



P-Channel 12-V (D-S) MOSFET

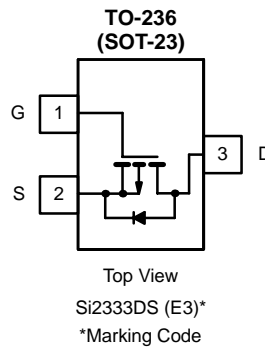
PRODUCT SUMMARY		
V_{DS} (V)	$r_{DS(on)}$ (Ω)	I_D (A)
-12	0.032 @ $V_{GS} = -4.5$ V	-5.3
	0.042 @ $V_{GS} = -2.5$ V	-4.6
	0.059 @ $V_{GS} = -1.8$ V	-3.9

FEATURES

- TrenchFET® Power MOSFET

APPLICATIONS

- Load Switch
- PA 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}	-12		V
Gate-Source Voltage		V_{GS}	± 8		
Continuous Drain Current ($T_J = 150^\circ\text{C}$) ^{a, b}	$T_A = 25^\circ\text{C}$	I_D	-5.3	-4.1	A
	$T_A = 70^\circ\text{C}$		-4.2	-3.3	
Pulsed Drain Current		I_{DM}	-20		
Continuous Source Current (Diode Conduction) ^{a, b}		I_S	-1.0	-0.6	
Maximum Power Dissipation ^{a, b}	$T_A = 25^\circ\text{C}$	P_D	1.25	0.75	W
	$T_A = 70^\circ\text{C}$		0.8	0.48	
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}	75	100	$^\circ\text{C/W}$
	Steady State		120	166	
Maximum Junction-to-Foot (Drain)	Steady State	R_{thJF}	40	50	

Notes

- a. Surface Mounted on 1" x 1" FR4 Board.
- b. Pulse width limited by maximum junction temperature.

