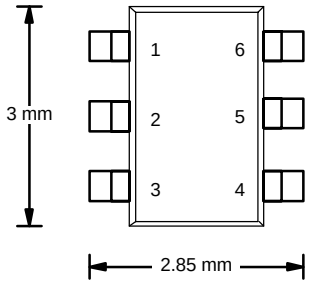
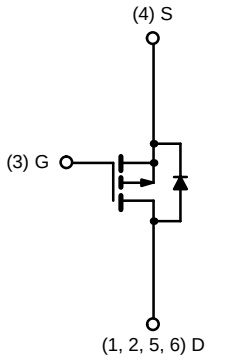
P-Channel 1.8-V (G-S) MOSFET

PRODUCT SUMMARY		
V_{DS} (V)	$r_{DS(on)}$ (Ω)	I_D (A)
-12	0.050 @ V_{GS} = -4.5 V	±5.2
	0.070 @ V_{GS} = -2.5 V	±4.4
	0.095 @ V_{GS} = -1.8 V	±3.8

TrenchFET® Power MOSFETs
1.8-V Rated





P-Channel MOSFET

ABSOLUTE MAXIMUM RATINGS (T_A = 25°C UNLESS OTHERWISE NOTED)				
Parameter		Symbol	Limit	Unit
Drain-Source Voltage		V_{DS}	-12	V
Gate-Source Voltage		V_{GS}	±8	
Continuous Drain Current (T_J = 150°C)[a, b]	T_A = 25°C	I_D	±5.2	A
	T_A = 70°C		±4.1	
Pulsed Drain Current		I_{DM}	±20	
Continuous Source Current (Diode Conduction)[a, b]		I_S	-1.7	
Maximum Power Dissipation[a, b]	T_A = 25°C	P_D	2.0	W
	T_A = 70°C		1.3	
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 ≤ 5 sec	R_{thJA}		62.5	°C/W
	Steady State		106		

Notes
a. Surface Mounted on FR4 Board.
b. t ≤ 5 sec.

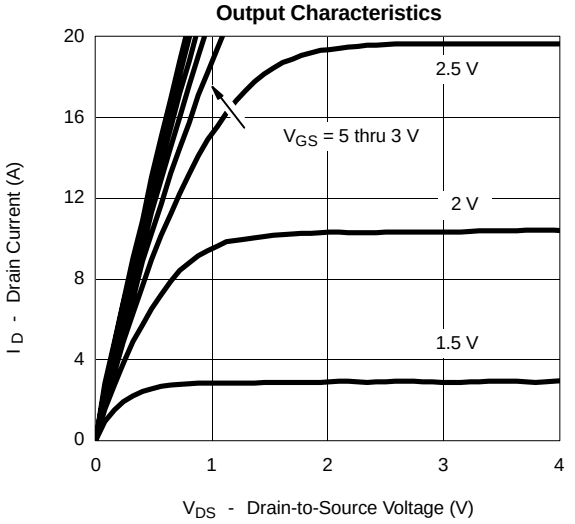
SPECIFICATIONS (T_J =25°C UNLESS OTHERWISE NOTED)

Parameter	Symbol	Test Condition	Min	Typ	Max	Unit
Static						
Gate Threshold Voltage	$V_{GS(th)}$	V_{DS} = V_{GS}, I_D = -250 μA	-0.45			V
Gate-Body Leakage	I_{GSS}	V_{DS} = 0 V, V_{GS} = ±8 V			±100	nA
Zero Gate Voltage Drain Current	I_{DSS}	V_{DS} = -9.6 V, V_{GS} = 0 V			-1	μA
		V_{DS} = -9.6 V, V_{GS} = 0 V, T_J = 70°C			-5	
On-State Drain Current[a]	$I_{D(on)}$	V_{DS} ≥ -5 V, V_{GS} = -4.5 V	-15			A
Drain-Source On-State Resistance[a]	$r_{DS(on)}$	V_{GS} = -4.5 V, I_D = -5.2 A		0.040	0.050	Ω
		V_{GS} = -2.5 V, I_D = -4.4 A		0.056	0.070	
		V_{GS} = -1.8 V, I_D = -2.0 A		0.072	0.095	
Forward Transconductance[a]	g_{fs}	V_{DS} = -10 V, I_D = -5.2 A		15		S
Diode Forward Voltage[a]	V_{SD}	I_S = -1.7 A, V_{GS} = 0 V		0.7	-1.2	V
Dynamic[b]						
Total Gate Charge	Q_g	V_{DS} = -6 V, V_{GS} = -4.5 V, I_D = -5.2 A		16	25	nC
Gate-Source Charge	Q_{gs}			3.5		
Gate-Drain Charge	Q_{gd}			2.5		
Turn-On Delay Time	$t_{d(on)}$	V_{DD} = -6 V, R_L = 10 Ω I_D ≅ -1 A, V_{GEN} = -4.5 V, R_G = 6 Ω		20	40	ns
Rise Time	t_r			45	90	
Turn-Off Delay Time	$t_{d(off)}$			100	200	
Fall Time	t_f			75	150	
Source-Drain Reverse Recovery Time	t_{rr}	I_F = -1.7 A, di/dt = 100 A/μs		60	100	

