



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

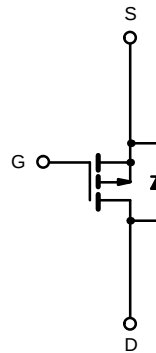
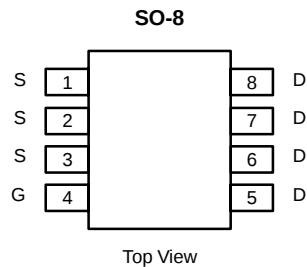
PRODUCT SUMMARY		
V_{DS} (V)	$r_{DS(on)}$ (Ω)	I_D (A)
-20	0.110 @ $V_{GS} = -4.5$ V	-3.9
	0.160 @ $V_{GS} = -2.5$ V	-3.2
	0.240 @ $V_{GS} = -1.8$ V	-2.6

FEATURES

- TrenchFET® Power MOSFET
- Fast Switching

APPLICATION

- DC-DC Conversion
- Asynchronous Buck Converter
- Voltage Inverter



P-Channel MOSFET

ABSOLUTE MAXIMUM RATINGS (T _A = 25°C UNLESS OTHERWISE NOTED)					
Parameter		Symbol	10 secs	Steady State	Unit
Drain-Source Voltage		V _{DS}	−20		V
Gate-Source Voltage		V _{GS}	±8		
Continuous Drain Current (T _J = 150°C) ^a	T _A = 25°C	I _D	−3.9	−2.9	A
	T _A = 85°C		−2.8	−2.1	
Pulsed Drain Current		I _{DM}	−10		
Continuous Source Current (Diode Conduction) ^a		I _S	−2.1	−1.2	
Maximum Power Dissipation ^a	T _A = 25°C	P _D	2.5	1.4	W
	T _A = 85°C		1.3	0.7	
Operating Junction and Storage Temperature Range		T _J , T _{stg}	−55 to 150		°C

THERMAL RESISTANCE RATINGS					
Parameter		Symbol	Typical	Maximum	Unit
Maximum Junction-to-Ambient ^a	$t \leq 10$ sec	R_{thJA}	40	50	$^\circ\text{C/W}$
	Steady State		75	90	
Maximum Junction-to-Foot (Drain)	Steady State	R_{thJF}	19	25	

Notes

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

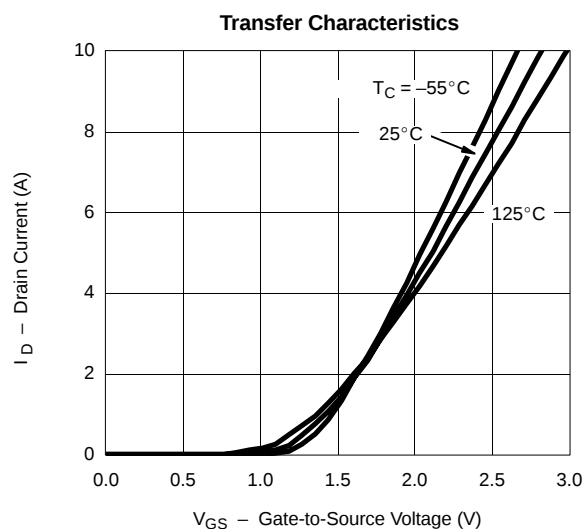
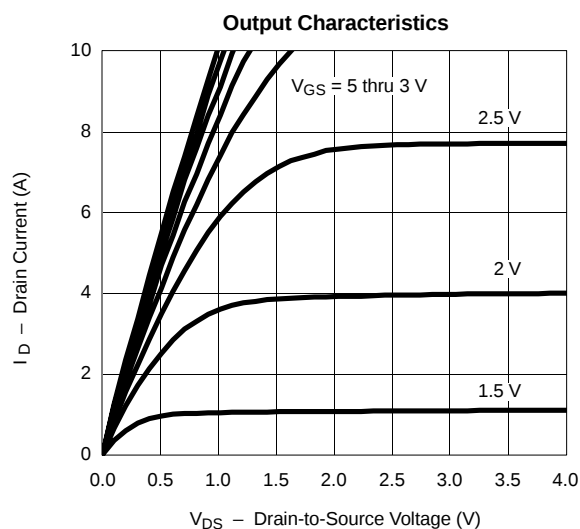
SPECIFICATIONS ($T_J = 25^\circ\text{C}$ UNLESS OTHERWISE NOTED)

