



N-Channel 30-V (D-S) MOSFET

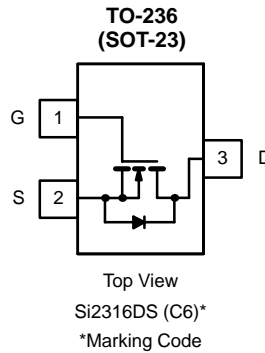
PRODUCT SUMMARY		
V_{DS} (V)	$r_{DS(on)}$ (Ω)	I_D (A)
30	0.050 @ $V_{GS} = 10$ V	3.4
	0.085 @ $V_{GS} = 4.5$ V	2.6

FEATURES

- TrenchFET® Power MOSFET

APPLICATIONS

- Battery 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}	30		V
Gate-Source Voltage	V_{GS}	± 20		
Continuous Drain Current ($T_J = 150^\circ\text{C}$) ^{a, b}	$T_A = 25^\circ\text{C}$	3.4	2.9	A
	$T_A = 70^\circ\text{C}$	2.7	2.3	
Pulsed Drain Current ^b	I_{DM}	16		
Continuous Source Current (Diode Conduction) ^{a, b}	I_S	0.8		
Power Dissipation ^{a, b}	$T_A = 25^\circ\text{C}$	0.96	0.7	W
	$T_A = 70^\circ\text{C}$	0.6	0.45	
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	100	130	$^\circ\text{C/W}$
	Steady State	140	175	
Maximum Junction-to-Foot (drain)	Steady State	60	75	

Notes

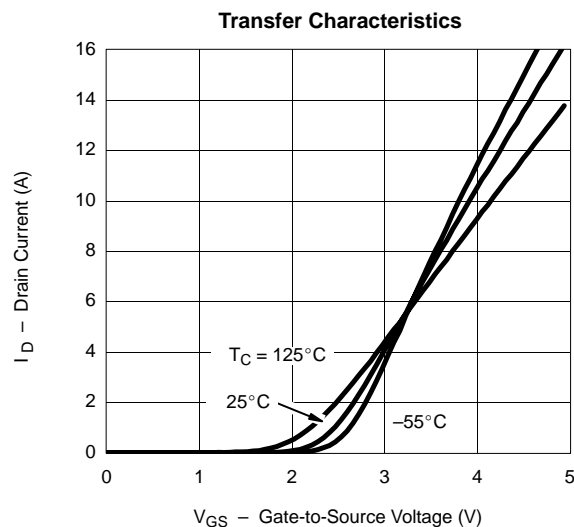
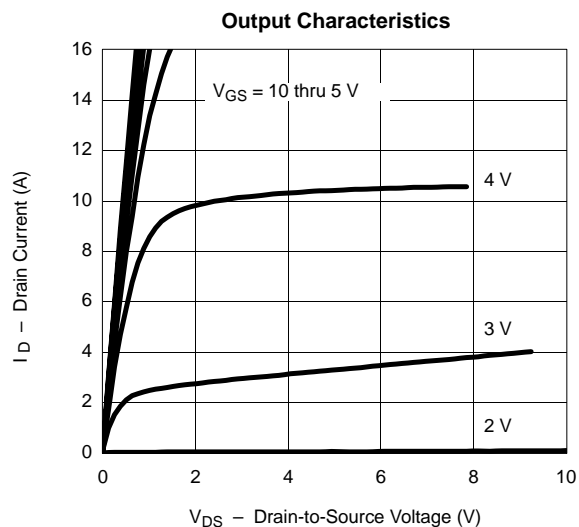
- a. Surface Mounted on 1" x 1" FR4 Board.
b. Pulse width limited by maximum junction temperature