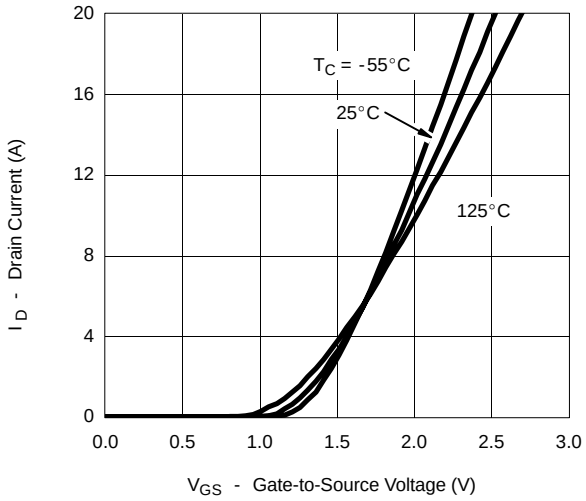
Notes
a. Guaranteed by design, not subject to production testing.
b. Pulse test; pulse width ≤ 300 μs, duty cycle ≤ 2%.

TYPICAL CHARACTERISTICS (25°C UNLESS NOTED)

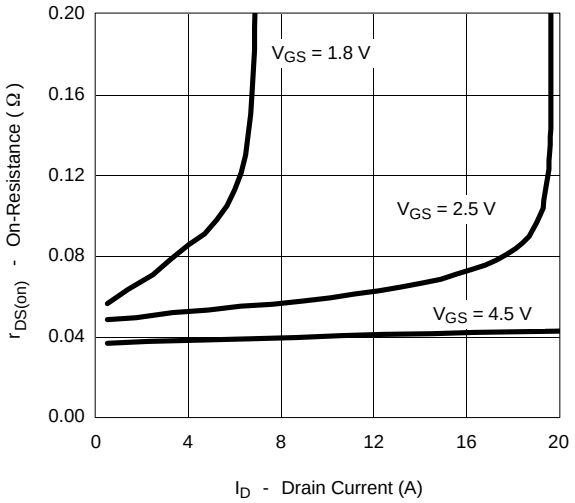
Output Characteristics



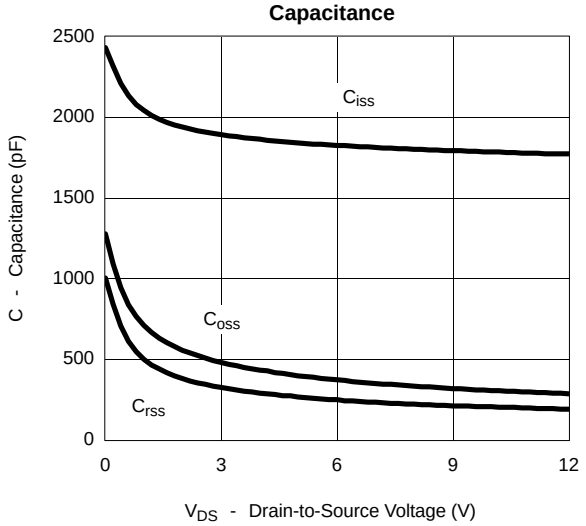
Transfer Characteristics



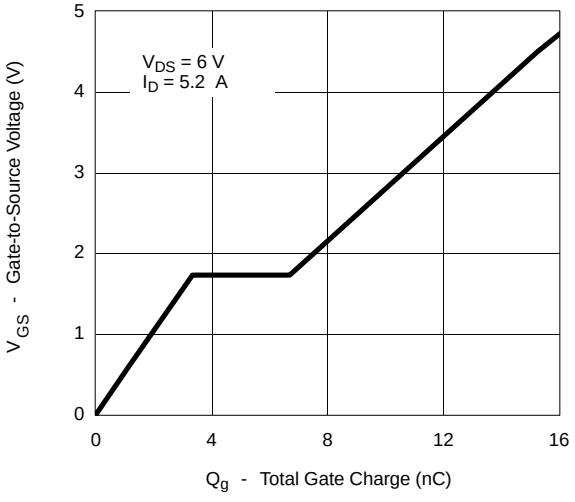
On-Resistance vs. Drain Current



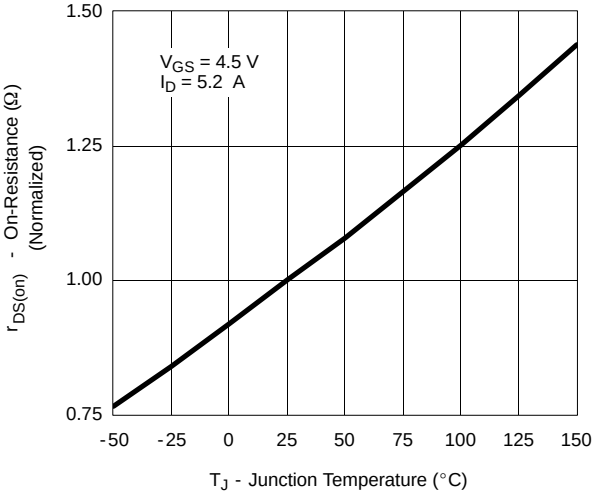