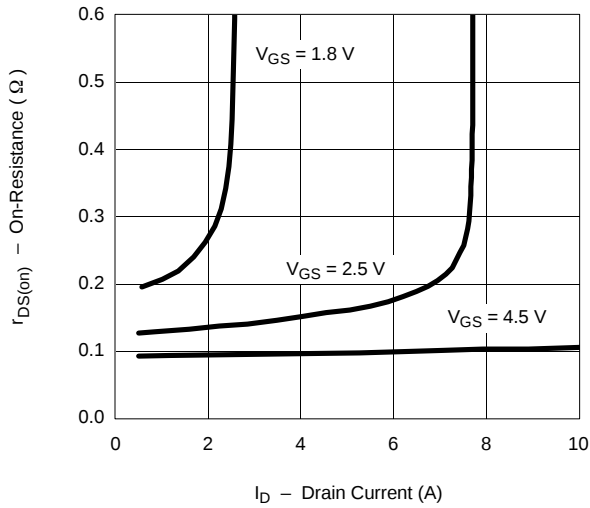
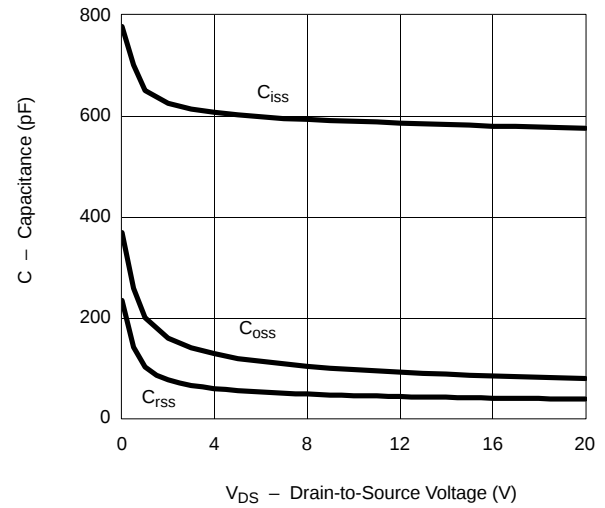
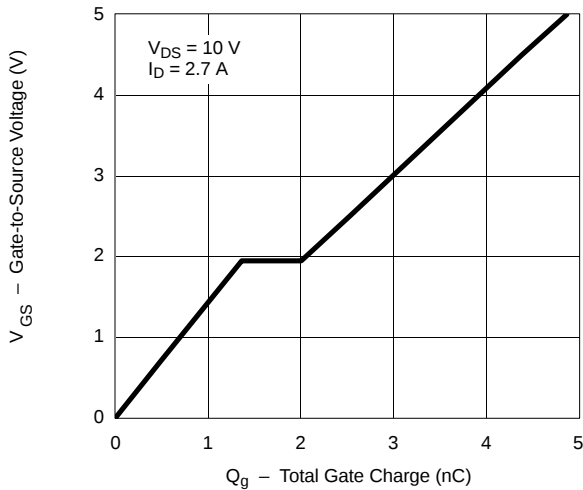
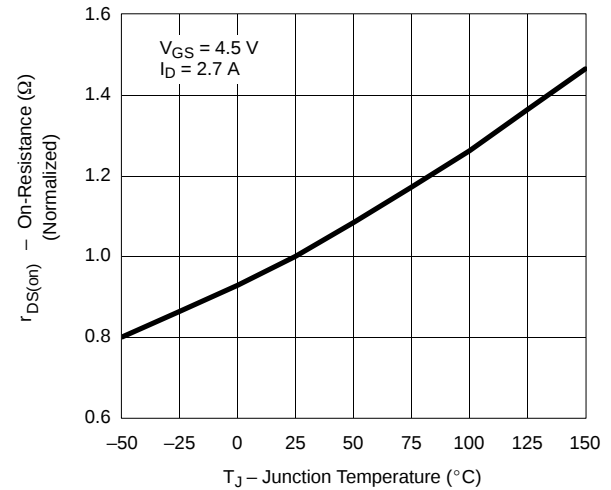
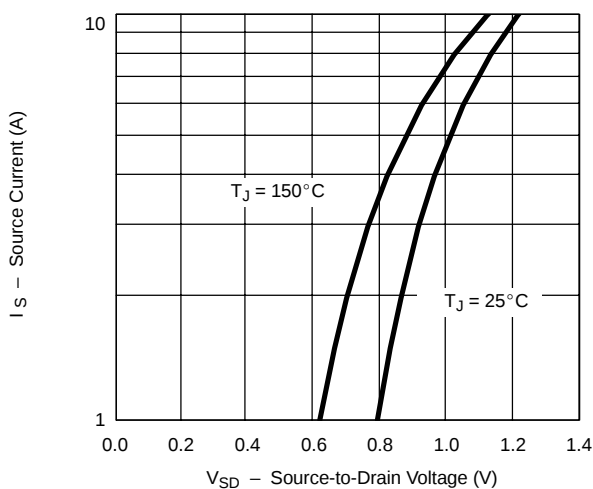
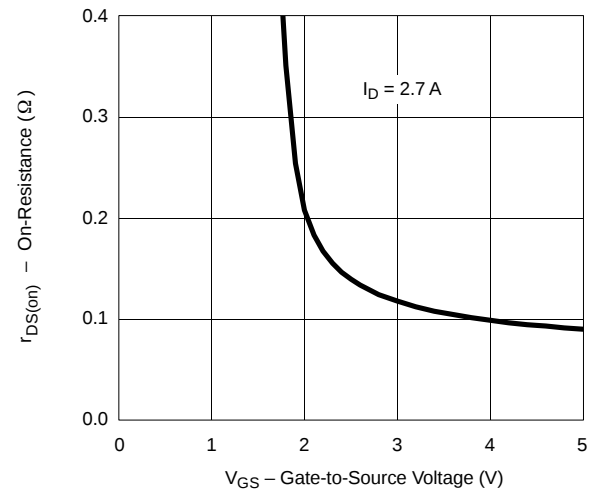
Parameter	Symbol	Test Condition	Min	Typ	Max	Unit
Static						
Gate Threshold Voltage	$V_{GS(th)}$	$V_{DS} = V_{GS}$, $I_D = -250\ \mu\text{A}$	-0.45			V
Gate-Body Leakage	I_{GSS}	$V_{DS} = 0\ \text{V}$, $V_{GS} = \pm 8\ \text{V}$			± 100	nA
Zero Gate Voltage Drain Current	I_{DSS}	$V_{DS} = -16\ \text{V}$, $V_{GS} = 0\ \text{V}$			-1	μA
		$V_{DS} = -16\ \text{V}$, $V_{GS} = 0\ \text{V}$, $T_J = 85^\circ\text{C}$			-5	
On-State Drain Current ^a	$I_{D(on)}$	$V_{DS} \leq -5\ \text{V}$, $V_{GS} = -4.5\ \text{V}$	-10			A
Drain-Source On-State Resistance ^a	$r_{DS(on)}$	$V_{GS} = -4.5\ \text{V}$, $I_D = -2.7\ \text{A}$		0.095	0.110	Ω
		$V_{GS} = -2.5\ \text{V}$, $I_D = -2.2\ \text{A}$		0.137	0.160	
