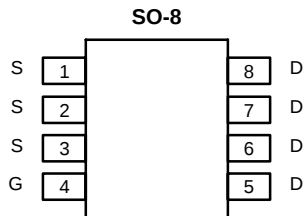


N-Channel Reduced Q_g , Fast Switching MOSFET

PRODUCT SUMMARY

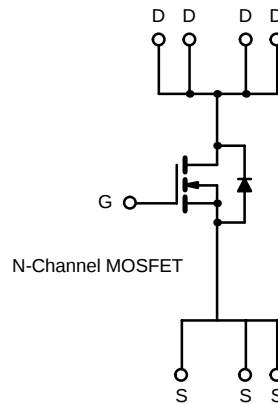
V_{DS} (V)	$r_{DS(on)}$ (Ω)	I_D (A)
30	0.0105 @ $V_{GS} = 10$ V	12
	0.0165 @ $V_{GS} = 4.5$ V	10

TrenchFET[®]
Power MOSFETs
High-Efficiency
PWM Optimized



Top View

Ordering Information: Si4884DY
Si4884DY-T1 (with Tape and Reel)

ABSOLUTE MAXIMUM RATINGS ($T_A = 25^\circ\text{C}$ UNLESS OTHERWISE NOTED)

Parameter		Symbol	Limit	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}	$T_A = 25^\circ\text{C}$	I_D	12	A
	$T_A = 70^\circ\text{C}$		10	
Pulsed Drain Current		I_{DM}	50	
Continuous Source Current (Diode Conduction) ^{a, b}		I_S	2.3	
Maximum Power Dissipation ^{a, b}	$T_A = 25^\circ\text{C}$	P_D	2.95	W
	$T_A = 70^\circ\text{C}$		1.9	
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	t ≤ 10 sec	R _{thJA}	35	42	°C/W
	Steady State		68	80	
Maximum Junction-to-Foot		R _{thJF}	18	23	

Notes

- a. Surface Mounted on FR4 Board.
b. $t \leq 10$ sec.

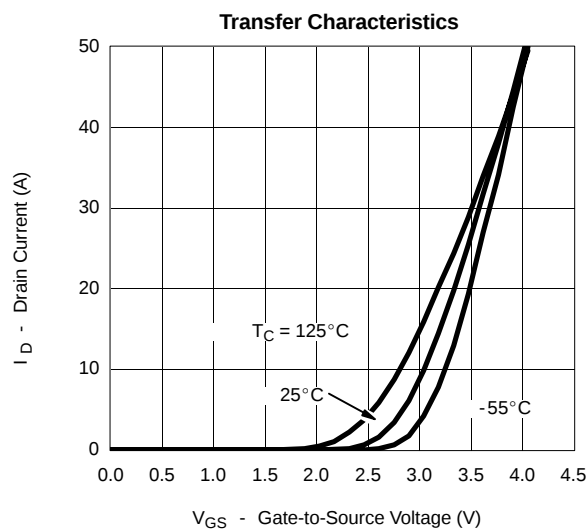
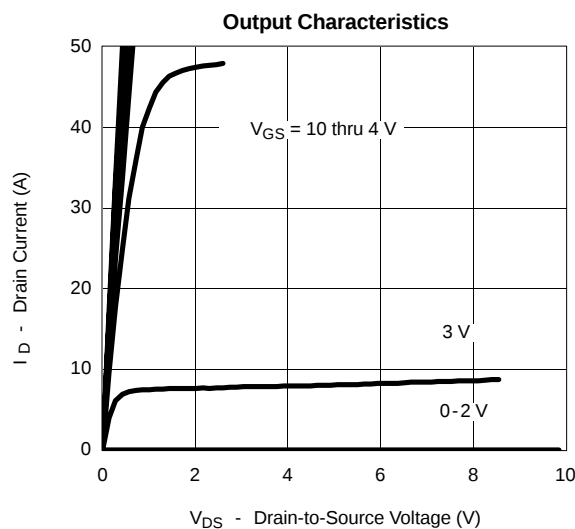
MOSFET SPECIFICATIONS ($T_J = 25^\circ\text{C}$ UNLESS OTHERWISE NOTED)

