

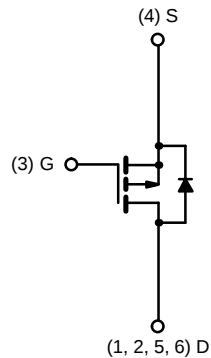
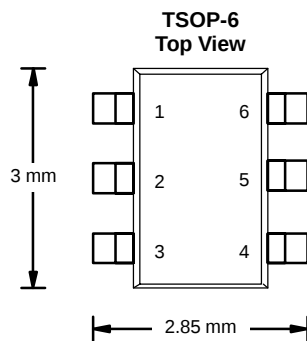


P-Channel 1.8-V (G-S) MOSFET

PRODUCT SUMMARY

V_{DS} (V)	$r_{DS(on)}$ (Ω)	I_D (A)
-20	0.042 @ $V_{GS} = -4.5$ V	-5.6
	0.057 @ $V_{GS} = -2.5$ V	-4.8
	0.080 @ $V_{GS} = -1.8$ V	-4.1

TrenchFET[®]
Power MOSFETs
1.8-V Rated



P-Channel MOSFET

ABSOLUTE MAXIMUM RATINGS ($T_A = 25^\circ\text{C}$ UNLESS OTHERWISE NOTED)

Parameter		Symbol	5 secs	Steady State	Unit
Drain-Source Voltage		V_{DS}	-20		V
Gate-Source Voltage		V_{GS}	± 8		
Continuous Drain Current ($T_J = 150^{\circ}\text{C}$) ^a	$T_A = 25^{\circ}\text{C}$	I_D	-5.6	-4.3	A
	$T_A = 85^{\circ}\text{C}$		-4.1	-3.1	
Pulsed Drain Current		I_{DM}	-20		
Continuous Diode Current (Diode Conduction) ^a		I_S	-1.7	-0.9	
Maximum Power Dissipation ^a	$T_A = 25^{\circ}\text{C}$	P_D	2.0	1.1	W
	$T_A = 85^{\circ}\text{C}$		1.0	0.6	
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 ^a	$t \leq 5$ sec	R_{thJA}	45	62.5	$^\circ\text{C/W}$
	Steady State		90	110	
Maximum Junction-to-Foot (Drain)	Steady State	R_{thJF}	25	30	

Notes

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

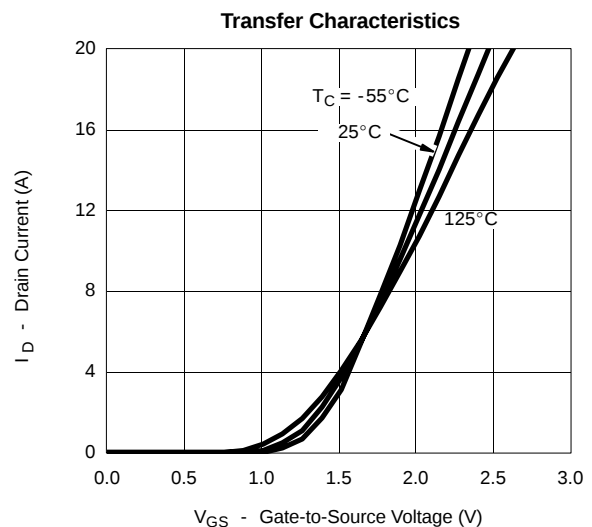
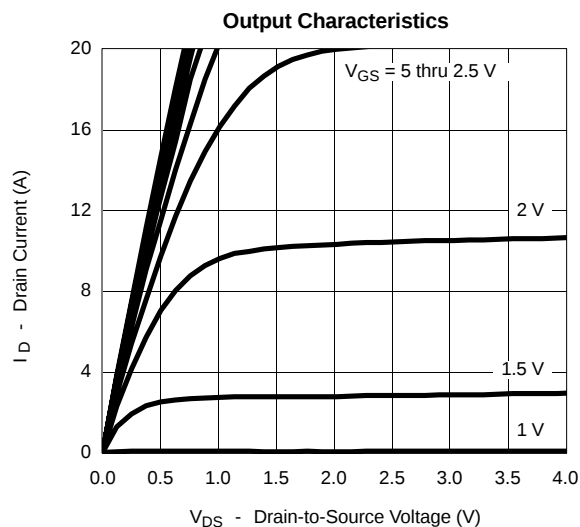
SPECIFICATIONS ($T_J = 25^\circ\text{C}$ UNLESS OTHERWISE NOTED)

