

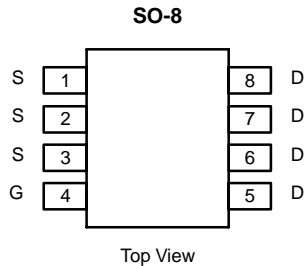


P-Channel 1.8-V (G-S) MOSFET

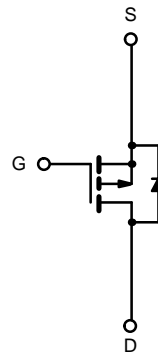
PRODUCT SUMMARY		
V_{DS} (V)	$r_{DS(on)}$ (Ω)	I_D (A)
-20	0.017 @ $V_{GS} = -4.5$ V	-9.9
	0.023 @ $V_{GS} = -2.5$ V	-8.5
	0.032 @ $V_{GS} = -1.8$ V	-7.2

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	Unit	
Drain-Source Voltage	V_{DS}	-20		V	
Gate-Source Voltage	V_{GS}	± 8			
Continuous Drain Current ($T_J = 150^\circ\text{C}$) ^a	I_D	$T_A = 25^\circ\text{C}$	-9.9	-7.3	A
		$T_A = 70^\circ\text{C}$	-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	P_D	$T_A = 25^\circ\text{C}$	2.5	1.35	W
		$T_A = 70^\circ\text{C}$	1.6	0.87	
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	R_{thJA}	$t \leq 10$ sec	43	50	$^\circ\text{C/W}$
		Steady State	71	92	
Maximum Junction-to-Foot (Drain)	R_{thJF}	19	25		

Notes

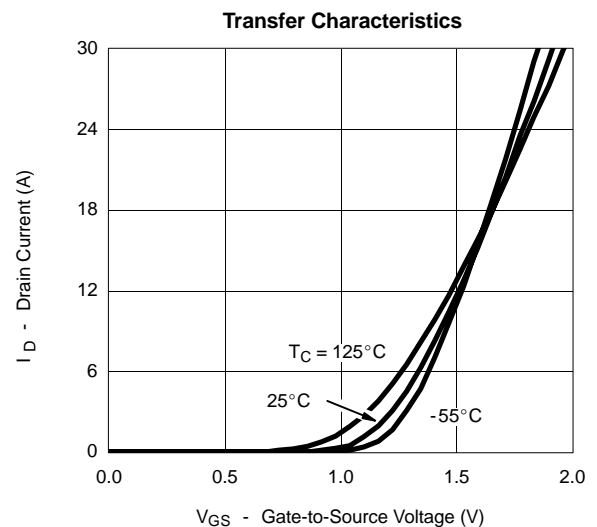
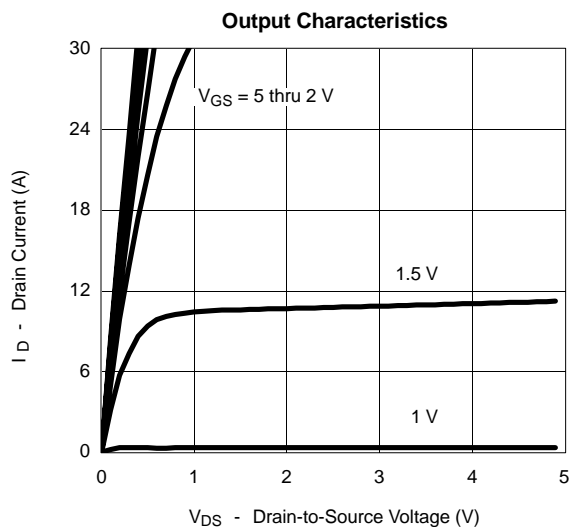
a Surface Mounted on 1" x 1" FR4 Board.

