



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

PRODUCT SUMMARY

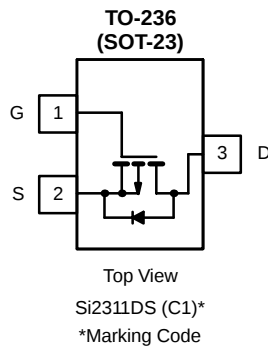
V_{DS} (V)	$r_{DS(on)}$ (Ω)	I_D (A)
-8	0.045 @ $V_{GS} = -4.5$ V	-3.5
	0.072 @ $V_{GS} = -2.5$ V	-2.8
	0.120 @ $V_{GS} = -1.8$ V	-2.0

FEATURES

- TrenchFET® Power MOSFET

APPLICATIONS

- Load Switch

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

Parameter		Symbol	5 sec	Steady State	Unit
Drain-Source Voltage		V _{DS}	−8		V
Gate-Source Voltage		V _{GS}	±8		
Continuous Drain Current (T _J = 150°C) ^{a, b}	T _A = 25°C	I _D	−3.5	−3.0	A
	T _A = 70°C		−2.8	−2.4	
Pulsed Drain Current		I _{DM}	−10		
Continuous Source Current (Diode Conduction) ^{a, b}		I _S	−0.8	−0.6	
Maximum Power Dissipation) ^{a, b}	T _A = 25°C	P _D	0.96	0.71	W
	T _A = 70°C		0.62	0.46	
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	$t \leq 5$ sec	R_{thJA}	100	130	$^\circ\text{C/W}$
	Steady State		140	175	
Maximum Junction-to-Foot (drain)	Steady State	R_{thJF}	60	75	

Notes

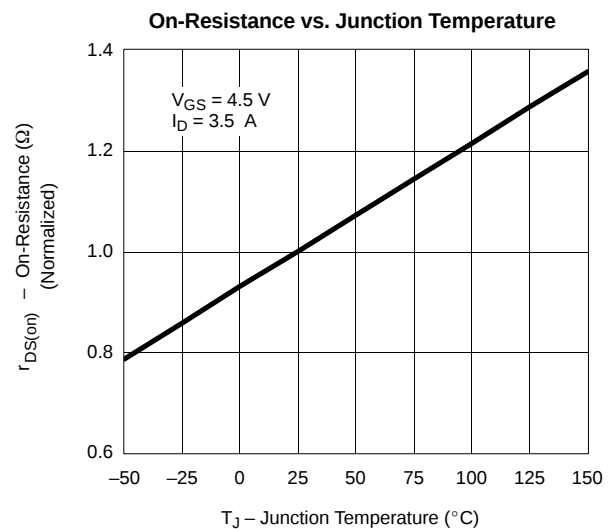
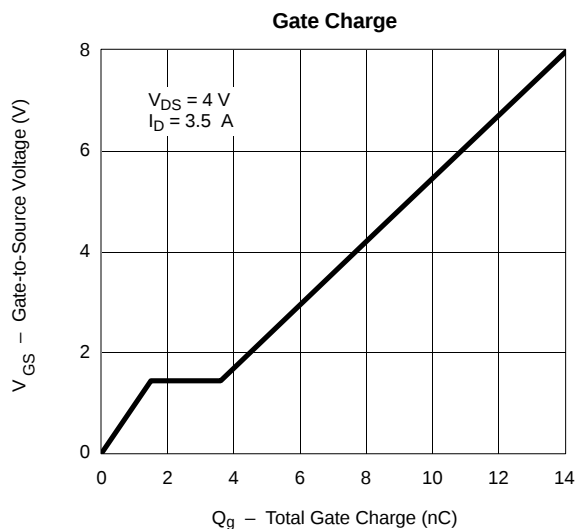
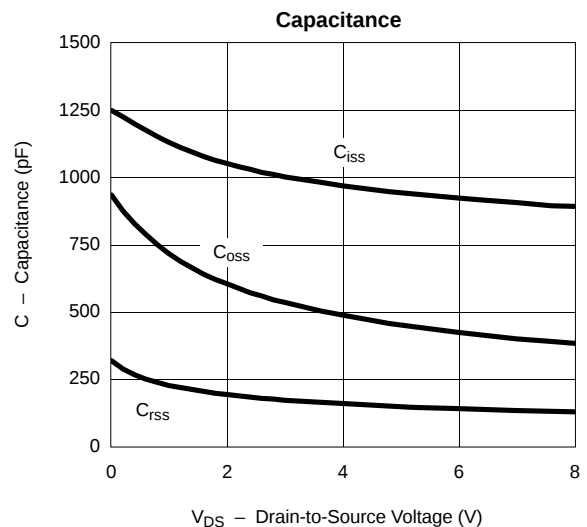
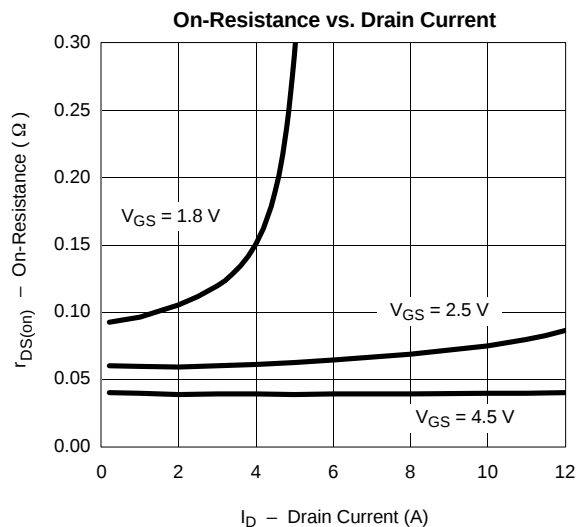
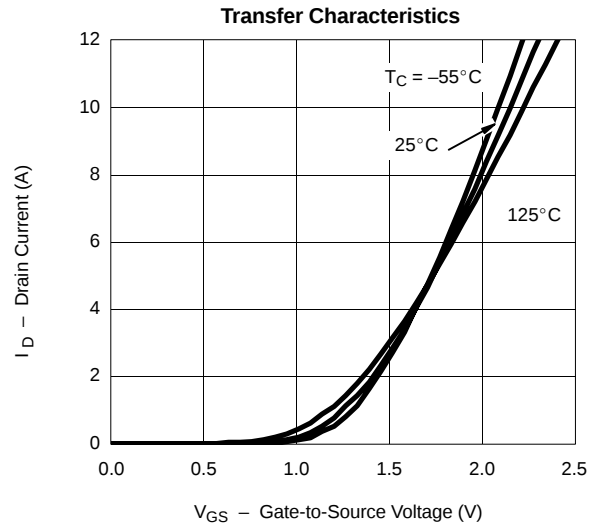
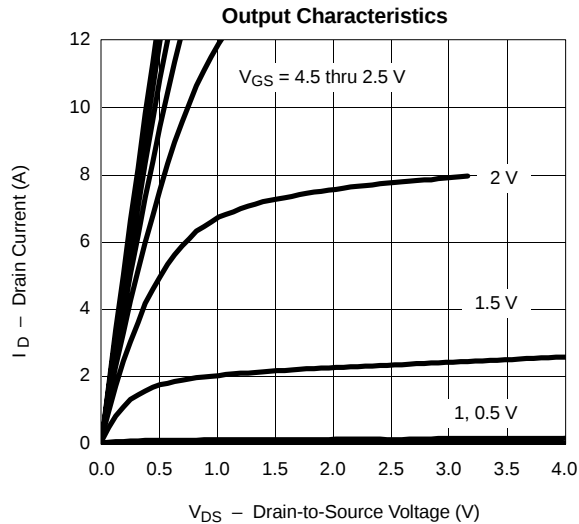
- a. Surface Mounted on FR4 Board.
b. Pulse width limited by maximum junction temperature.

