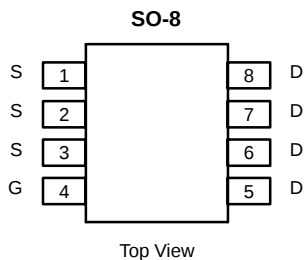




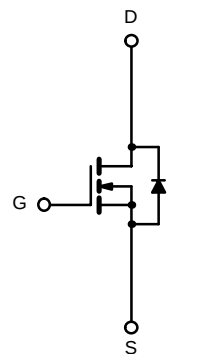
N-Channel 200-V (D-S) MOSFET

PRODUCT SUMMARY		
V_{DS} (V)	$r_{DS(on)}$ (Ω)	I_D (A)
200	0.080 @ $V_{GS} = 10$ V	4.0
	0.090 @ $V_{GS} = 6.0$ V	3.8

TrenchFET®
Power MOSFETs



Ordering Information: Si4490DY
Si4490DY-T1 (with Tape and Reel)



N-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}	200	
Gate-Source Voltage		V_{GS}	± 20	
Continuous Drain Current ($T_J = 150^\circ\text{C}$) ^a	$T_A = 25^\circ\text{C}$	I_D	4.0	2.85
	$T_A = 70^\circ\text{C}$		3.2	2.3
Pulsed Drain Current		I_{DM}	40	
Avalanch Current		I_{AS}	15	
Continuous Source Current (Diode Conduction) ^a		I_S	2.6	1.3
Maximum Power Dissipation ^a	$T_A = 25^\circ\text{C}$	P_D	3.1	1.56
	$T_A = 70^\circ\text{C}$		2.0	1.0
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}	33	40
	Steady State		65	80
Maximum Junction-to-Foot (Drain)	Steady State	R_{thJF}	17	21

Notes

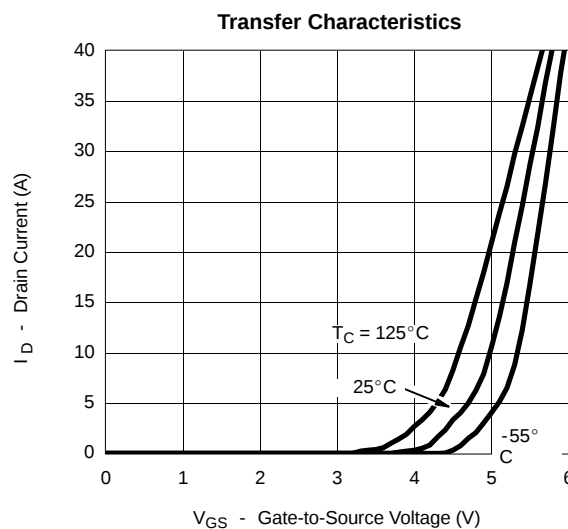
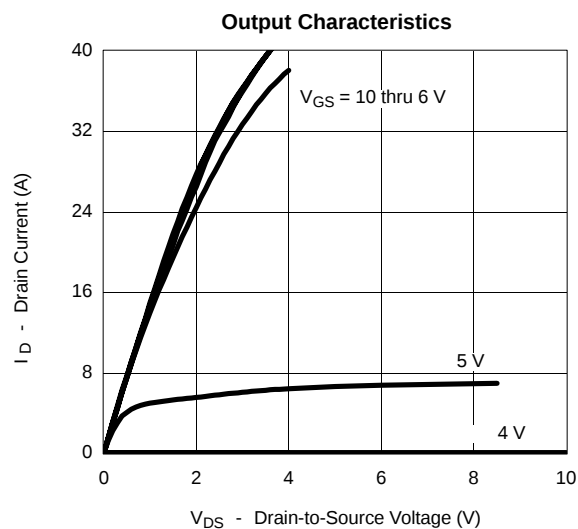
a. Surface Mounted on 1" x 1" FR4 Board.