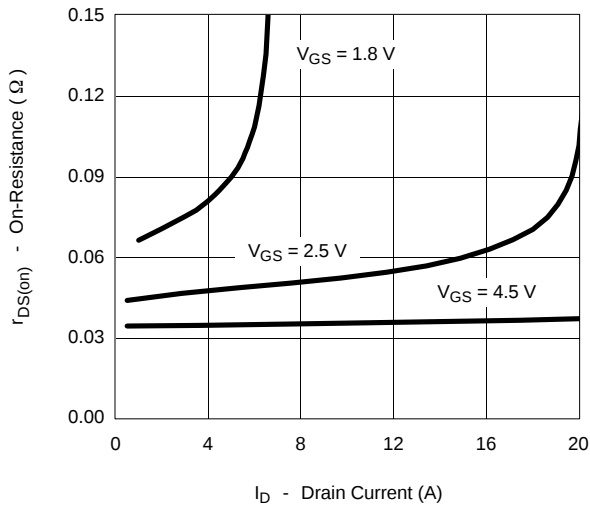
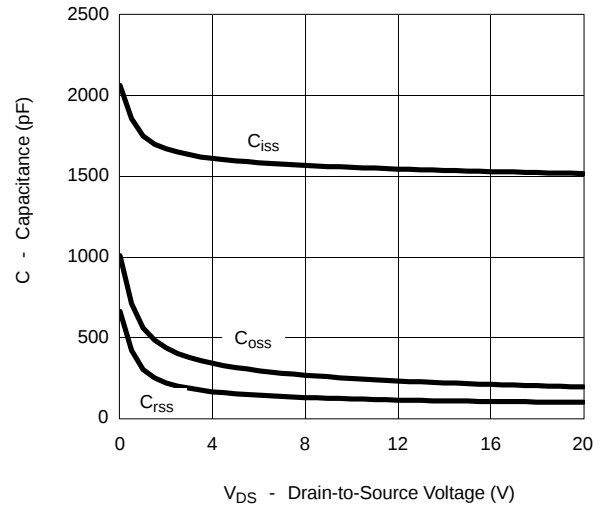
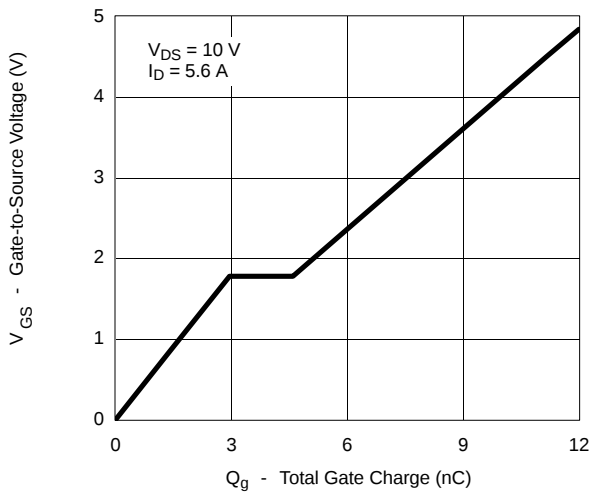
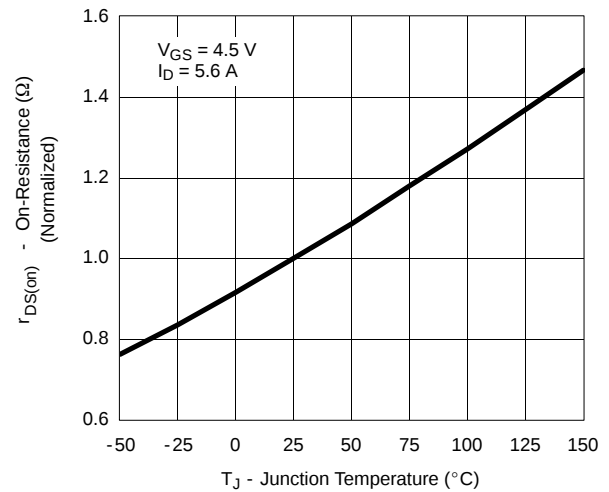
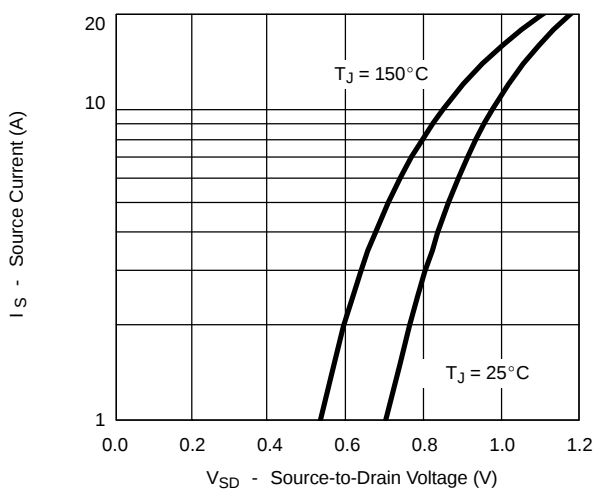
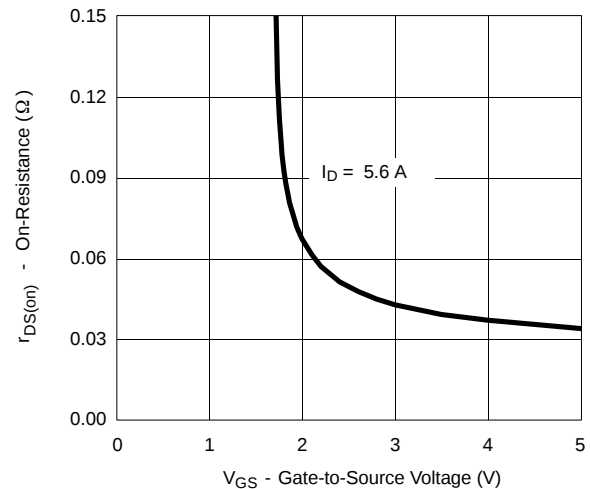
Parameter	Symbol	Test Condition	Min	Typ	Max	Unit
Static						
Gate Threshold Voltage	$V_{GS(th)}$	$V_{DS} = V_{GS}$, $I_D = -250\ \mu\text{A}$	-0.45			V
Gate-Body Leakage	I_{GSS}	$V_{DS} = 0\ \text{V}$, $V_{GS} = \pm 8\ \text{V}$			± 100	nA
Zero Gate Voltage Drain Current	I_{DSS}	$V_{DS} = -16\ \text{V}$, $V_{GS} = 0\ \text{V}$			-1	μA
		$V_{DS} = -16\ \text{V}$, $V_{GS} = 0\ \text{V}$, $T_J = 85^\circ\text{C}$			-5	
On-State Drain Current ^a	$I_{D(on)}$	$V_{DS} = -5\ \text{V}$, $V_{GS} = -4.5\ \text{V}$	-20			A
Drain-Source On-State Resistance ^a	$r_{DS(on)}$	$V_{GS} = -4.5\ \text{V}$, $I_D = -5.6\ \text{A}$		0.025	0.042	Ω
