

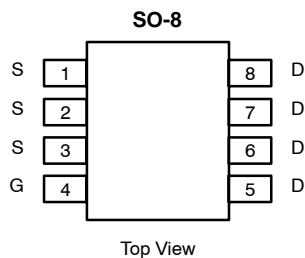


N-Channel 30-V MOSFET

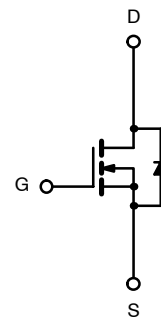
PRODUCT SUMMARY		
V_{DS} (V)	$r_{DS(on)}$ (Ω)	I_D (A)
30	0.007 @ $V_{GS} = 10$ V	16
	0.0085 @ $V_{GS} = 4.5$ V	14

FEATURES

- TrenchFET® Power MOSFETS
- 100% R_g Tested



Ordering Information: Si4874BDY—E3
Si4874BDY-T1—E3 (with Tape and Reel)



ABSOLUTE MAXIMUM RATINGS ($T_A = 25^\circ\text{C}$ UNLESS OTHERWISE NOTED)					
Parameter	Symbol	10 secs	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	I_D	$T_A = 25^\circ\text{C}$	16	12	A
		$T_A = 70^\circ\text{C}$	13	9	
Pulsed Drain Current	I_{DM}	± 50			
Continuous Source Current (Diode Conduction) ^a	I_S	2.7	1.40		
Maximum Power Dissipation ^a	P_D	$T_A = 25^\circ\text{C}$	3.0	1.6	W
		$T_A = 70^\circ\text{C}$	2.0	1.0	
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 (MOSFET) ^a	R_{thJA}	$t \leq 10$ sec	34	41	$^\circ\text{C}/\text{W}$
		Steady State	68	80	
Maximum Junction-to-Foot (Drain)	R_{thJF}	16	21		

Notes

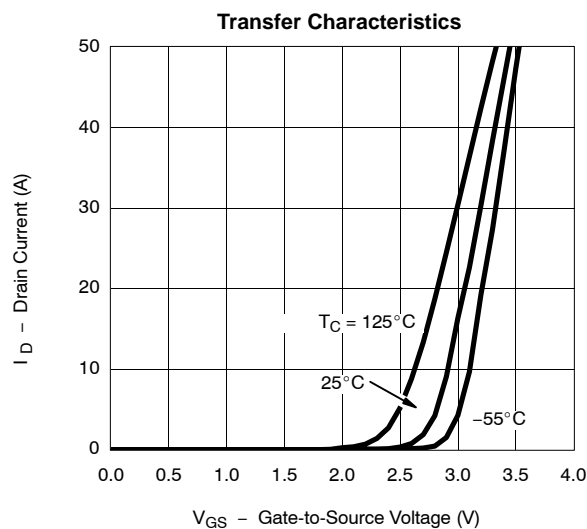
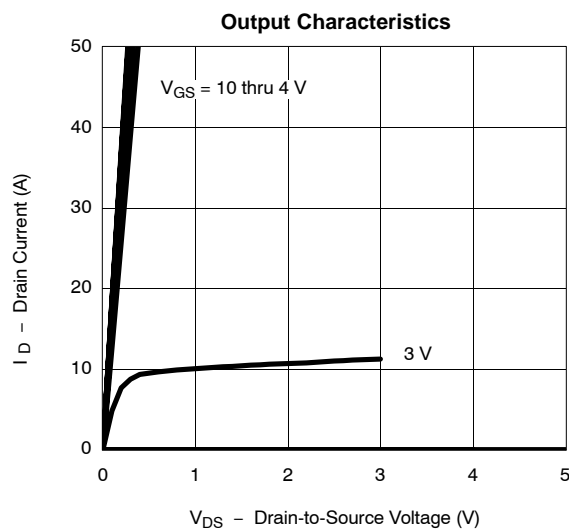
a. Surface Mounted on 1" x 1" FR4 Board.