SPECIFICATIONS (T_A = 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 = 250 μA	30			V
Gate-Threshold Voltage	V _{GS(th)}	V _{DS} = V _{GS} , I _D = 250 μA	0.8			
Gate-Body Leakage	I _{GSS}	V _{DS} = 0 V, V _{GS} = ±20 V			±100	nA
Zero Gate Voltage Drain Current	I _{DSS}	V _{DS} = 24 V, V _{GS} = 0 V			0.5	μA
		V _{DS} = 24 V, V _{GS} = 0 V, T _J = 55 °C			10	
On-State Drain Current ^a	I _{D(on)}	V _{DS} ≥ 4.5 V, V _{GS} = 10 V	6			A
On-State Drain Current ^a		V _{DS} ≥ 4.5 V, V _{GS} = 4.5 V	4			
Drain-Source On-Resistance ^a	r _{DS(on)}	V _{GS} = 10 V, I _D = 3.4 A		0.042	0.050	Ω
		V _{GS} = 4.5 V, I _D = 2.6 A		0.068	0.085	
Forward Transconductance ^a	g _{fs}	V _{DS} = 4.5 V, I _D = 3.4 A		6.0		S
Diode Forward Voltage	V _{SD}	I _S = 0.8 A, V _{GS} = 0 V		0.8	1.2	V
Dynamic^b						
Total Gate Charge	Q _g	V _{DS} = 15 V, V _{GS} = 10 V, I _D = 3.4 A		4.3	7	nC
Gate-Source Charge	Q _{gs}			0.65		
Gate-Drain Charge	Q _{gd}			1.2		
Input Capacitance	C _{iss}	V _{DS} = 15 V, V _{GS} = 0 V, f = 1 MHz		215		pF
Output Capacitance	C _{oss}			90		
Reverse Transfer Capacitance	C _{rss}			55		
Switching						
Turn-On Delay Time	t _{d(on)}	V _{DD} = 15 V, R _L = 15 Ω I _D ≅ 1.0 A, V _{GEN} = 10 V, R _G = 6 Ω		9	15	ns
Rise Time	t _r			9	15	
Turn-Off Delay Time	t _{d(off)}			14	20	
Fall-Time	t _f			6	12	

Notes

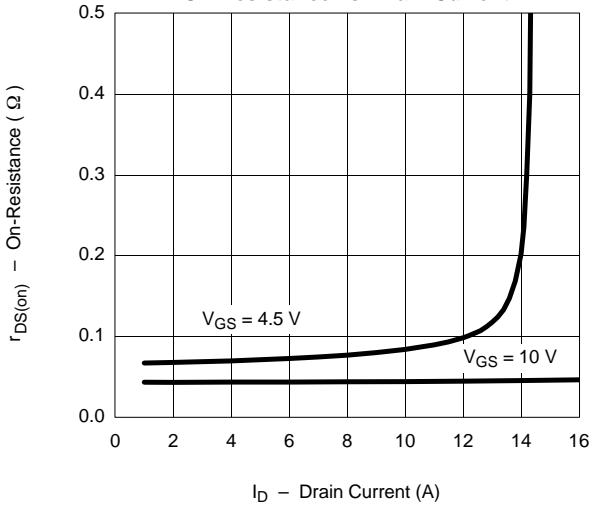
- a. Pulse test: PW ≤ 300 μs duty cycle ≤ 2%.
b. Guaranteed by design, not subject to production testing.

TYPICAL CHARACTERISTICS (25 °C UNLESS NOTED)

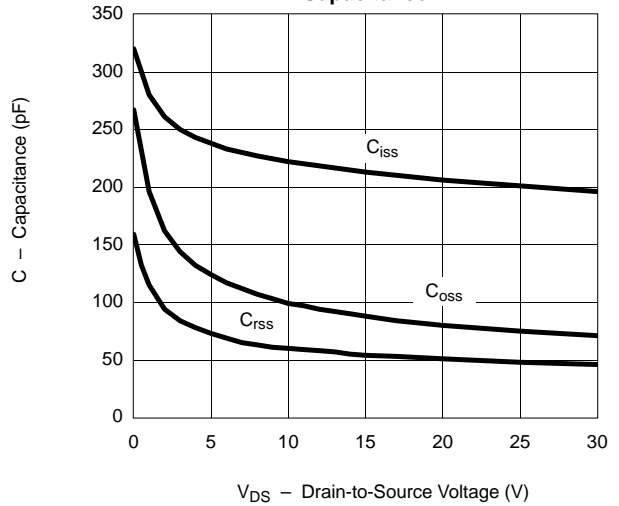


TYPICAL CHARACTERISTICS (25°C UNLESS NOTED)