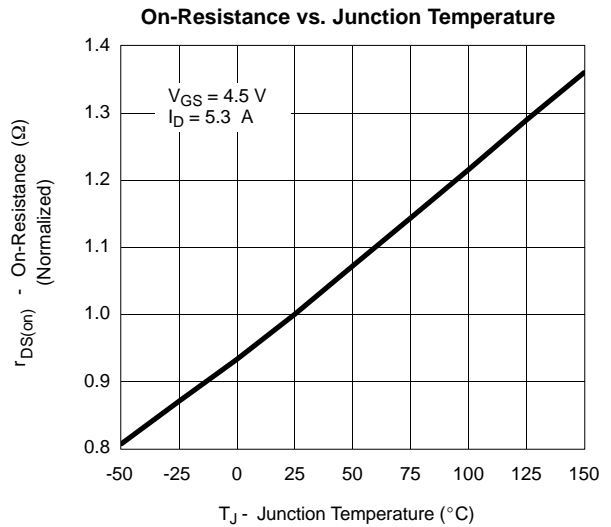
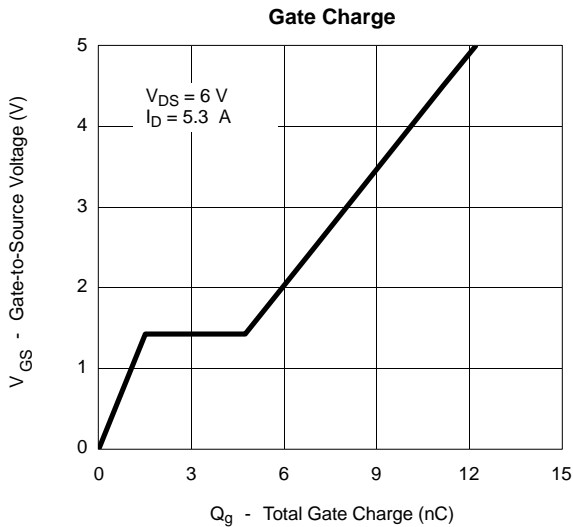
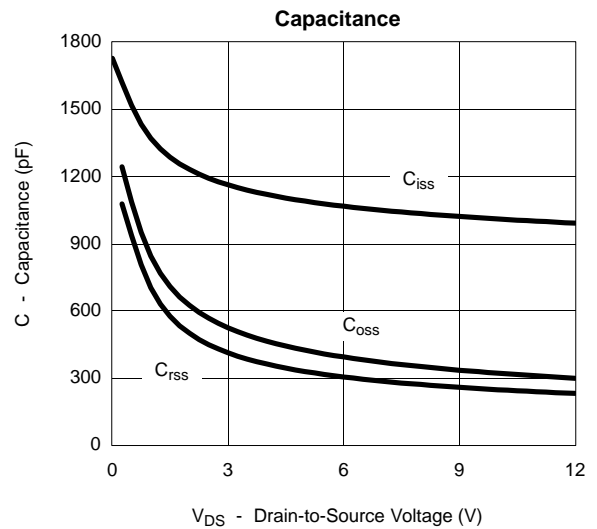
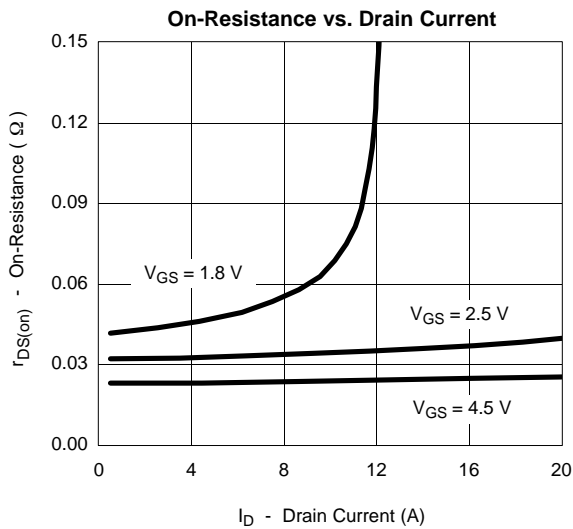
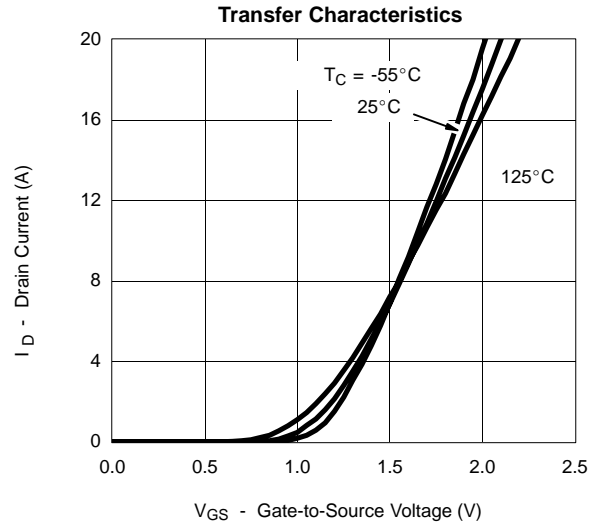
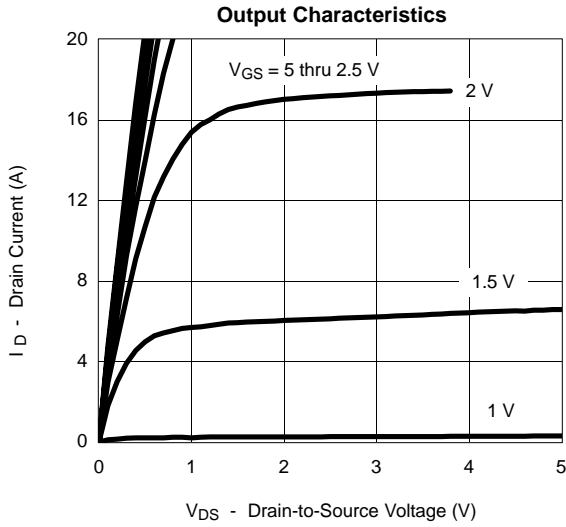
SPECIFICATIONS ($T_J = 25^\circ\text{C}$ UNLESS OTHERWISE NOTED)						
Parameter	Symbol	Test Conditions	Limits			Unit
			Min	Typ	Max	
Static						
Drain-Source Breakdown Voltage	$V_{(BR)DSS}$	$V_{GS} = 0\text{ V}, I_D = -250\ \mu\text{A}$	-12			V
Gate-Threshold Voltage	$V_{GS(th)}$	$V_{DS} = V_{GS}, I_D = -250\ \mu\text{A}$	-0.40		-1.0	
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
		$V_{DS} = -9.6\text{ V}, V_{GS} = 0\text{ V}, T_J = 55^\circ\text{C}$			-10	
On-State Drain Current ^a	$I_{D(on)}$	$V_{DS} \leq -5\text{ V}, V_{GS} = -4.5\text{ V}$	-20			A
Drain-Source On-Resistance ^a	$r_{DS(on)}$	$V_{GS} = -4.5\text{ V}, I_D = -5.3\text{ A}$		0.025	0.032	Ω