Parameter	Symbol	Test Condition	Min	Typ	Max	Unit
Static						
Gate Threshold Voltage	$V_{GS(th)}$	$V_{DS} = V_{GS}$, $I_D = 250\ \mu\text{A}$	1.0			V
Gate-Body Leakage	I_{GSS}	$V_{DS} = 0\ \text{V}$, $V_{GS} = \pm 20\ \text{V}$			± 100	nA
Zero Gate Voltage Drain Current	I_{DSS}	$V_{DS} = 24\ \text{V}$, $V_{GS} = 0\ \text{V}$			1	μA
		$V_{DS} = 24\ \text{V}$, $V_{GS} = 0\ \text{V}$, $T_J = 55^\circ\text{C}$			5	
On-State Drain Current ^a	$I_{D(on)}$	$V_{DS} \geq 5\ \text{V}$, $V_{GS} = 10\ \text{V}$	40			A
Drain-Source On-State Resistance ^a	$r_{DS(on)}$	$V_{GS} = 10\ \text{V}$, $I_D = 12\ \text{A}$		0.0086	0.0105	Ω
		$V_{GS} = 4.5\ \text{V}$, $I_D = 10\ \text{A}$		0.0135	0.0165	
Forward Transconductance ^a	g_{fs}	$V_{DS} = 15\ \text{V}$, $I_D = 12\ \text{A}$		26		S
Diode Forward Voltage ^a	V_{SD}	$I_S = 2.3\ \text{A}$, $V_{GS} = 0\ \text{V}$		0.74	1.1	V
Dynamic^b						
Total Gate Charge	Q_g	$V_{DS} = 15\ \text{V}$, $V_{GS} = 5.0\ \text{V}$, $I_D = 12\ \text{A}$		15.3	20	nC
Gate-Source Charge	Q_{gs}			5.8		
Gate-Drain Charge	Q_{gd}			4.8		
Gate Resistance	R_g		0.5		2.2	Ω
Turn-On Delay Time	$t_{d(on)}$	$V_{DD} = 15\ \text{V}$, $R_L = 15\ \Omega$ $I_D \approx 1\ \text{A}$, $V_{GEN} = 10\ \text{V}$, $R_G = 6\ \Omega$		13	20	ns
Rise Time	t_r			7	12	
Turn-Off Delay Time	$t_{d(off)}$			55	82	
Fall Time	t_f			16	30	
Source-Drain Reverse Recovery Time	t_{rr}	$I_F = 2.3\ \text{A}$, $di/dt = 100\ \text{A}/\mu\text{s}$		40	70	