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

Parameter	Symbol	Test Condition	Min	Typ	Max	Unit
Static						
Gate Threshold Voltage	$V_{GS(th)}$	$V_{DS} = V_{GS}$, $I_D = 250\ \mu\text{A}$	2.0			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}	$V_{DS} = 160\ \text{V}$, $V_{GS} = 0\ \text{V}$			1	μA
		$V_{DS} = 160\ \text{V}$, $V_{GS} = 0\ \text{V}$, $T_J = 55^\circ\text{C}$			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	$r_{DS(on)}$	$V_{GS} = 10\ \text{V}$, $I_D = 4.0\ \text{A}$		0.065	0.080	Ω
		$V_{GS} = 6.0\ \text{V}$, $I_D = 4.0\ \text{A}$		0.070	0.090	
Forward Transconductance ^a	g_{fs}	$V_{DS} = 15\ \text{V}$, $I_D = 5\ \text{A}$		19		S
Diode Forward Voltage ^a	V_{SD}	$I_S = 2.8\ \text{A}$, $V_{GS} = 0\ \text{V}$		0.75	1.2	V
Dynamic^b						
Total Gate Charge	Q_g	$V_{DS} = 100\ \text{V}$, $V_{GS} = 10\ \text{V}$, $I_D = 4.0\ \text{A}$		34	42	nC
Gate-Source Charge	Q_{gs}			7.5		
Gate-Drain Charge	Q_{gd}			12.0		
Gate Resistance	R_g		0.2	0.85	1.3	Ω
Turn-On Delay Time	$t_{d(on)}$	$V_{DD} = 100\ \text{V}$, $R_L = 25\ \Omega$ $I_D \approx 4.0\ \text{A}$, $V_{GEN} = 10\ \text{V}$, $R_G = 6\ \Omega$		14	20	ns
Rise Time	t_r			20	30	
Turn-Off Delay Time	$t_{d(off)}$			32	50	
Fall Time	t_f			25	35	
Source-Drain Reverse Recovery Time	t_{rr}	$I_F = 2.8\ \text{A}$, $di/dt = 100\ \text{A}/\mu\text{s}$		70	100	

Notes

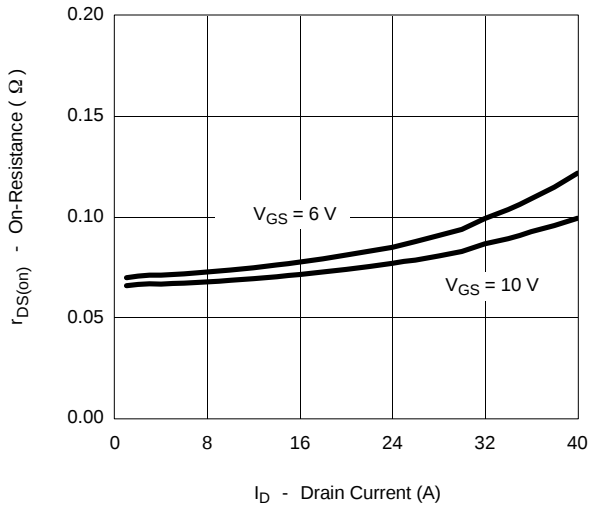
- a. Pulse test; pulse width $\leq 300\ \mu\text{s}$, duty cycle $\leq 2\%$.
b. Guaranteed by design, not subject to production testing.

TYPICAL CHARACTERISTICS (25°C UNLESS NOTED)

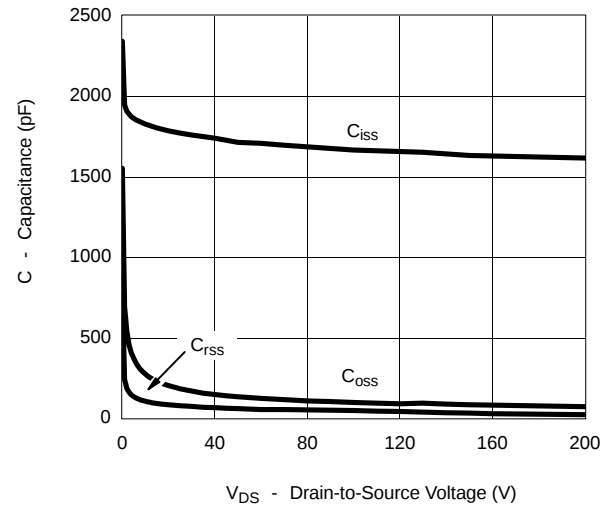


TYPICAL CHARACTERISTICS (25°C UNLESS NOTED)

