

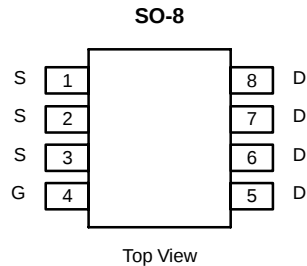


P-Channel 1.8-V (G-S) MOSFET

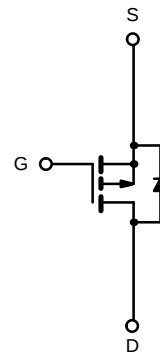
PRODUCT SUMMARY		
V_{DS} (V)	$r_{DS(on)}$ (Ω)	I_D (A)
-20	0.017 @ $V_{GS} = -4.5$ V	-9.9
	0.023 @ $V_{GS} = -2.5$ V	-8.5
	0.032 @ $V_{GS} = -1.8$ V	-7.2

FEATURES

- TrenchFET® Power MOSFETS



Ordering Information: Si4403BDY
Si4403BDY-T1 (with Tape and Reel)



P-Channel MOSFET

ABSOLUTE MAXIMUM RATINGS ($T_A = 25^\circ\text{C}$ UNLESS OTHERWISE NOTED)				
Parameter		Symbol	10 secs	Steady State
Drain-Source Voltage		V_{DS}	-20	
Gate-Source Voltage		V_{GS}	± 8	
Continuous Drain Current ($T_J = 150^\circ\text{C}$) ^a	$T_A = 25^\circ\text{C}$	I_D	-9.9	-7.3
	$T_A = 70^\circ\text{C}$		-7.9	-5.8
Pulsed Drain Current		I_{DM}	-30	
continuous Source Current (Diode Conduction) ^a		I_S	-2.3	-1.3
Maximum Power Dissipation ^a	$T_A = 25^\circ\text{C}$	P_D	2.5	1.35
	$T_A = 70^\circ\text{C}$		1.6	0.87
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	$t \leq 10$ sec	R_{thJA}	43	50
	Steady State		71	92
Maximum Junction-to-Foot (Drain)	Steady State	R_{thJF}	19	25

Notes

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

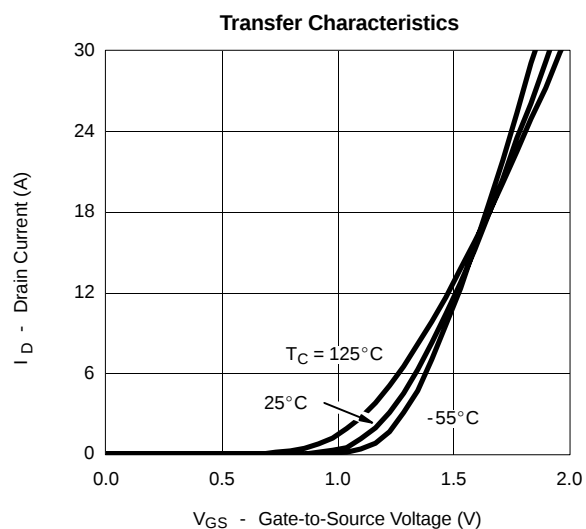
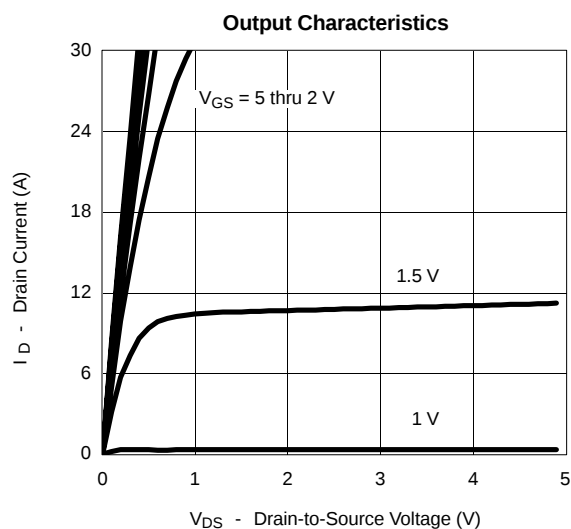
SPECIFICATIONS ($T_J = 25^\circ\text{C}$ UNLESS OTHERWISE NOTED)