Notes

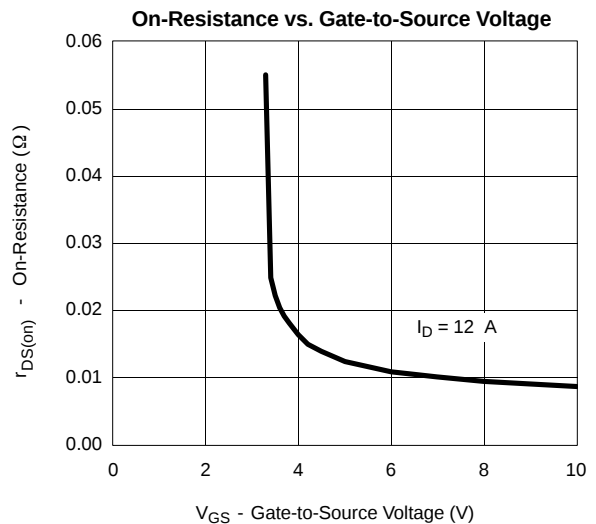
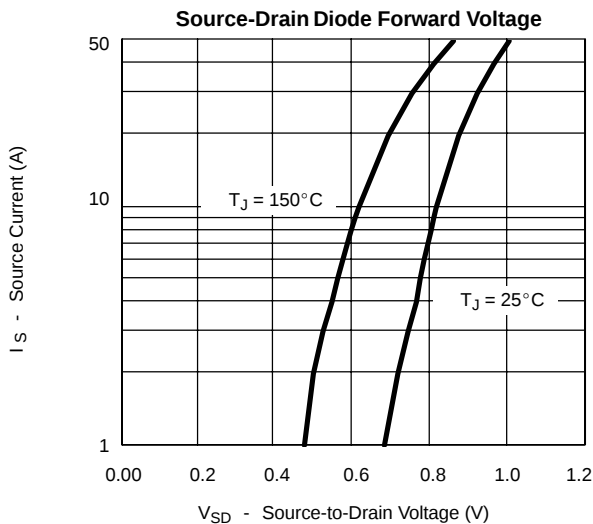
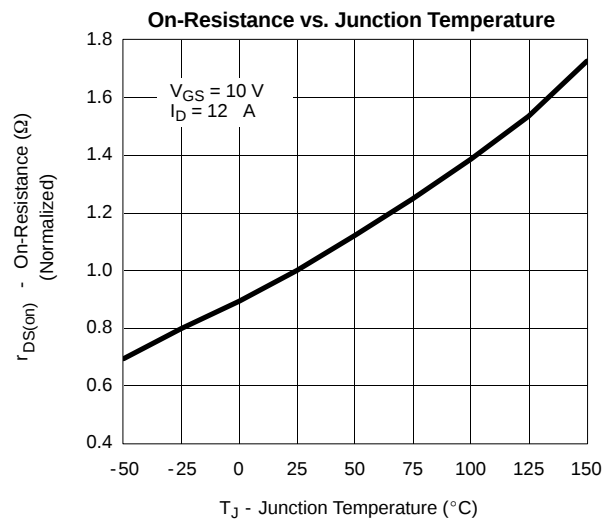
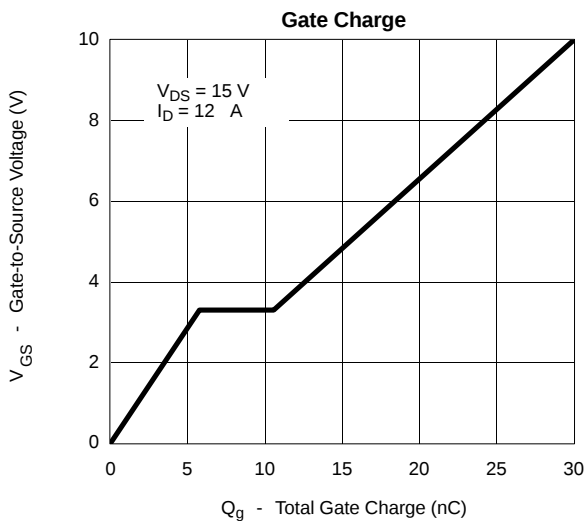
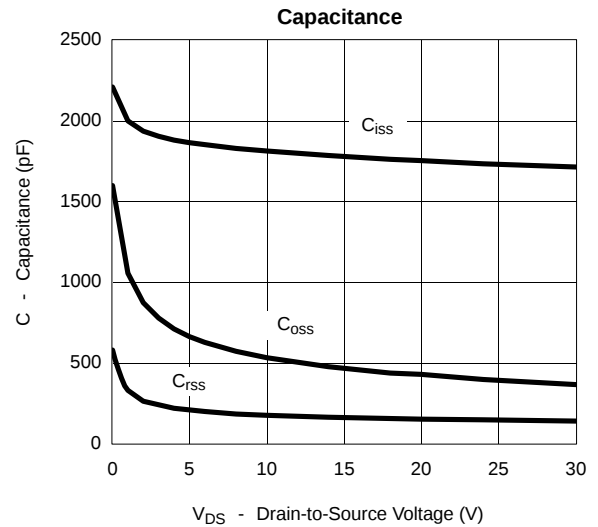
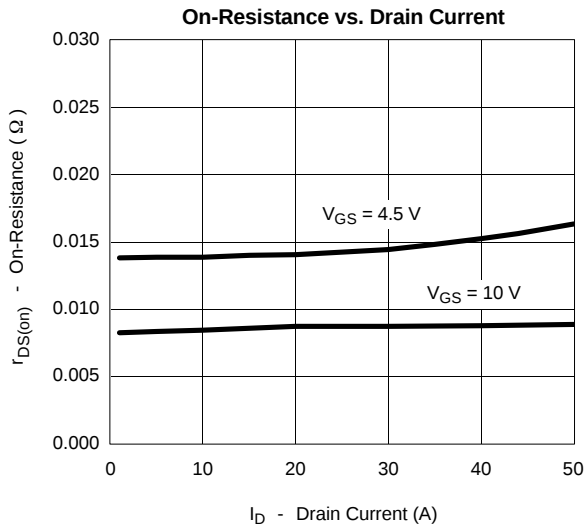
a. Pulse test; pulse width $\leq 300\ \mu\text{s}$, duty cycle $\leq 2\%$.

b. Guaranteed by design, not subject to production testing.