Capacitance



Gate Charge

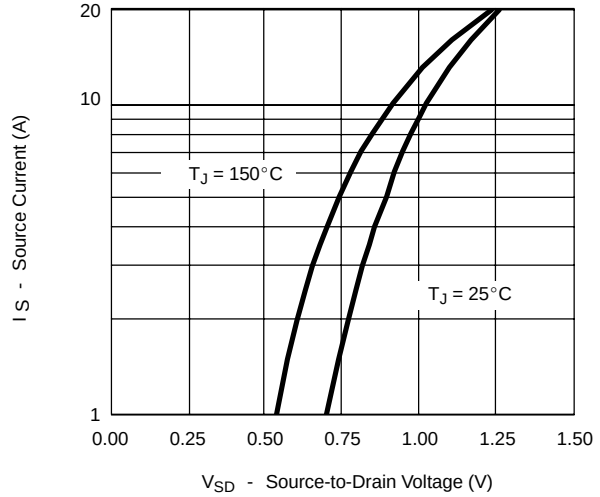


On-Resistance vs. Junction Temperature

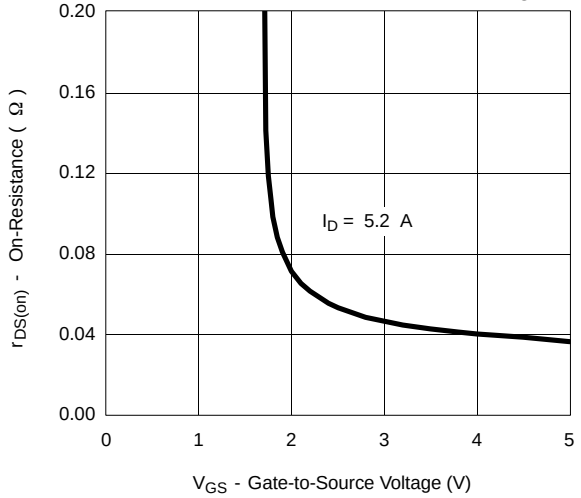


TYPICAL CHARACTERISTICS (25°C UNLESS NOTED)

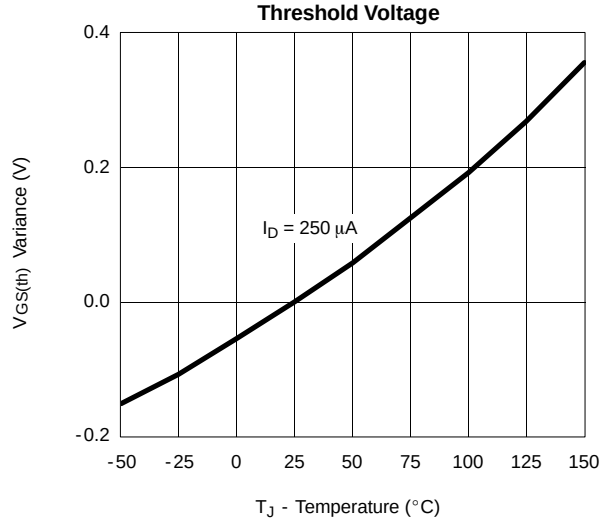
Source-Drain Diode Forward Voltage



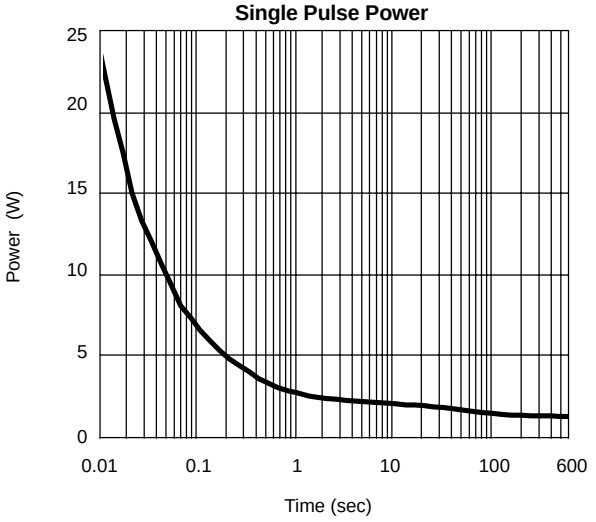
On-Resistance vs. Gate-to-Source Voltage



Threshold Voltage



Single Pulse Power



Normalized Thermal Transient Impedance, Junction-to-Ambient