		$V_{GS} = -2.5\text{ V}, I_D = -4.6\text{ A}$		0.033	0.042	
		$V_{GS} = -1.8\text{ V}, I_D = -2.0\text{ A}$		0.046	0.059	
Forward Transconductance ^a	g_{fs}	$V_{DS} = -5\text{ V}, I_D = -5.3\text{ A}$		17		S
Diode Forward Voltage	V_{SD}	$I_S = -1.0\text{ A}, V_{GS} = 0\text{ V}$		0.7	-1.2	V
Dynamic^b						
Total Gate Charge	Q_g	$V_{DS} = -6\text{ V}, V_{GS} = -4.5\text{ V}$ $I_D \cong -5.3\text{ A}$		11.5	18	nC
Gate-Source Charge	Q_{gs}			1.5		
Gate-Drain Charge	Q_{gd}			3.2		
Input Capacitance	C_{iss}	$V_{DS} = -6\text{ V}, V_{GS} = 0, f = 1\text{ MHz}$		1100		pF
Output Capacitance	C_{oss}			390		
Reverse Transfer Capacitance	C_{rss}			300		
Switching^c						
Turn-On Time	$t_{d(on)}$	$V_{DD} = -6\text{ V}, R_L = 6\ \Omega$ $I_D \cong -1.0\text{ A}, V_{GEN} = -4.5\text{ V}$ $R_G = 6\ \Omega$		25	40	ns
	t_r			45	70	
Turn-Off Time	$t_{d(off)}$			72	110	
	t_f			60	90	