TYPICAL CHARACTERISTICS (25°C UNLESS NOTED)

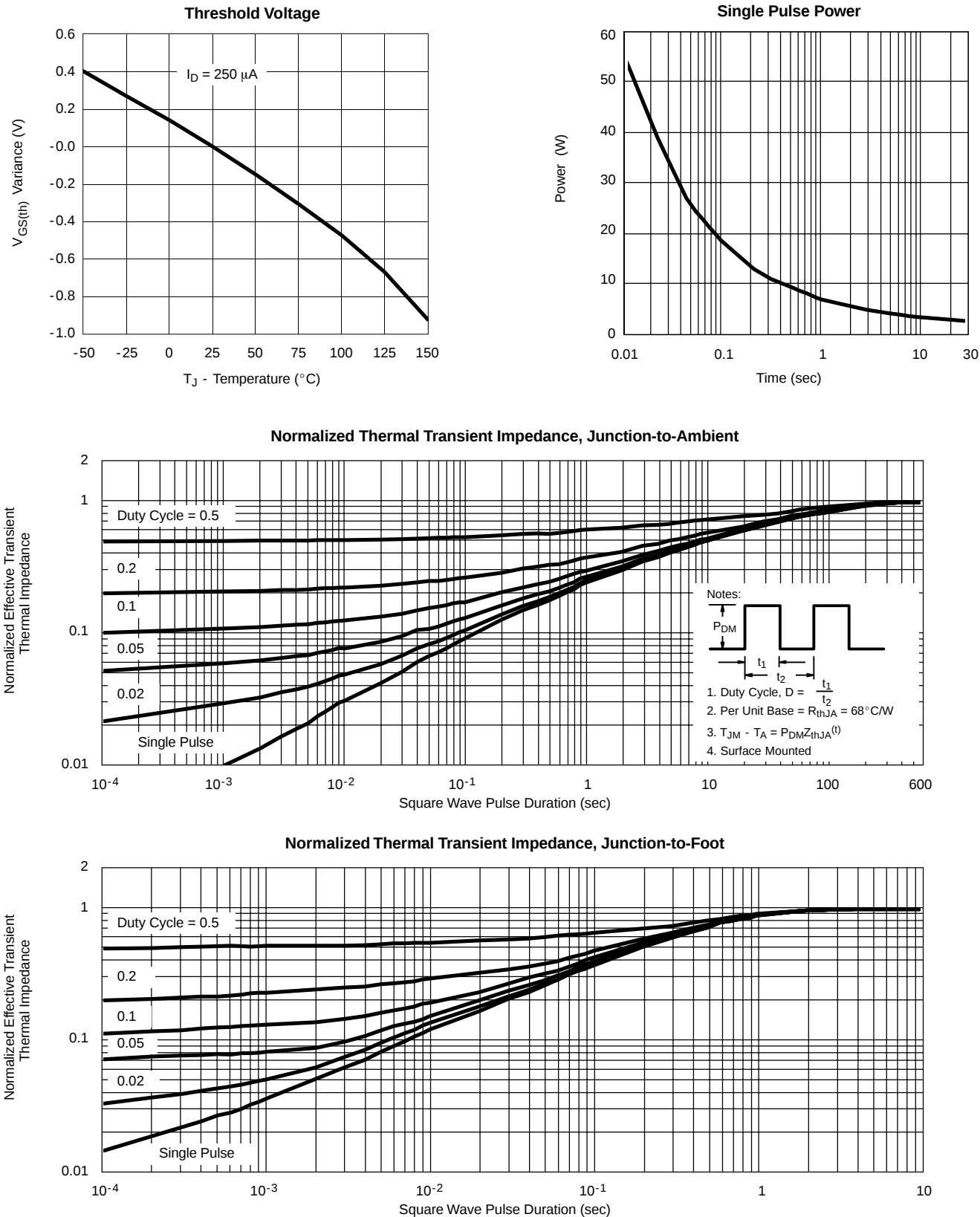


TYPICAL CHARACTERISTICS (25 °C UNLESS NOTED)





TYPICAL CHARACTERISTICS (25 °C UNLESS NOTED)





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