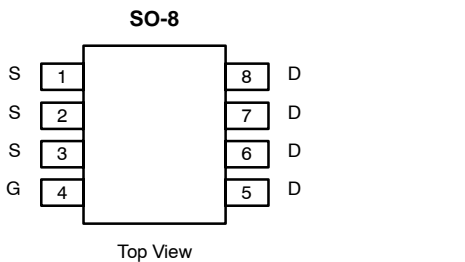




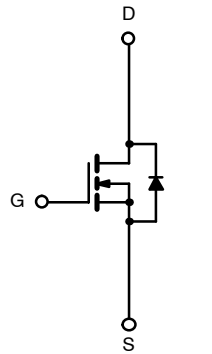
N-Channel Reduced Q_g , Fast Switching MOSFET

PRODUCT SUMMARY		
V_{DS} (V)	$r_{DS(on)}$ (Ω)	I_D (A)
60	0.022 @ $V_{GS} = 10$ V	8.5
	0.031 @ $V_{GS} = 4.5$ V	7.2

175°C Rated
Maximum Junction Temperature
TrenchFET®
Power MOSFETS



Ordering Information: Si4850EY
Si4850EY—E3 (Lead Free)
Si4850EY-T1 (with Tape and Reel)
Si4850EY-T1—E3 (Lead Free 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}	60		V
Gate-Source Voltage		V_{GS}	± 20		
Continuous Drain Current ($T_J = 175^\circ\text{C}$) ^a	$T_A = 25^\circ\text{C}$	I_D	8.5	6.0	A
	$T_A = 70^\circ\text{C}$		7.1	5.0	
Pulsed Drain Current		I_{DM}	40		
Avalanche Current		I_{AS}	15		
Repetitive Avalanche Energy		E_{AS}	11		mJ
Maximum Power Dissipation ^a	$T_A = 25^\circ\text{C}$	P_D	3.3	1.7	W
	$T_A = 70^\circ\text{C}$		2.3	1.2	
Operating Junction and Storage Temperature Range		T_J, T_{stg}	-55 to 175		$^\circ\text{C}$

THERMAL RESISTANCE RATINGS					
Parameter		Symbol	Typical	Maximum	Unit
Maximum Junction-to-Ambient ^a	$t \leq 10$ sec	R_{thJA}	36	45	$^\circ\text{C}/\text{W}$
	Steady State		75	90	
Maximum Junction-to-Foot (Drain)	Steady State	R_{thJF}	17	20	

Notes

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

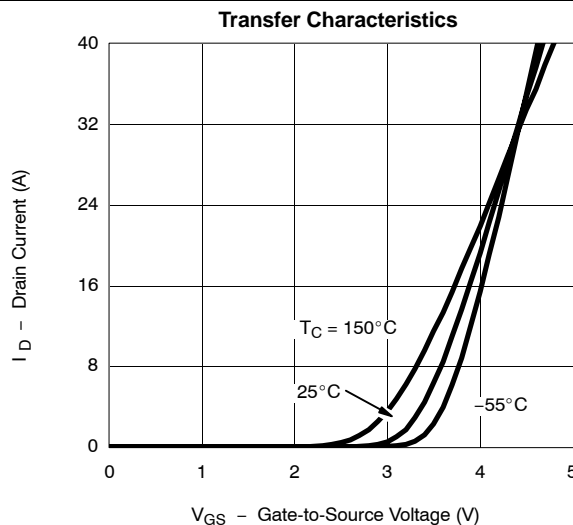
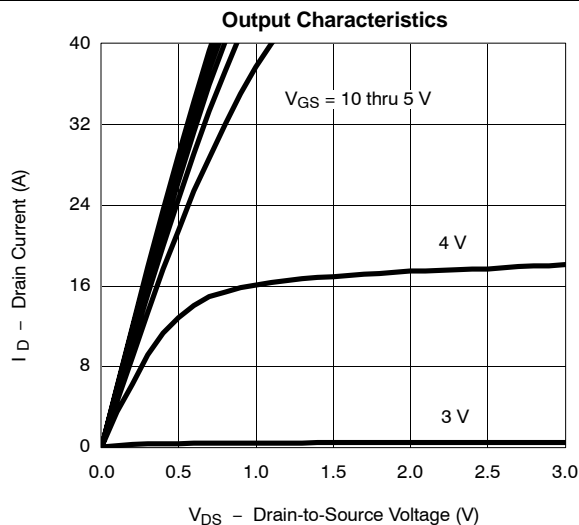
SPECIFICATIONS (T_J = 25 °C UNLESS OTHERWISE NOTED)

