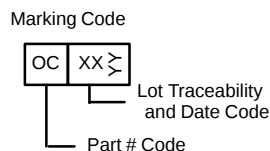
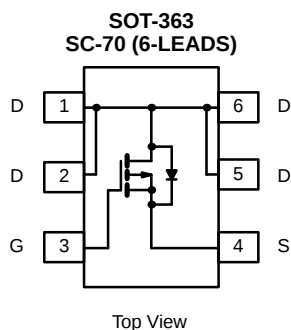


P-Channel 1.8-V (G-S) MOSFET

TrenchFET®
Power MOSFETs
1.8-V Rated

PRODUCT SUMMARY		
V_{DS} (V)	$r_{DS(on)}$ (Ω)	I_D (A)
-12	0.130 @ $V_{GS} = -4.5$ V	-1.8
	0.170 @ $V_{GS} = -2.5$ V	-1.5
	0.225 @ $V_{GS} = -1.8$ V	-1.3



ABSOLUTE MAXIMUM RATINGS ($T_A = 25^\circ\text{C}$ UNLESS OTHERWISE NOTED)				
Parameter		Symbol	5 secs	Steady State
Drain-Source Voltage		V_{DS}	-12	
Gate-Source Voltage		V_{GS}	± 8	
Continuous Drain Current ($T_J = 150^\circ\text{C}$) ^a	$T_A = 25^\circ\text{C}$	I_D	-1.8	-1.6
	$T_A = 85^\circ\text{C}$		-1.4	-1.2
Pulsed Drain Current		I_{DM}	-5	
Continuous Diode Current (Diode Conduction) ^a		I_S	-0.8	-0.8
Maximum Power Dissipation ^a	$T_A = 25^\circ\text{C}$	P_D	0.625	0.568
	$T_A = 85^\circ\text{C}$		0.400	0.295
Operating Junction and Storage Temperature Range		T_J, T_{stg}	-55 to 150	

THERMAL RESISTANCE RATINGS				
Parameter		Symbol	Typical	Maximum
Maximum Junction-to-Ambient ^a	$t \leq 5$ sec	R_{thJA}	165	200
	Steady State		180	220
Maximum Junction-to-Foot (Drain)	Steady State	R_{thJF}	105	130

Notes

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

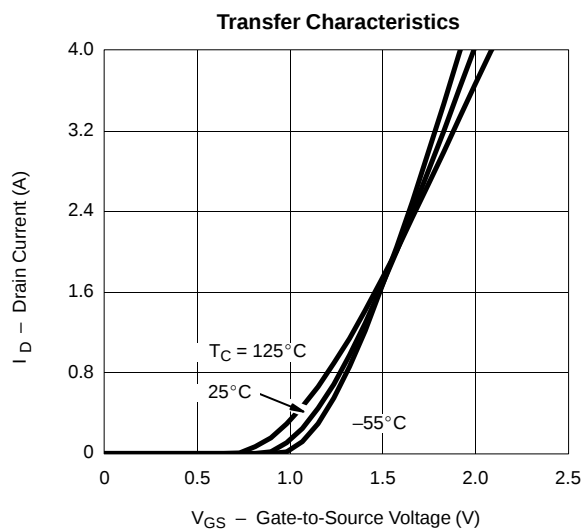
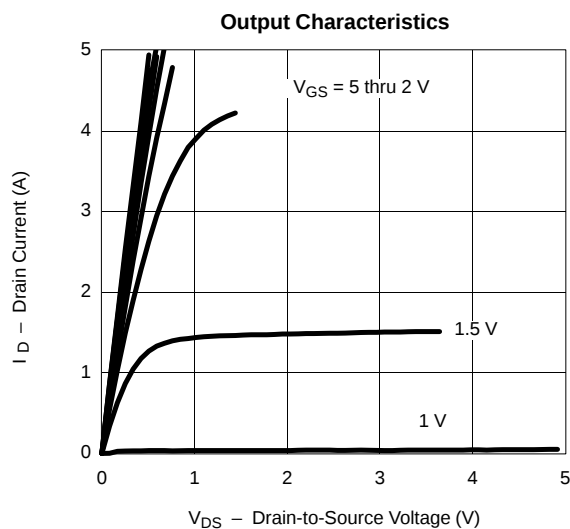
SPECIFICATIONS ($T_J = 25^\circ\text{C}$ UNLESS OTHERWISE NOTED)