SPECIFICATIONS (T_J = 25 °C UNLESS OTHERWISE NOTED)

Parameter	Symbol	Test Conditions	Limits			Unit
			Min	Typ	Max	
Static						
Drain-Source Breakdown Voltage	V _{(BR)DSS}	V _{GS} = 0 V, I _D = −10 μA	−8			V
Gate-Threshold Voltage	V _{GS(th)}	V _{DS} = V _{GS} , I _D = −250 μA	−0.45		−0.8	
Gate-Body Leakage	I _{GSS}	V _{DS} = 0 V, V _{GS} = ±8 V			± 100	nA
Zero Gate Voltage Drain Current	I _{DSS}	V _{DS} = −6.4 V, V _{GS} = 0 V			−1	μA
		V _{DS} = −6.4 V, V _{GS} = 0 V, T _J = 55°C			−10	
On-State Drain Current ^a	I _{D(on)}	V _{DS} ≤ −5 V, V _{GS} = −4.5 V	−6			A
		V _{DS} ≤ −5 V, V _{GS} = −2.5 V	−3			
Drain-Source On-Resistance ^a	r _{DS(on)}	V _{GS} = −4.5 V, I _D = −3.5 A		0.036	0.045	Ω
		V _{GS} = −2.5 V, I _D = −3 A		0.058	0.072	
		V _{GS} = −1.8 V, I _D = −0.7 A		0.096	0.120	
Forward Transconductance ^a	g _{fs}	V _{DS} = −5 V, I _D = −3.5 A		9.0		S
Diode Forward Voltage	V _{SD}	I _S = −0.8 A, V _{GS} = 0 V			−1.2	V
Dynamic ^b						
Total Gate Charge	Q _g	V _{DS} = −4 V, V _{GS} = −4.5 V I _D ≅ −3.5 A		8.5	12	nC
Gate-Source Charge	Q _{gs}			1.5		
Gate-Drain Charge	Q _{gd}			2.1		
Input Capacitance	C _{iss}	V _{DS} = −4 V, V _{GS} = 0, f = 1 MHz		970		pF
Output Capacitance	C _{oss}			485		
Reverse Transfer Capacitance	C _{rss}			160		
Switching ^b						
Turn-On Time	t _{d(on)}	V _{DD} = −4 V, R _L = 4 Ω I _D ≅ −1.0 A, V _{GEN} = −4.5 V R _G = 6 Ω		18	25	ns
	t _r			45	65	
Turn-Off Time	t _{d(off)}			40	60	
	t _f			45	65	

Notes

- a. For DESIGN AID ONLY, not subject to production testing.
b. Pulse test: PW ≤ 300 μs duty cycle ≤ 2%.
c. Switching time is essentially independent of operating temperature.

**TYPICAL CHARACTERISTICS (25 °C UNLESS NOTED)**

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