		$V_{GS} = -1.8\ \text{V}$, $I_D = -1\ \text{A}$		0.205	0.240	
Forward Transconductance ^a	g_{fs}	$V_{DS} = -10\ \text{V}$, $I_D = -2.7\ \text{A}$		7		S
Diode Forward Voltage ^a	V_{SD}	$I_S = -0.9\ \text{A}$, $V_{GS} = 0\ \text{V}$		-0.8	-1.2	V
Dynamic^b						
Total Gate Charge	Q_g	$V_{DS} = -10\ \text{V}$, $V_{GS} = -4.5\ \text{V}$, $I_D = -2.7\ \text{A}$		4.4	6.5	nC
Gate-Source Charge	Q_{GS}			1.4		
Gate-Drain Charge	Q_{gd}			0.65		
Turn-On Delay Time	$t_{d(on)}$	$V_{DD} = -10\ \text{V}$, $R_L = 10\ \Omega$ $I_D \cong -1\ \text{A}$, $V_{GEN} = -4.5\ \text{V}$, $R_G = 6\ \Omega$		16	25	ns
Rise Time	t_r			30	45	
Turn-Off Delay Time	$t_{d(off)}$			30	45	
Fall Time	t_f			27	40	
Source-Drain Reverse Recovery Time	t_{rr}	$I_F = -0.9\ \text{A}$, $di/dt = 100\ \text{A}/\mu\text{s}$		20	40	

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°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)