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}	$V_{DS} = -9.6\ \text{V}, V_{GS} = 0\ \text{V}$			-1	μA
		$V_{DS} = -9.6\ \text{V}, V_{GS} = 0\ \text{V}, T_J = 85^\circ\text{C}$			-5	
On-State Drain Current ^a	$I_{D(on)}$	$V_{DS} = -5\ \text{V}, V_{GS} = -4.5\ \text{V}$	-2			A
Drain-Source On-State Resistance ^a	$r_{DS(on)}$	$V_{GS} = -4.5\ \text{V}, I_D = -1.8\ \text{A}$		0.105	0.130	Ω
		$V_{GS} = -2.5\ \text{V}, I_D = -1.5\ \text{A}$		0.140	0.170	
		$V_{GS} = -1.8\ \text{V}, I_D = -0.8\ \text{A}$		0.185	0.225	
Forward Transconductance ^a	g_{fs}	$V_{DS} = -10\ \text{V}, I_D = -1.8\ \text{A}$		4.3		S
Diode Forward Voltage ^a	V_{SD}	$I_S = -0.8\ \text{A}, V_{GS} = 0\ \text{V}$		-0.77	-1.1	V
Dynamic^b						
Total Gate Charge	Q_g	$V_{DS} = -6\ \text{V}, V_{GS} = -4.5\ \text{V}, I_D = -1.8\ \text{A}$		5.5	7.0	nC
Gate-Source Charge	Q_{gs}			0.95		
Gate-Drain Charge	Q_{gd}			1.10		
Turn-On Delay Time	$t_{d(on)}$	$V_{DD} = -6\ \text{V}, R_L = 10\ \Omega$ $I_D \cong -1\ \text{A}, V_{GEN} = -4.5\ \text{V}, R_G = 6\ \Omega$		8	12	ns
Rise Time	t_r			33	50	
Turn-Off Delay Time	$t_{d(off)}$			32	50	
Fall Time	t_f			29	45	
Source-Drain Reverse Recovery Time	t_{rr}	$I_F = -0.8\ \text{A}, di/dt = 100\ \text{A}/\mu\text{s}$		20	40	

Notes

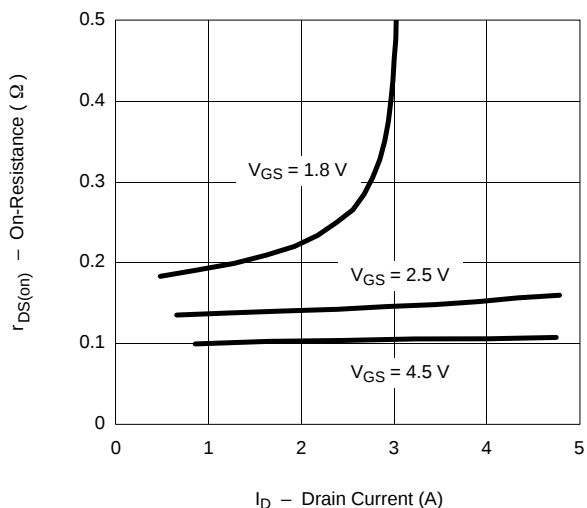
a. Pulse test; pulse width $\leq 300\ \mu\text{s}$, duty cycle $\leq 2\%$.

b. Guaranteed by design, not subject to production testing.

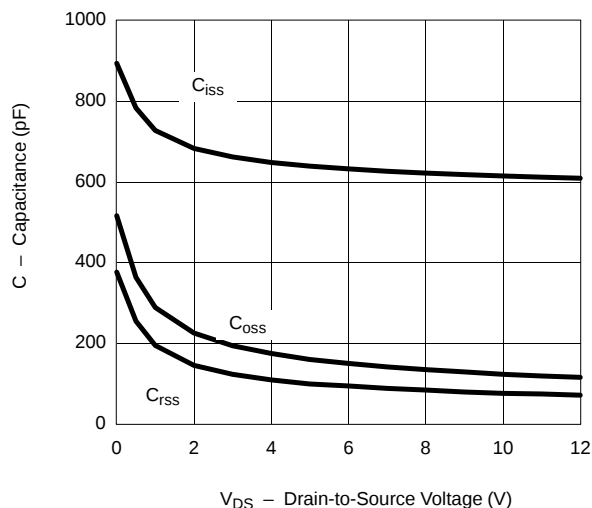
TYPICAL CHARACTERISTICS (25°C UNLESS NOTED)