		$V_{GS} = -2.5\ \text{V}$, $I_D = -4.8\ \text{A}$		0.048	0.057	
		$V_{GS} = -1.8\ \text{V}$, $I_D = -1\ \text{A}$		0.066	0.080	
Forward Transconductance ^a	g_{fs}	$V_{DS} = -5\ \text{V}$, $I_D = -5.6\ \text{A}$		16		S
Diode Forward Voltage ^a	V_{SD}	$I_S = -1.7\ \text{A}$, $V_{GS} = 0\ \text{V}$		-0.7	-1.2	V
Dynamic^b						
Total Gate Charge	Q_g	$V_{DS} = -10\ \text{V}$, $V_{GS} = -4.5\ \text{V}$, $I_D = -5.6\ \text{A}$		11.5	17	nC
Gate-Source Charge	Q_{GS}			3		
Gate-Drain Charge	Q_{gd}			1.7		
Turn-On Delay Time	$t_{d(on)}$	$V_{DD} = -10\ \text{V}$, $R_L = 10\ \Omega$ $I_D \cong -1\ \text{A}$, $V_{GEN} = -4.5\ \text{V}$, $R_G = 6\ \Omega$		18	36	ns
Rise Time	t_r			25	50	
Turn-Off Delay Time	$t_{d(off)}$			80	160	
Fall Time	t_f			45	90	
Source-Drain Reverse Recovery Time	t_{rr}	$I_F = -1.7\ \text{A}$, $di/dt = 100\ \text{A}/\mu\text{s}$		30	50	

