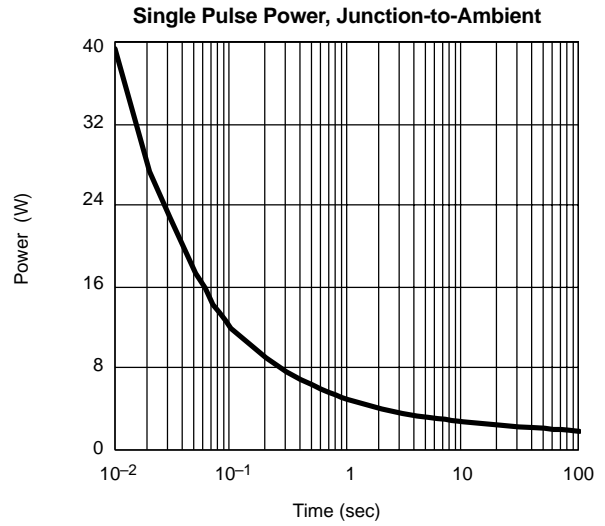
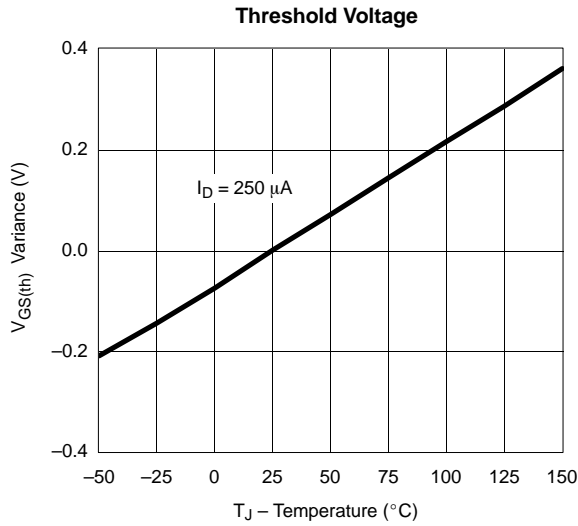
**TYPICAL CHARACTERISTICS ( $25^\circ\text{C}$  UNLESS NOTED)**



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