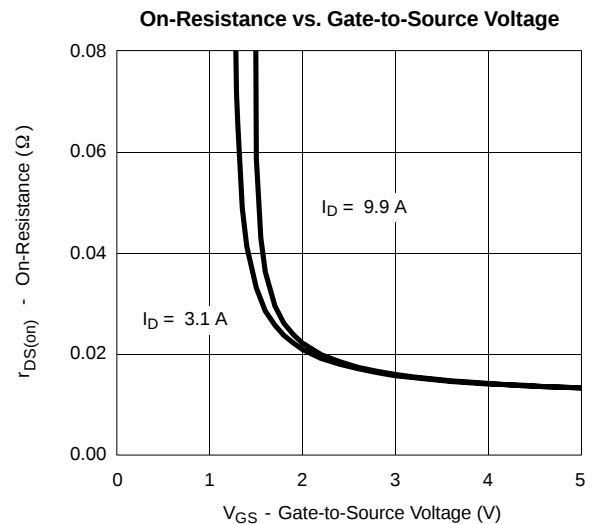
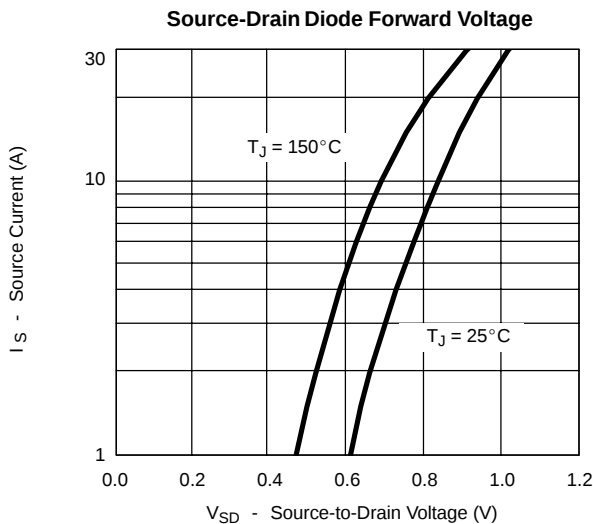
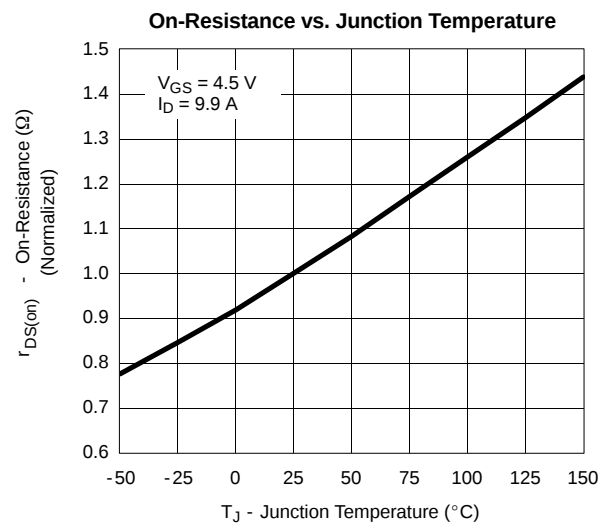
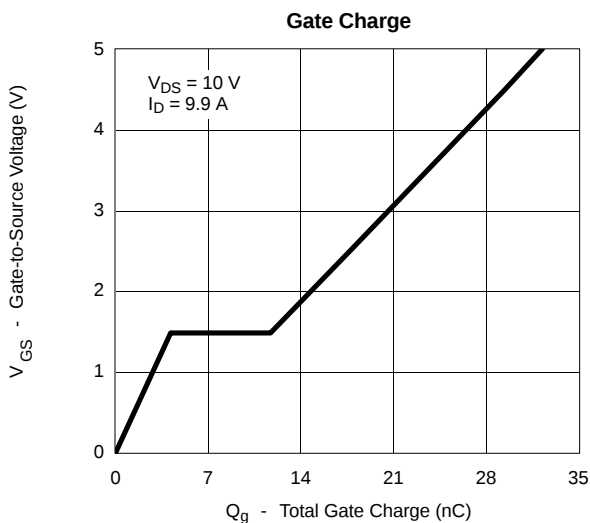
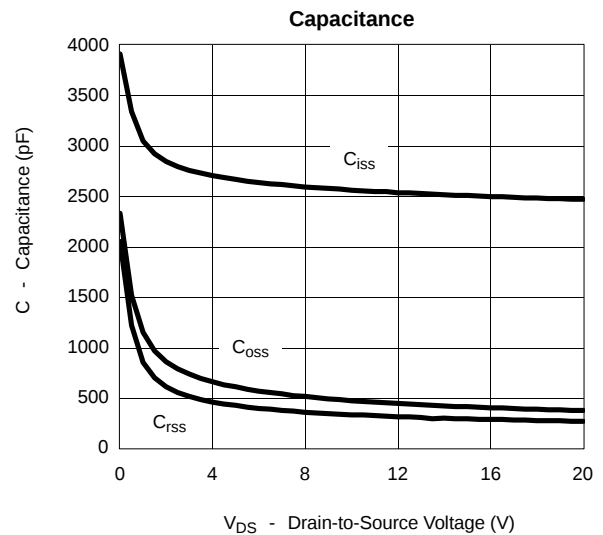
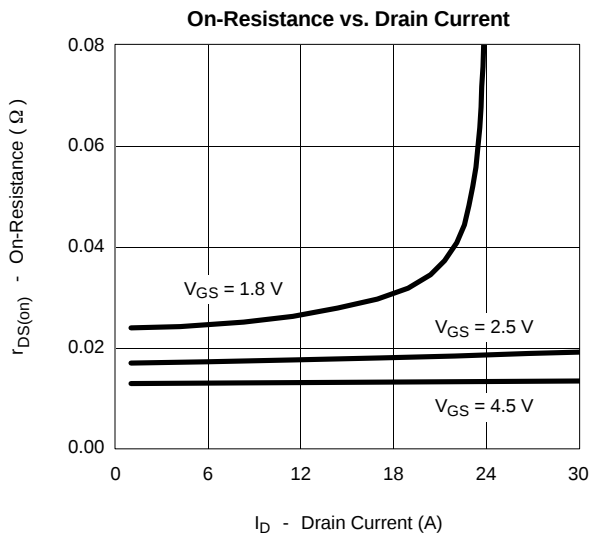
Parameter	Symbol	Test Condition	Min	Typ	Max	Unit
Static						
Gate Threshold Voltage	$V_{GS(th)}$	$V_{DS} = V_{GS}$, $I_D = -350\ \mu\text{A}$	-0.45		-1.0	V
Gate-Body Leakage	I_{GSS}	$V_{DS} = 0\ \text{V}$, $V_{GS} = \pm 8\ \text{V}$			± 100	nA
Zero Gate Voltage Drain Current	I_{DSS}	$V_{DS} = -16\ \text{V}$, $V_{GS} = 0\ \text{V}$			-1	μA
		$V_{DS} = -16\ \text{V}$, $V_{GS} = 0\ \text{V}$, $T_J = 70^\circ\text{C}$			-10	
On-State Drain Current ^a	$I_{D(on)}$	$V_{DS} = -5\ \text{V}$, $V_{GS} = -4.5\ \text{V}$	20			A
Drain-Source On-State Resistance ^a	$r_{DS(on)}$	$V_{GS} = -4.5\ \text{V}$, $I_D = -9.9\ \text{A}$		0.014	0.017	Ω