MOSFET 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 = 250 μA	1.0		3.0	V
Gate-Body Leakage	I _{GSS}	V _{DS} = 0 V, V _{GS} = ±20 V			±100	nA
Zero Gate Voltage Drain Current	I _{DSS}	V _{DS} = 30 V, V _{GS} = 0 V			1	μA
		V _{DS} = 30 V, V _{GS} = 0 V, T _J = 70 °C			5	
On-State Drain Current ^a	I _{D(on)}	V _{DS} ≥ 5 V, V _{GS} = 10 V	30			A
Drain-Source On-State Resistance ^a	r _{DS(on)}	V _{GS} = 10 V, I _D = 16 A		0.0057	0.007	Ω
		V _{GS} = 4.5 V, I _D = 14 A		0.0068	0.0085	
Forward Transconductance ^a	g _{fs}	V _{DS} = 15 V, I _D = 16 A		65		S
Diode Forward Voltage ^a	V _{SD}	I _S = 2.7 A, V _{GS} = 0 V		0.74	1.1	V
Dynamic^b						
Total Gate Charge	Q _g	V _{DS} = 15 V, V _{GS} = 4.5 V, I _D = 16 A		21	25	nC
Gate-Source Charge	Q _{gs}			9.5		
Gate-Drain Charge	Q _{gd}			6.5		
Gate-Resistance	R _g		0.4	0.9	1.4	Ω
Turn-On Delay Time	t _{d(on)}	V _{DD} = 15 V, R _L = 15 Ω I _D ≅ 1 A, V _{GEN} = 10 V, R _g = 6 Ω		16	25	ns
Rise Time	t _r			10	20	
Turn-Off Delay Time	t _{d(off)}			57	90	
Fall Time	t _f			15	25	
Source-Drain Reverse Recovery Time	t _{rr}	I _F = 2.7 A, di/dt = 100 A/μs		40	60	