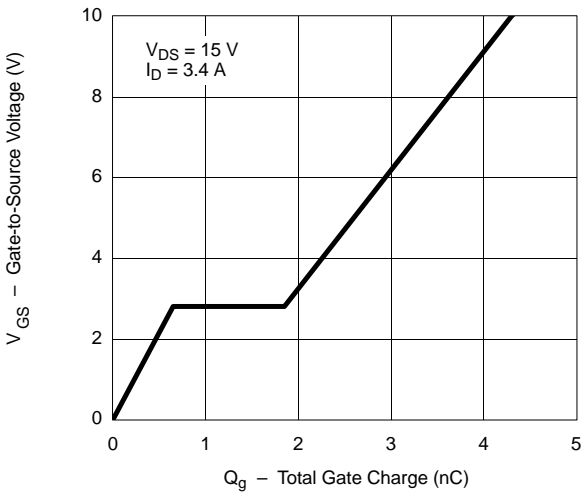
On-Resistance vs. Drain Current



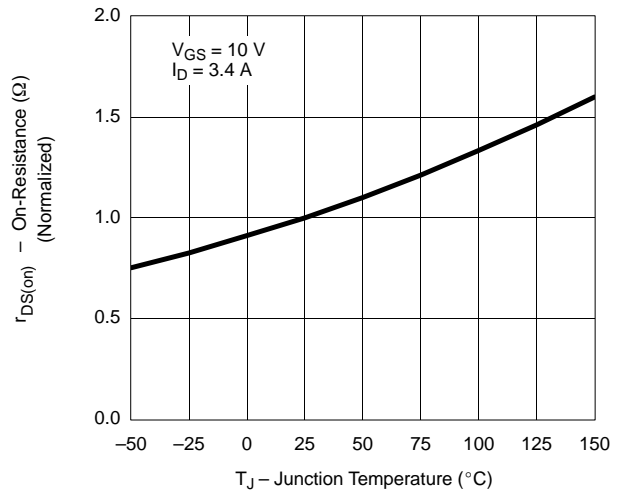
Capacitance



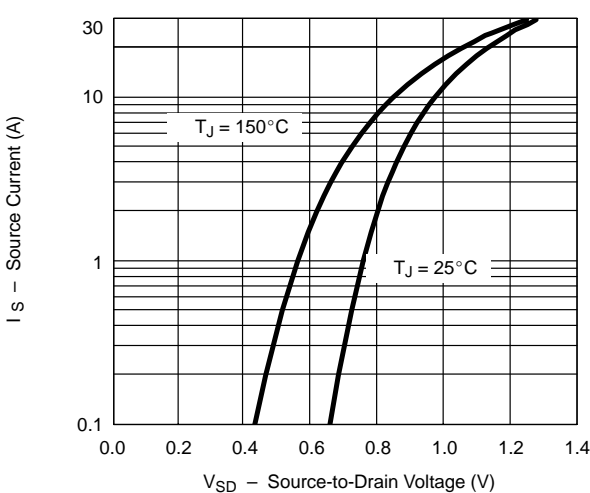
Gate Charge



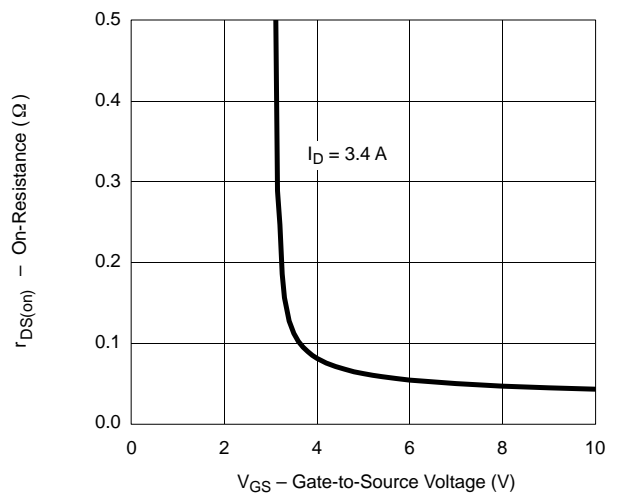
On-Resistance vs. Junction Temperature



Source-Drain Diode Forward Voltage



On-Resistance vs. Gate-to-Source Voltage



TYPICAL CHARACTERISTICS (25°C UNLESS NOTED)