Parameter	Symbol	Test Condition	Min	Typ	Max	Unit
Static						
Drain-Source Breakdown Voltage	V _{(BR)DSS}	V _{GS} = 0 V, I _D = 250 μA	60			V
Gate Threshold Voltage	V _{GS(th)}	V _{DS} = V _{GS} , I _D = 250 μA	1			
Gate-Body Leakage	I _{GSS}	V _{DS} = 0 V, V _{GS} = ±20 V			±100	nA
Zero Gate Voltage Drain Current	I _{DSS}	V _{DS} = 60 V, V _{GS} = 0 V			1	μA
		V _{DS} = 60 V, V _{GS} = 0 V, T _J = 55 °C			20	
On-State Drain Current ^a	I _{D(on)}	V _{DS} ≥ 5 V, V _{GS} = 10 V	40			A
Drain-Source On-State Resistance ^a	r _{DS(on)}	V _{GS} = 10 V, I _D = 6.0 A		0.018	0.022	Ω
		V _{GS} = 10 V, I _D = 6.0 A, T _J = 125 °C		0.031	0.037	
		V _{GS} = 10 V, I _D = 6.0 A, T _J = 175 °C		0.039	0.047	
		V _{GS} = 4.5 V, I _D = 5.1 A		0.025	0.031	
Forward Transconductance ^a	g _{fs}	V _{DS} = 15 V, I _D = 6.0 A		25		S
Diode Forward Voltage ^a	V _{SD}	I _S = 1.7 A, V _{GS} = 0 V		0.8	1.2	V
Dynamic^b						
Total Gate Charge	Q _g	V _{DS} = 30 V, V _{GS} = 10 V, I _D = 6.0 A		18	27	nC
Gate-Source Charge	Q _{gs}			3.4		
Gate-Drain Charge	Q _{gd}			5.3		
Gate Resistance	R _g	V _{GS} = 0.1 V, f = 5 MHz	0.5	1.4	2.4	Ω
Turn-On Delay Time	t _{d(on)}	V _{DD} = 30 V, R _L = 30 Ω I _D ≅ 1 A, V _{GEN} = 10 V, R _g = 6 Ω		10	20	ns
Rise Time	t _r			10	20	
Turn-Off Delay Time	t _{d(off)}			25	50	
Fall Time	t _f			12	24	
Source-Drain Reverse Recovery Time	t _{rr}	I _F = 1.7 A, di/dt = 100 A/μs		50	80	