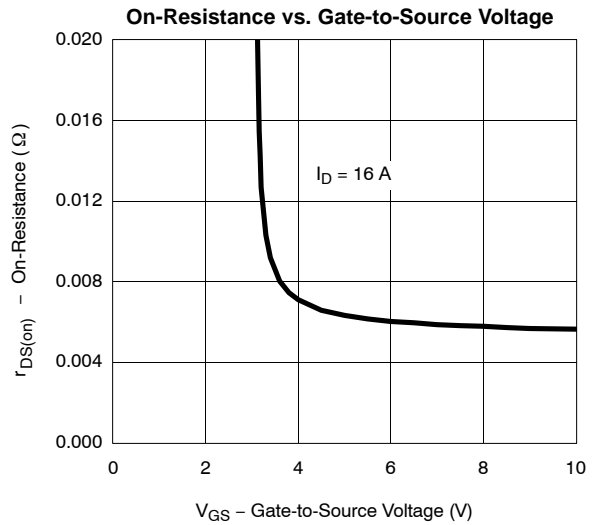
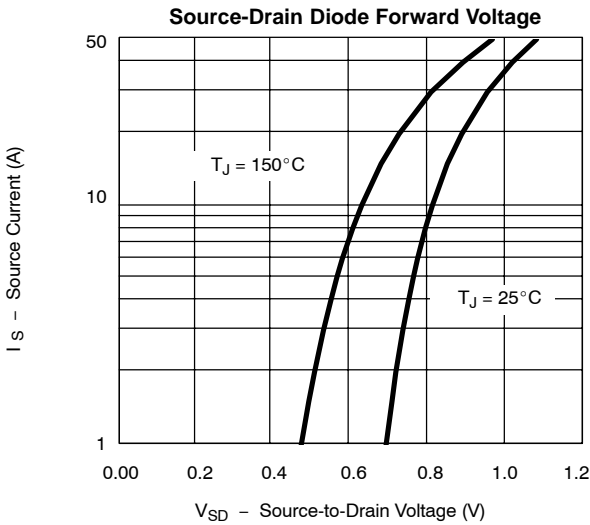
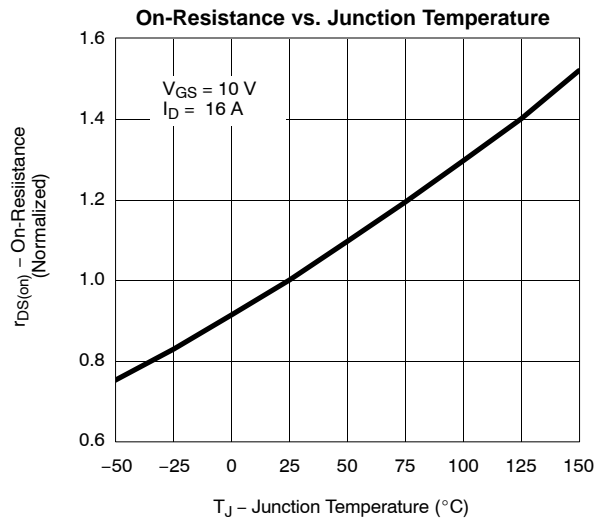
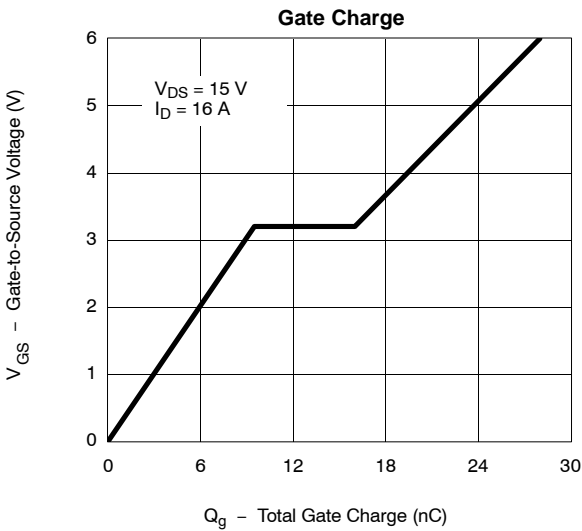
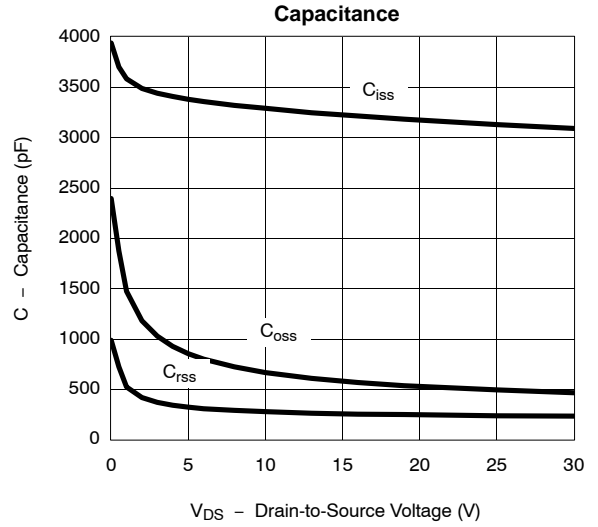
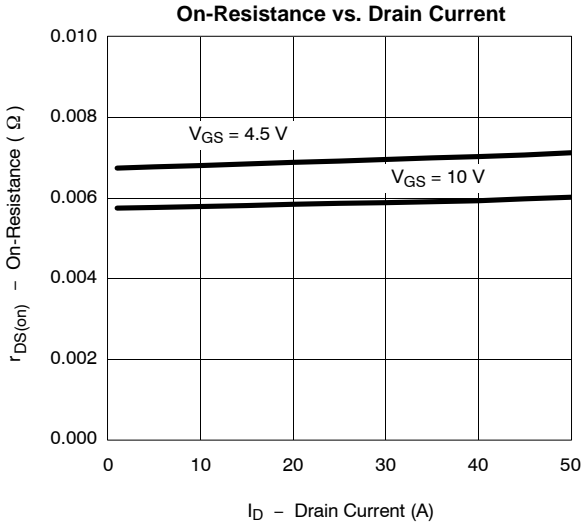
Notes