Notes

- a. Pulse test: $PW \leq 300\ \mu\text{s}$ duty cycle $\leq 2\%$.
b. For DESIGN AID ONLY, not subject to production testing.
c. Switching time is essentially independent of operating temperature.

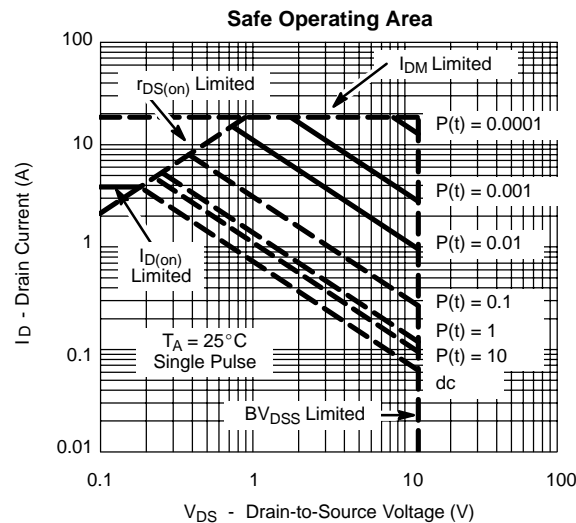
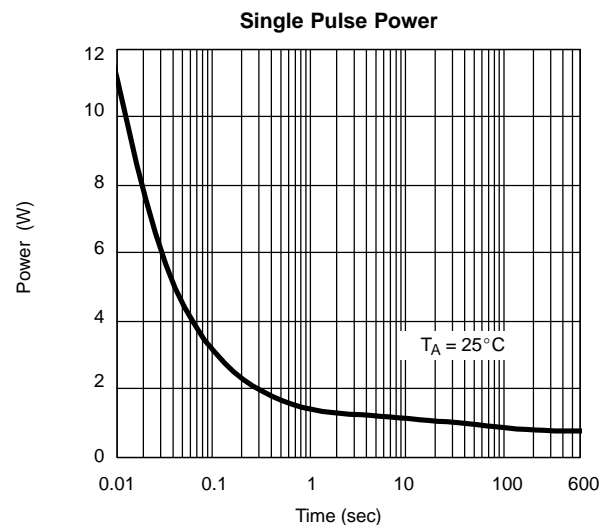
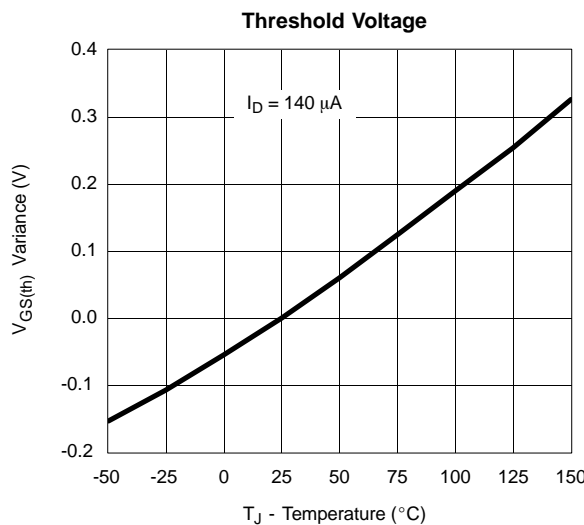
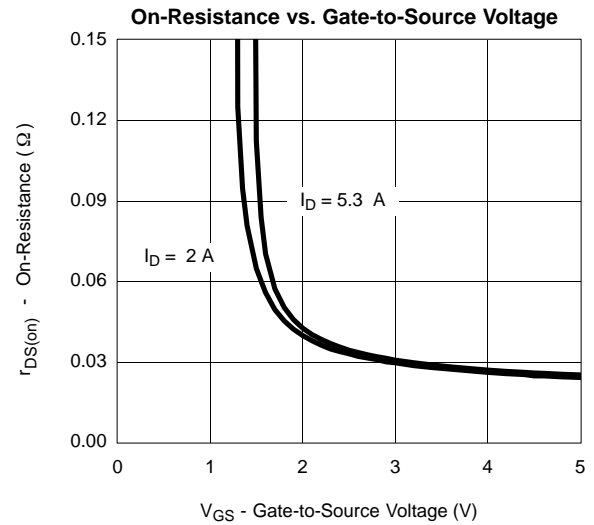
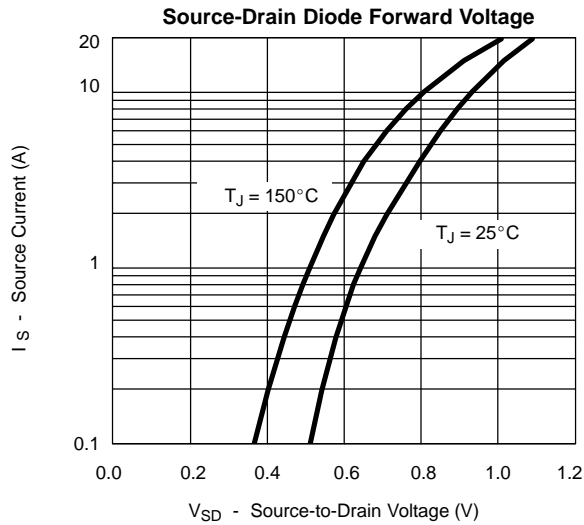


TYPICAL CHARACTERISTICS (25°C UNLESS NOTED)





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