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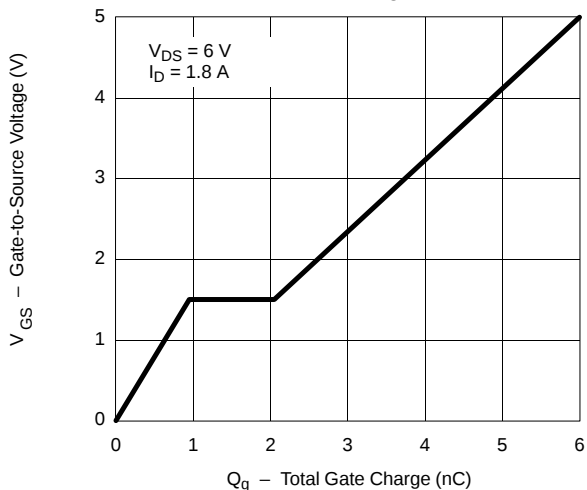
On-Resistance vs. Drain Current



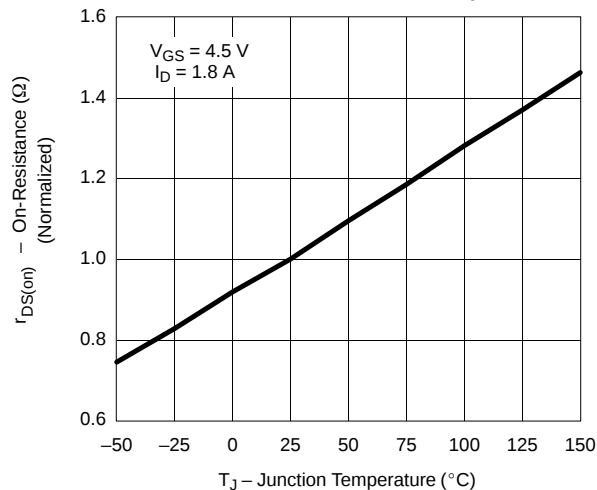
Capacitance



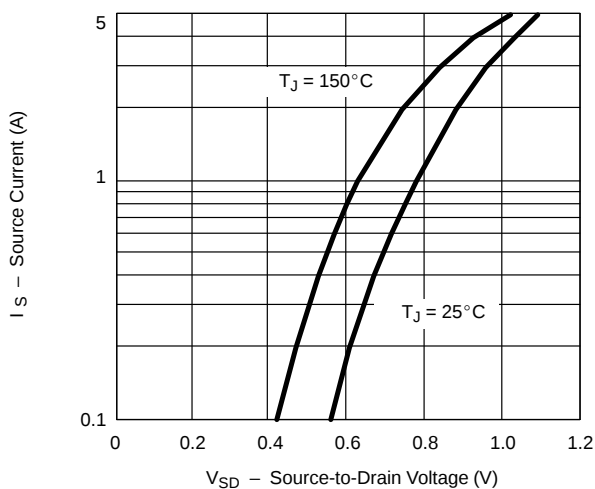
Gate Charge



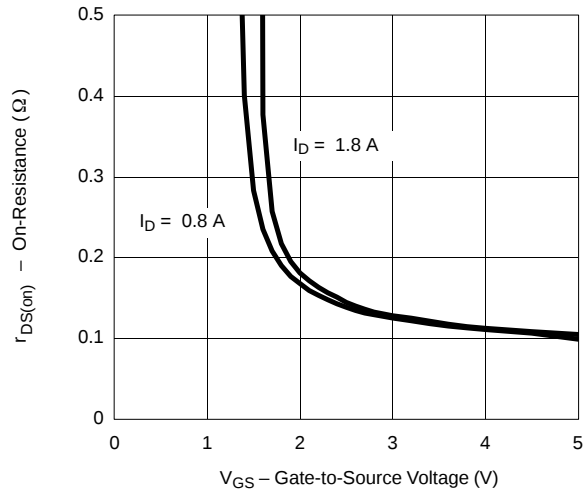
On-Resistance vs. Junction Temperature



Source-Drain Diode Forward Voltage



On-Resistance vs. Gate-to-Source Voltage



TYPICAL CHARACTERISTICS (25 °C UNLESS NOTED)