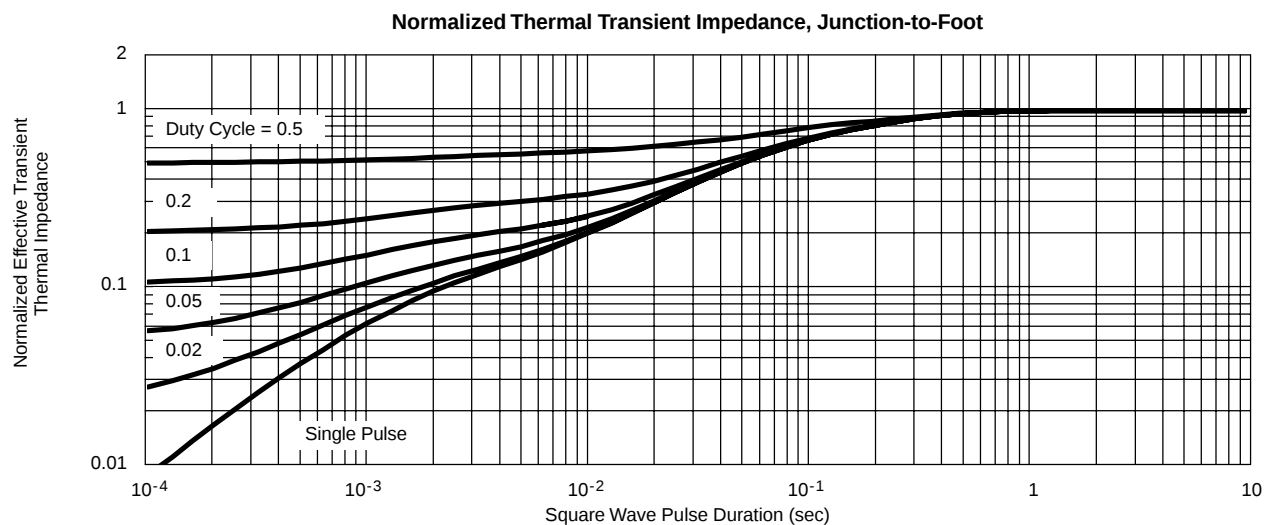
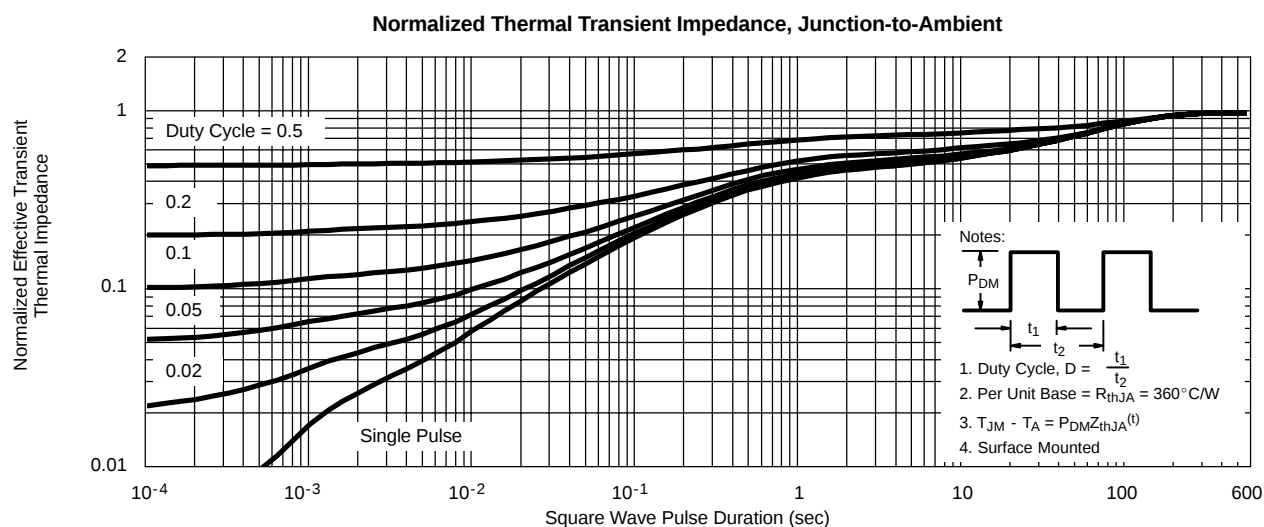
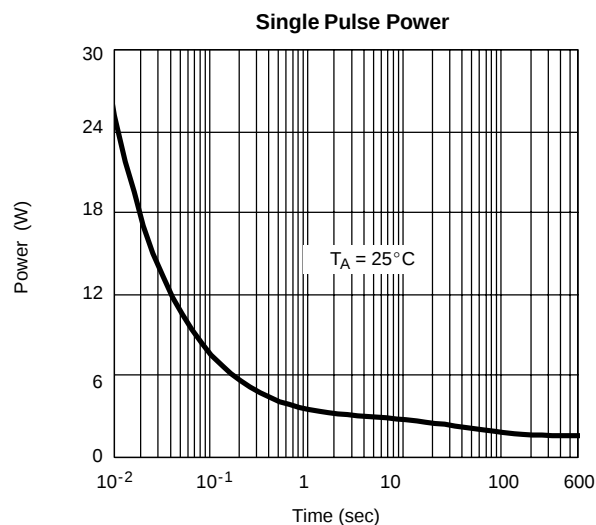
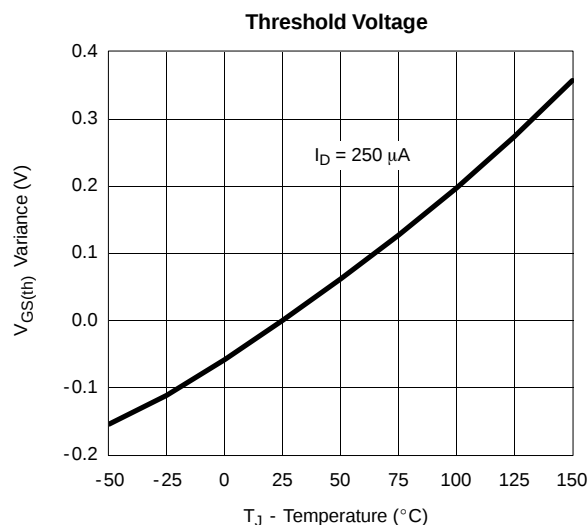
Notes

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)




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