SPECIFICATIONS (T_J = 25 °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 μA	-0.45		-1.0	V
Gate-Body Leakage	I _{GSS}	V _{DS} = 0 V, V _{GS} = ±8 V			±100	nA
Zero Gate Voltage Drain Current	I _{DSS}	V _{DS} = -16 V, V _{GS} = 0 V			-1	μA
		V _{DS} = -16 V, V _{GS} = 0 V, T _J = 70 °C			-10	
On-State Drain Current ^a	I _{D(on)}	V _{DS} = -5 V, V _{GS} = -4.5 V	20			A
Drain-Source On-State Resistance ^a	r _{DS(on)}	V _{GS} = -4.5 V, I _D = -9.9 A		0.014	0.017	Ω
		V _{GS} = -2.5 V, I _D = -8.5 A		0.018	0.023	
		V _{GS} = -1.8 V, I _D = -3.1 A		0.024	0.032	
Forward Transconductance ^a	g _{fs}	V _{DS} = -15 V, I _D = -9.9 A		36		S
Diode Forward Voltage ^a	V _{SD}	I _S = -2.3 A, V _{GS} = 0 V		-0.8	-1.1	V
Dynamic^b						
Total Gate Charge	Q _g	V _{DS} = -10 V, V _{GS} = -5 V, I _D = -9.9 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 V, R _L = 15 Ω I _D ≅ -1 A, V _{GEN} = -4.5 V, R _G = 6 Ω		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 A, di/dt = 100 A/μs		40	60	

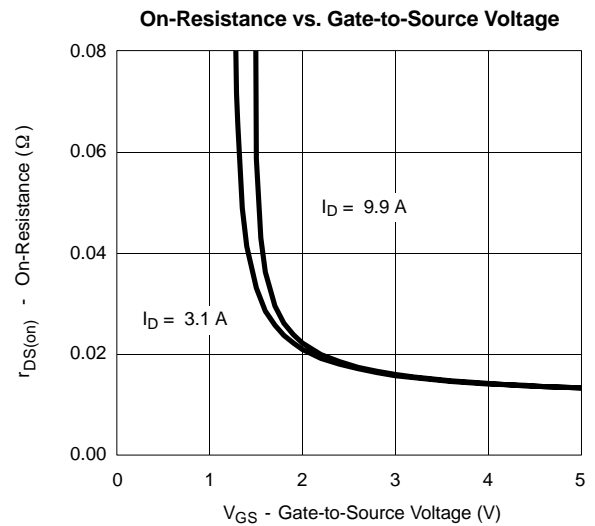
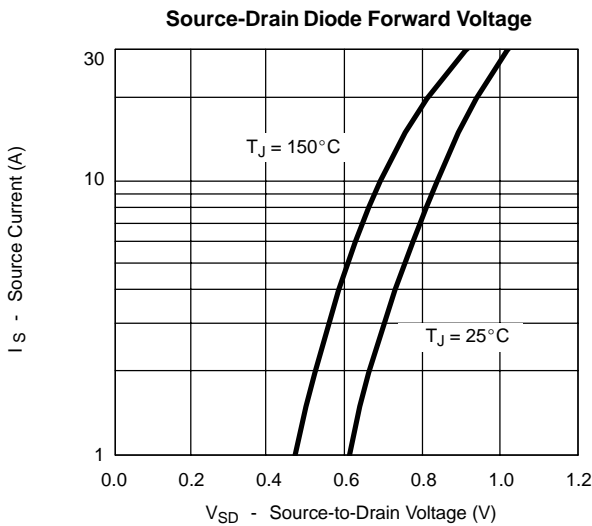
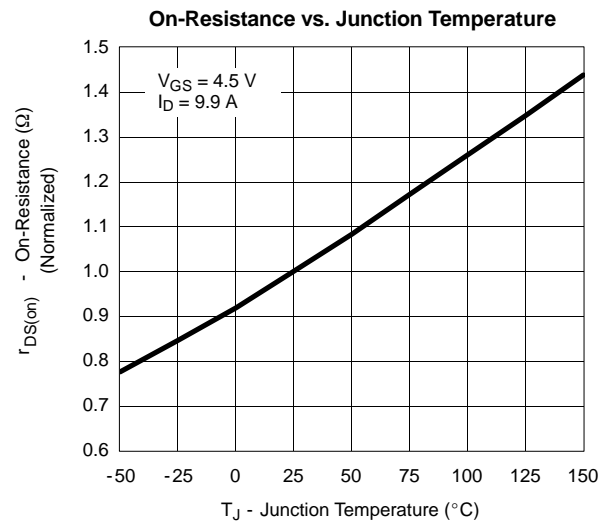
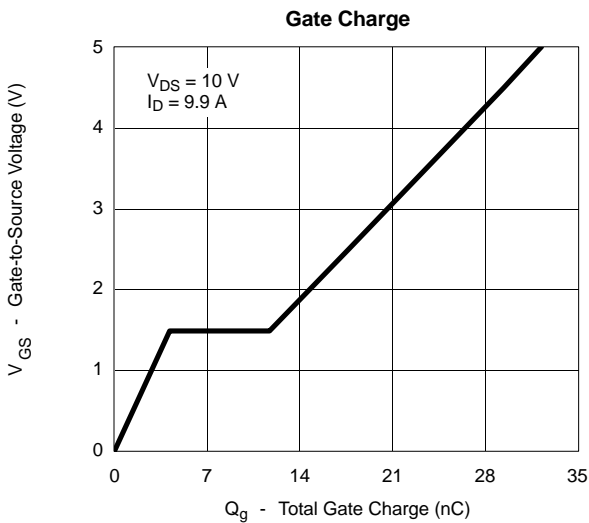
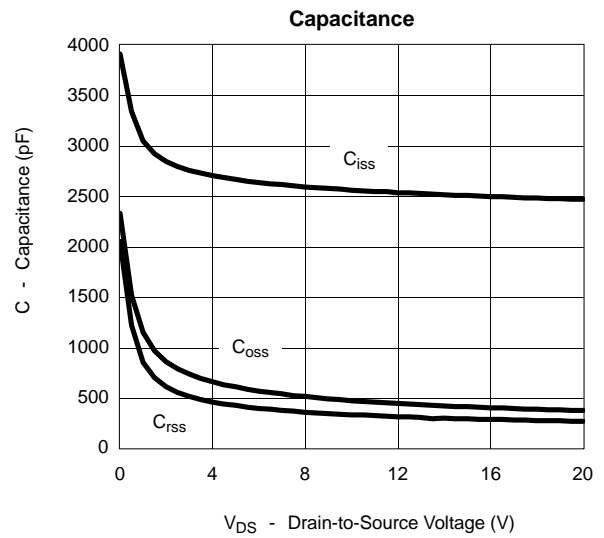
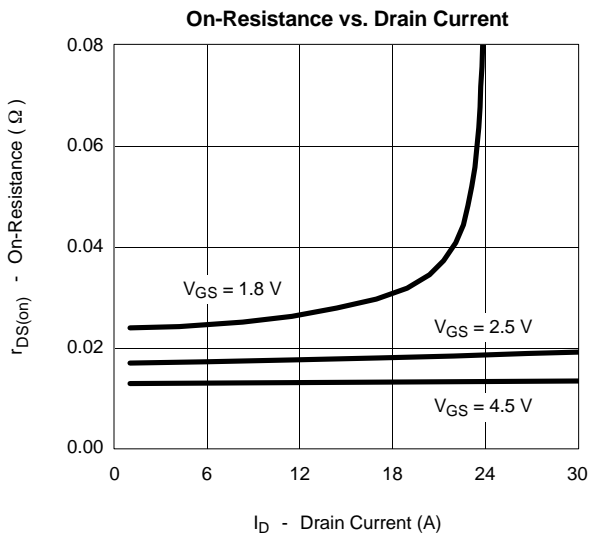
Notes