Notes

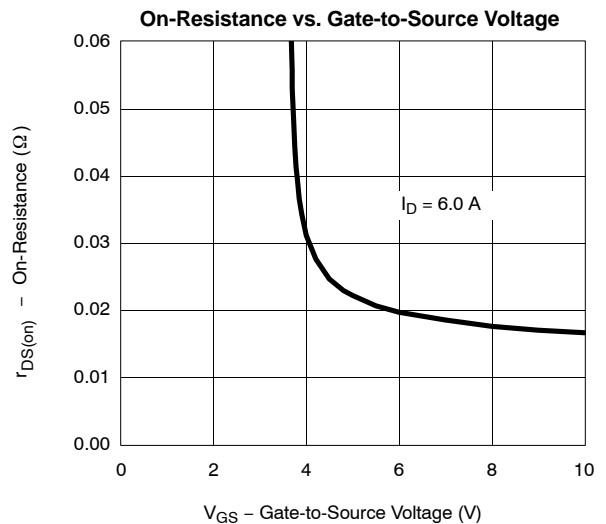
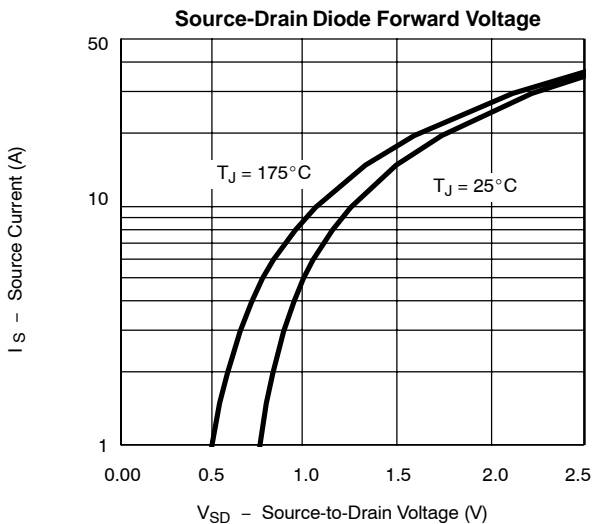
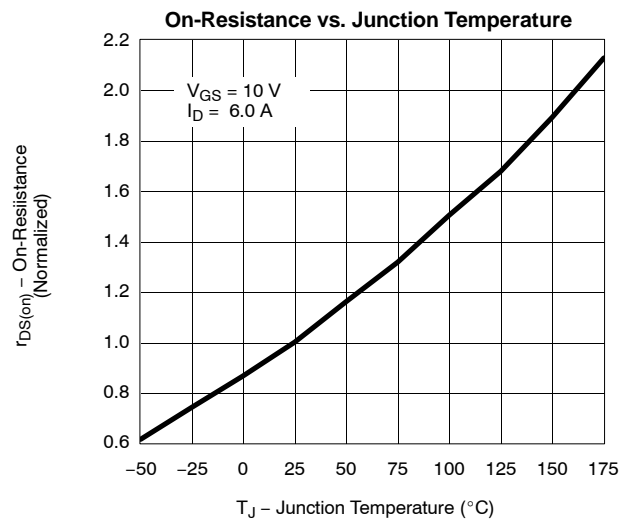
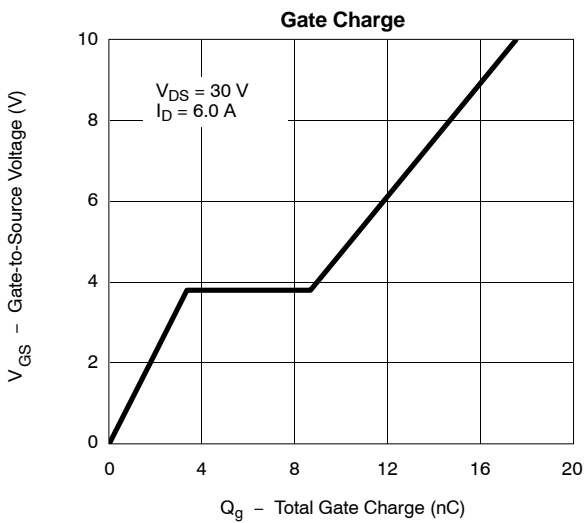
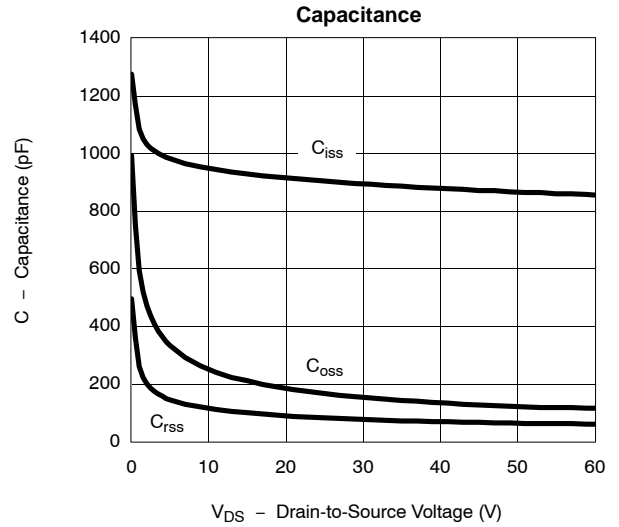
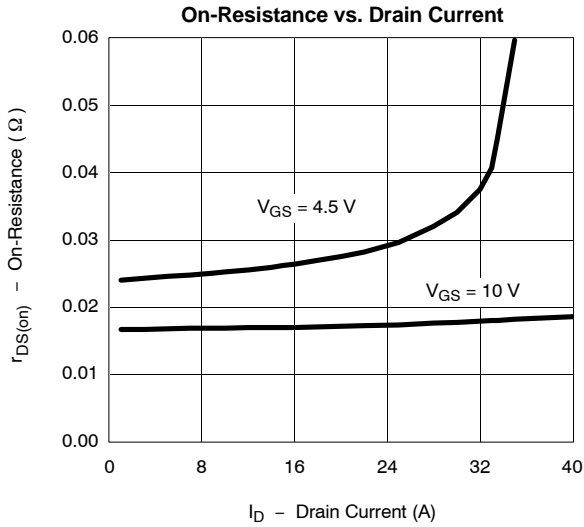
- a. Pulse test; pulse width ≤ 300 μs, duty cycle ≤ 2%.
- b. Guaranteed by design, not subject to production testing.