		$V_{GS} = -2.5\ \text{V}$, $I_D = -8.5\ \text{A}$		0.018	0.023	
		$V_{GS} = -1.8\ \text{V}$, $I_D = -3.1\ \text{A}$		0.024	0.032	
Forward Transconductance ^a	g_{fs}	$V_{DS} = -15\ \text{V}$, $I_D = -9.9\ \text{A}$		36		S
Diode Forward Voltage ^a	V_{SD}	$I_S = -2.3\ \text{A}$, $V_{GS} = 0\ \text{V}$		-0.8	-1.1	V
Dynamic^b						
Total Gate Charge	Q_g	$V_{DS} = -10\ \text{V}$, $V_{GS} = -5\ \text{V}$, $I_D = -9.9\ \text{A}$		33	50	nC
Gate-Source Charge	Q_{gs}			4.2		
Gate-Drain Charge	Q_{gd}			7.6		
Turn-On Delay Time	$t_{d(on)}$	$V_{DD} = -10\ \text{V}$, $R_L = 15\ \Omega$ $I_D \approx -1\ \text{A}$, $V_{GEN} = -4.5\ \text{V}$, $R_G = 6\ \Omega$		25	40	ns
Rise Time	t_r			45	70	
Turn-Off Delay Time	$t_{d(off)}$			150	225	
Fall Time	t_f			70	110	
Source-Drain Reverse Recovery Time	t_{rr}	$I_F = -2.3\ \text{A}$, $di/dt = 100\ \text{A}/\mu\text{s}$		40	60	