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

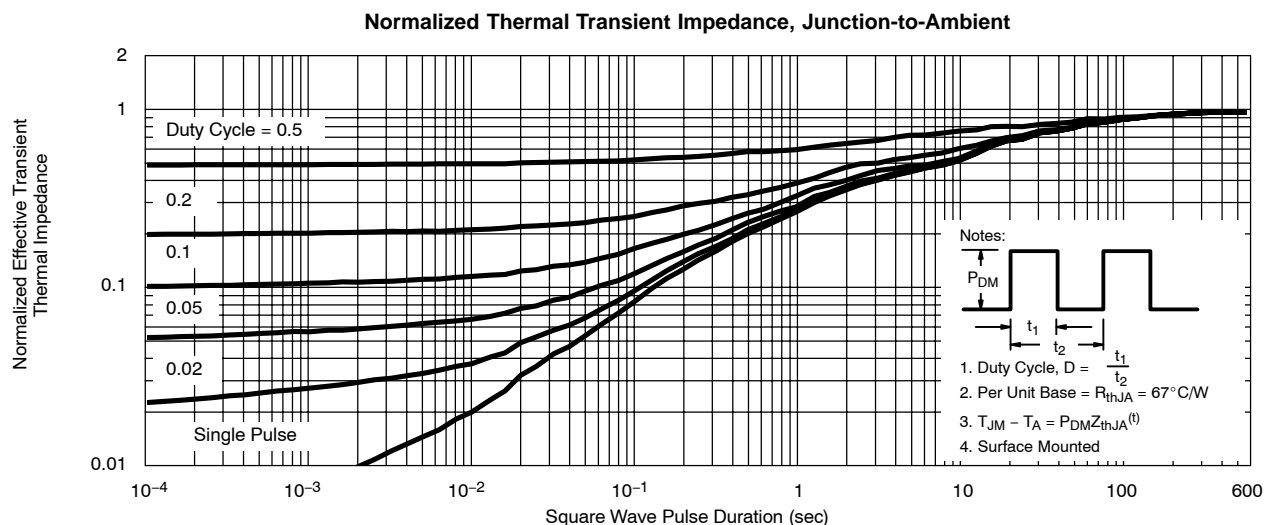
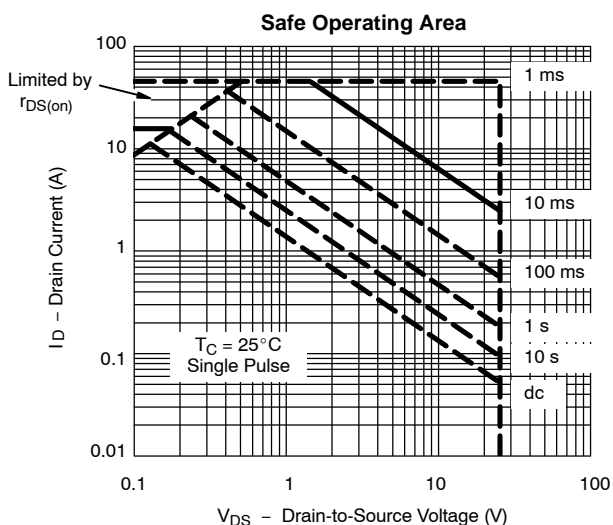
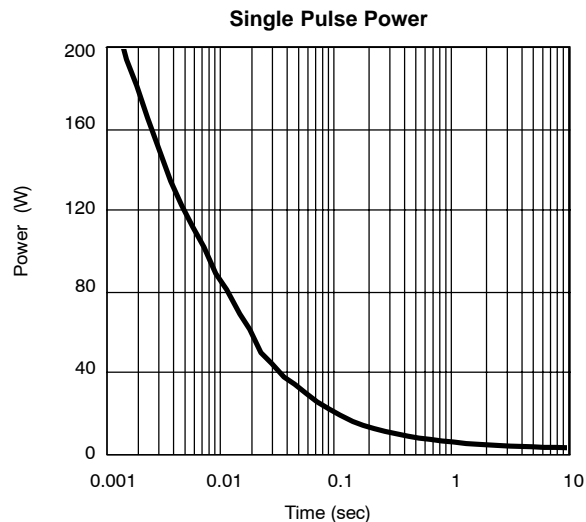
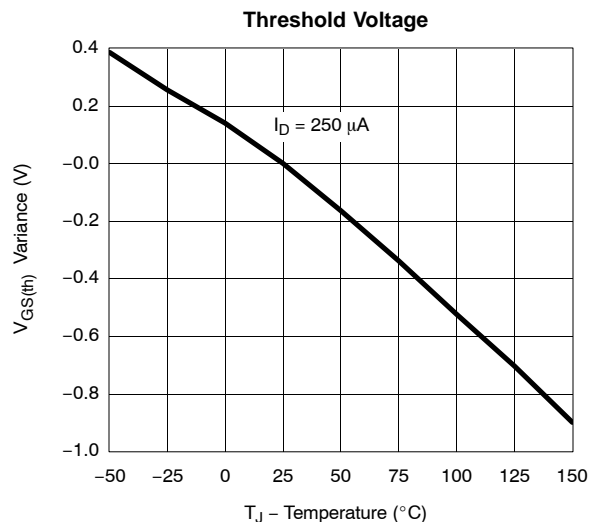
TYPICAL CHARACTERISTICS (25 °C UNLESS NOTED)



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