TYPICAL CHARACTERISTICS (25 °C UNLESS NOTED)

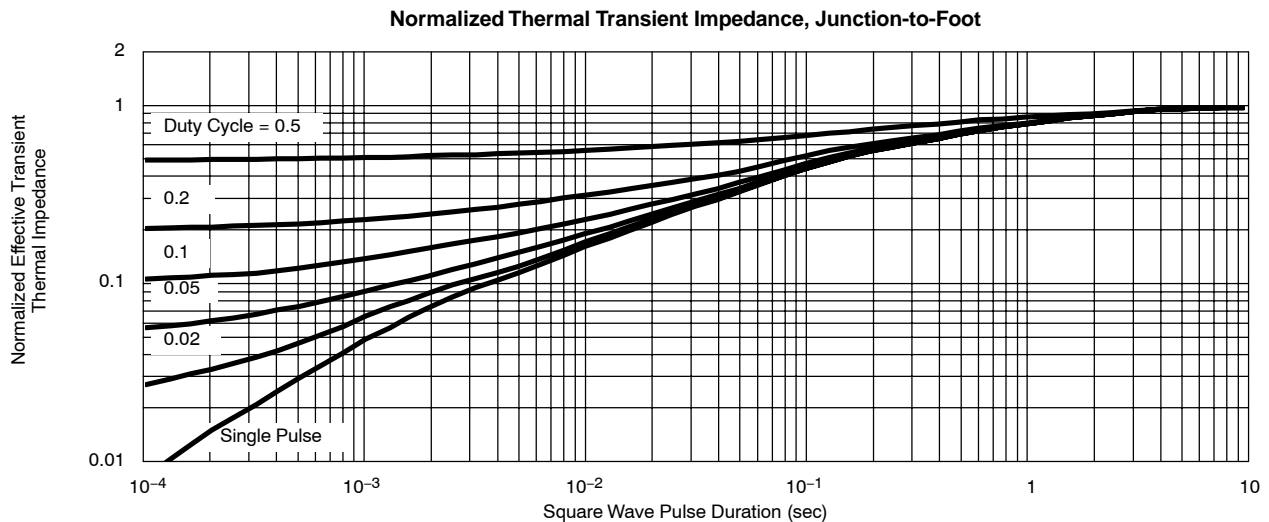
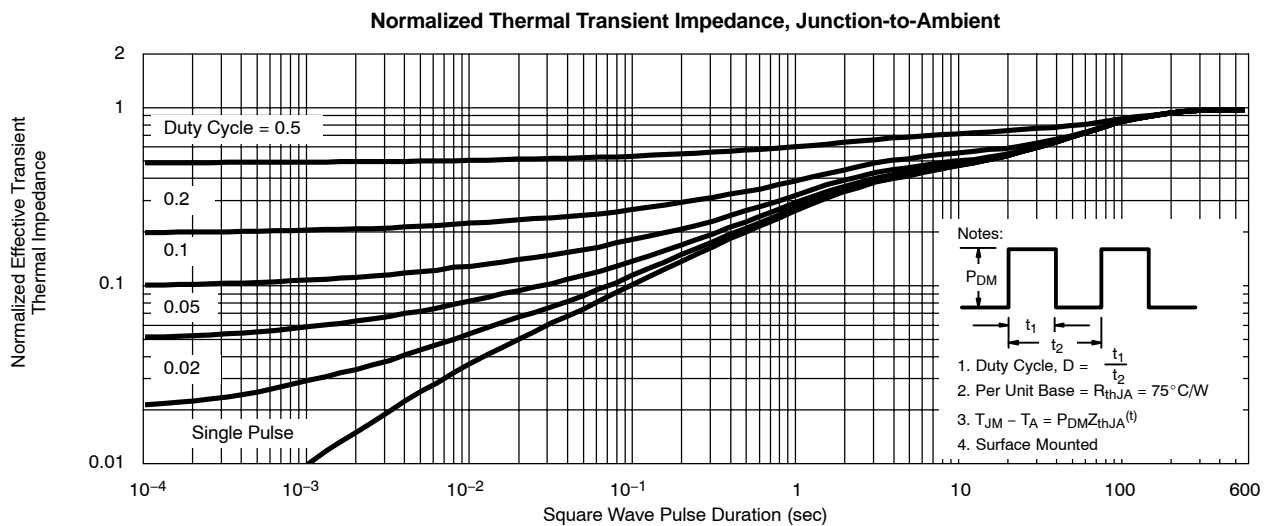
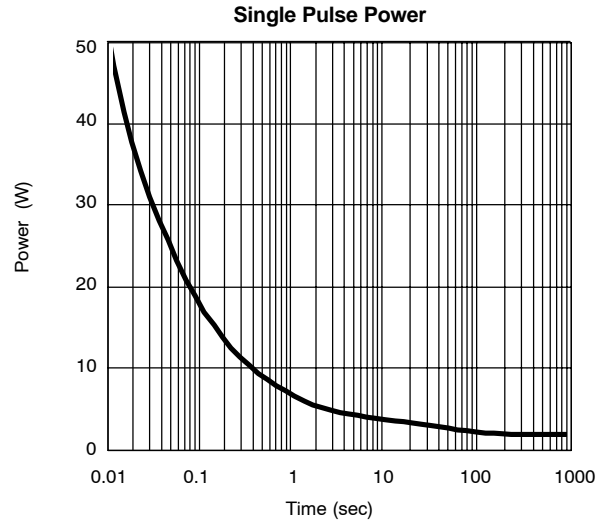
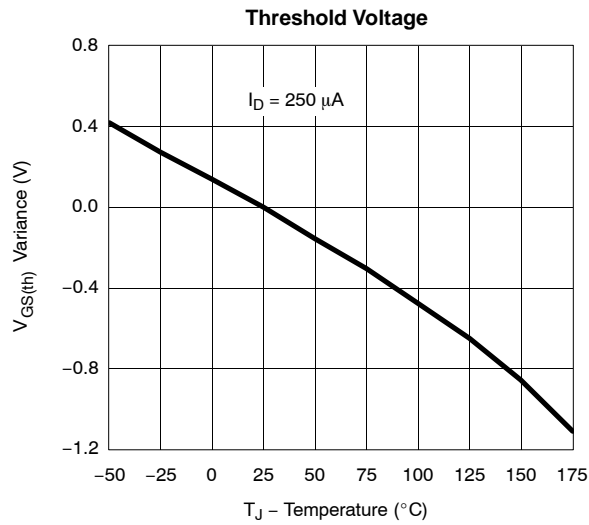




TYPICAL CHARACTERISTICS (25 °C UNLESS NOTED)



TYPICAL CHARACTERISTICS (25 °C UNLESS NOTED)





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