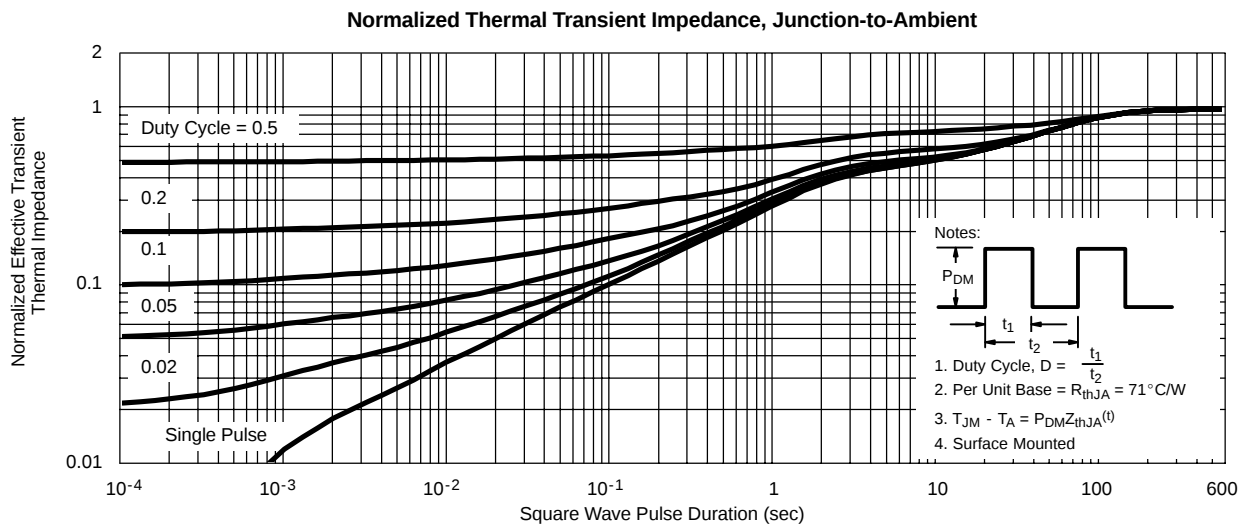
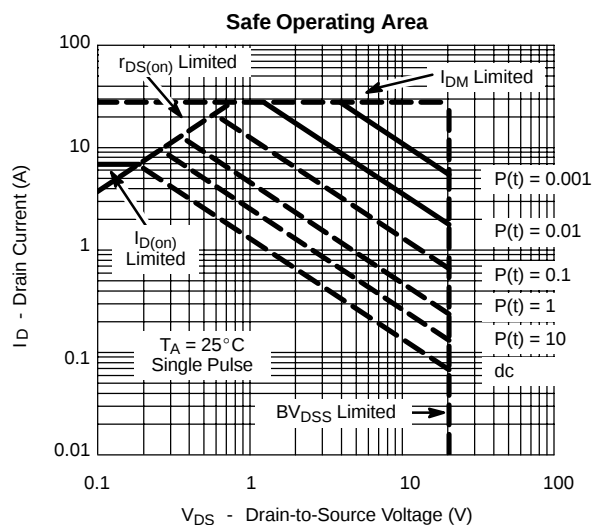
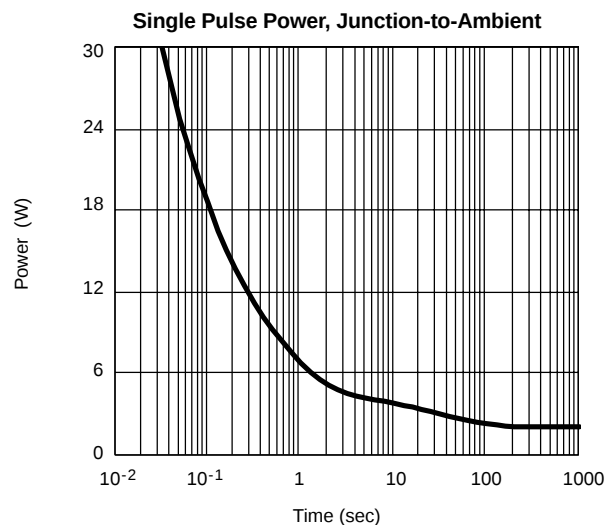
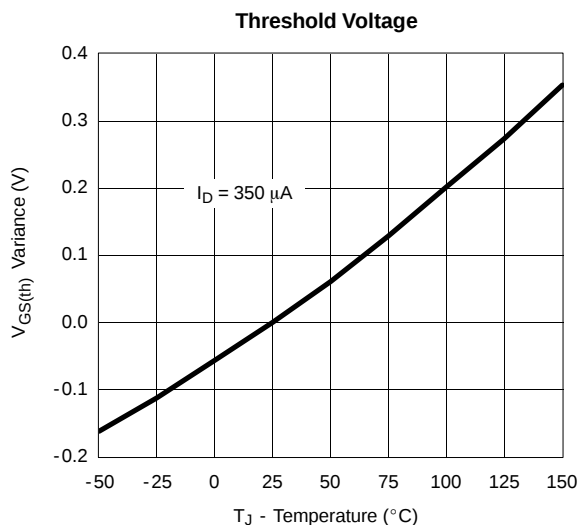
Notes

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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