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

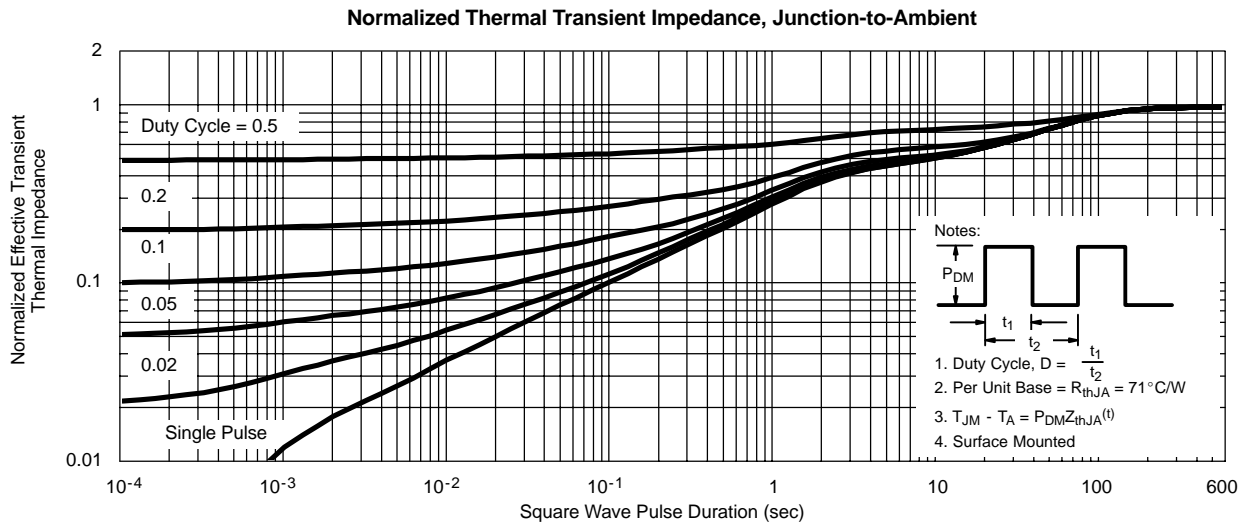
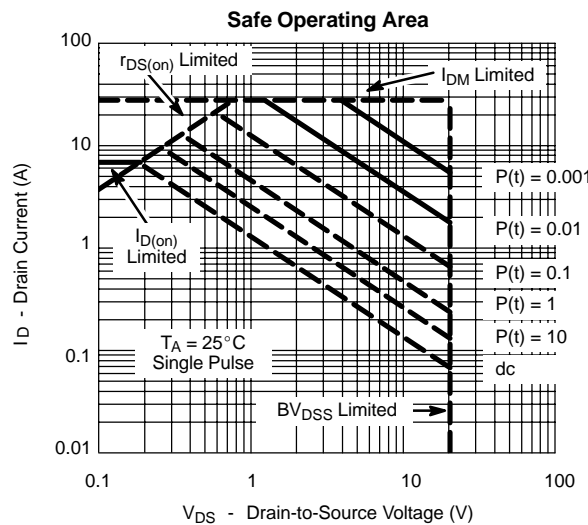
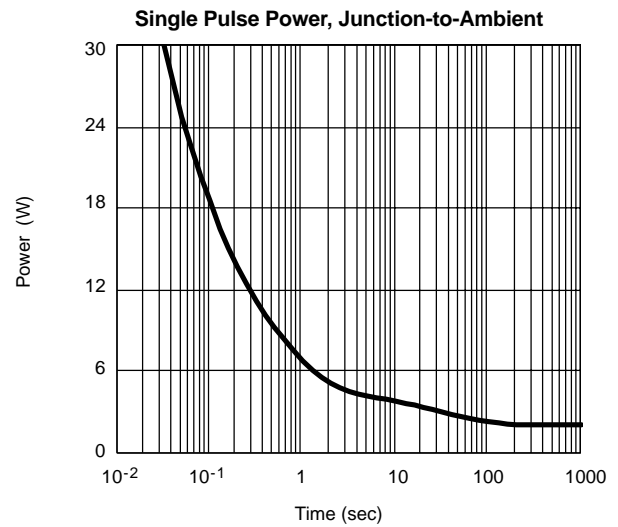
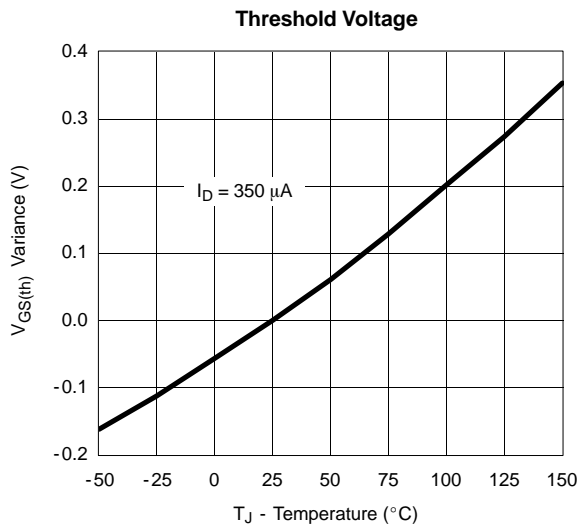
TYPICAL CHARACTERISTICS (25 °C UNLESS NOTED)



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