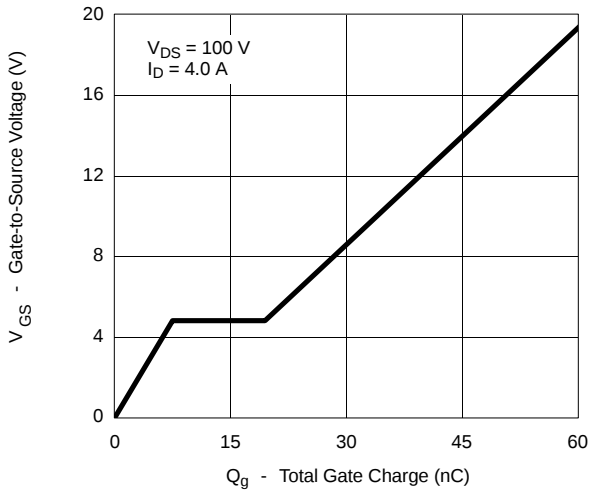
On-Resistance vs. Drain Current



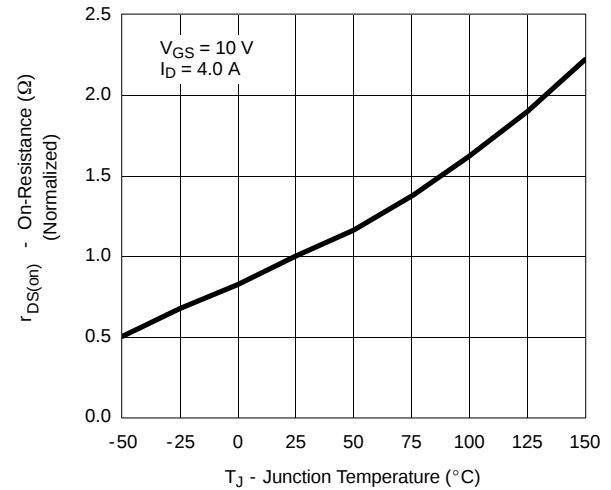
Capacitance



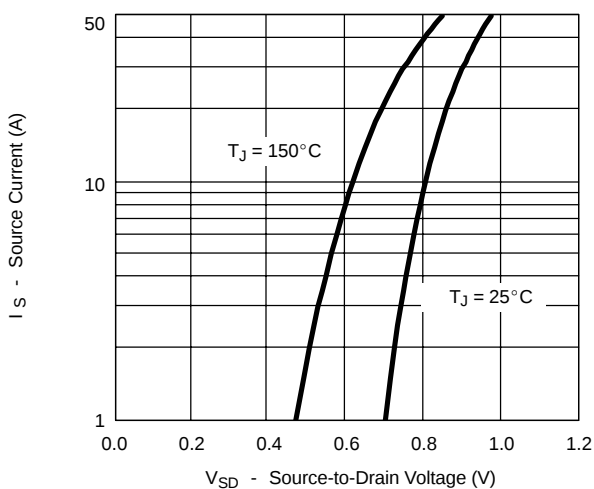
Gate Charge



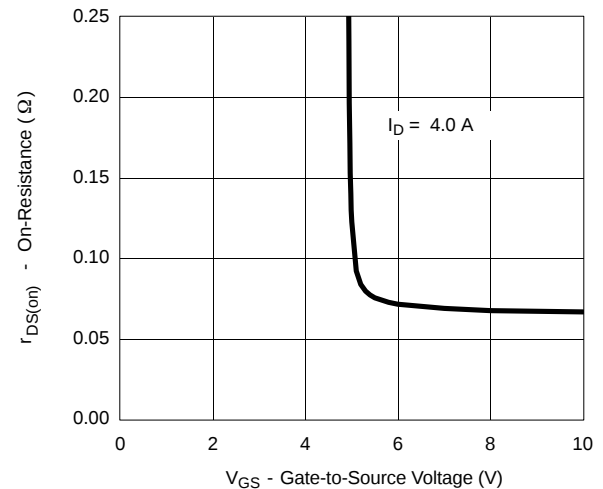
On-Resistance vs. Junction Temperature

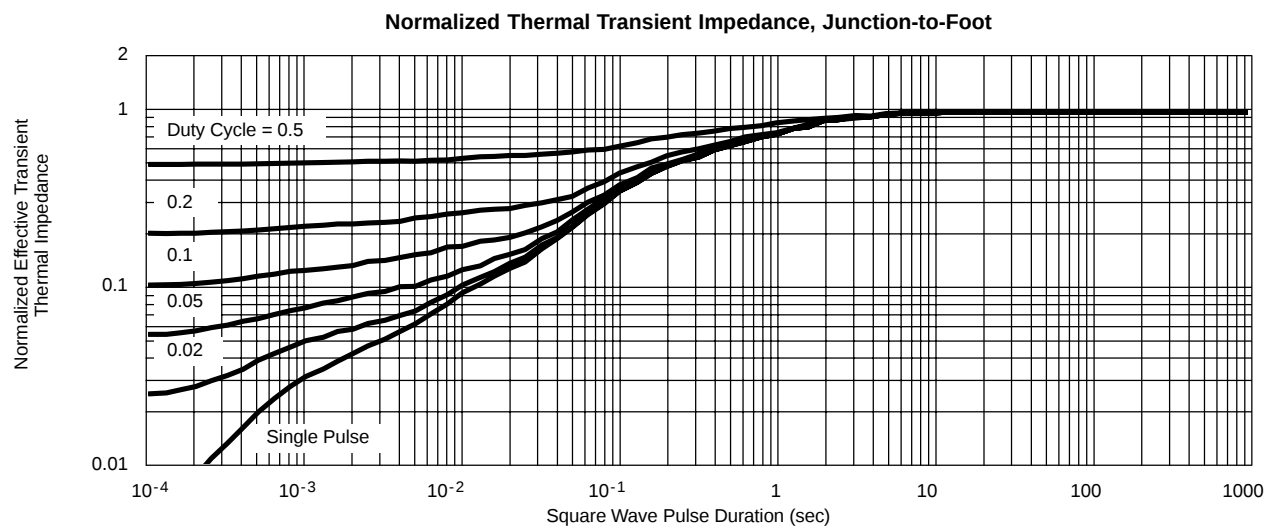
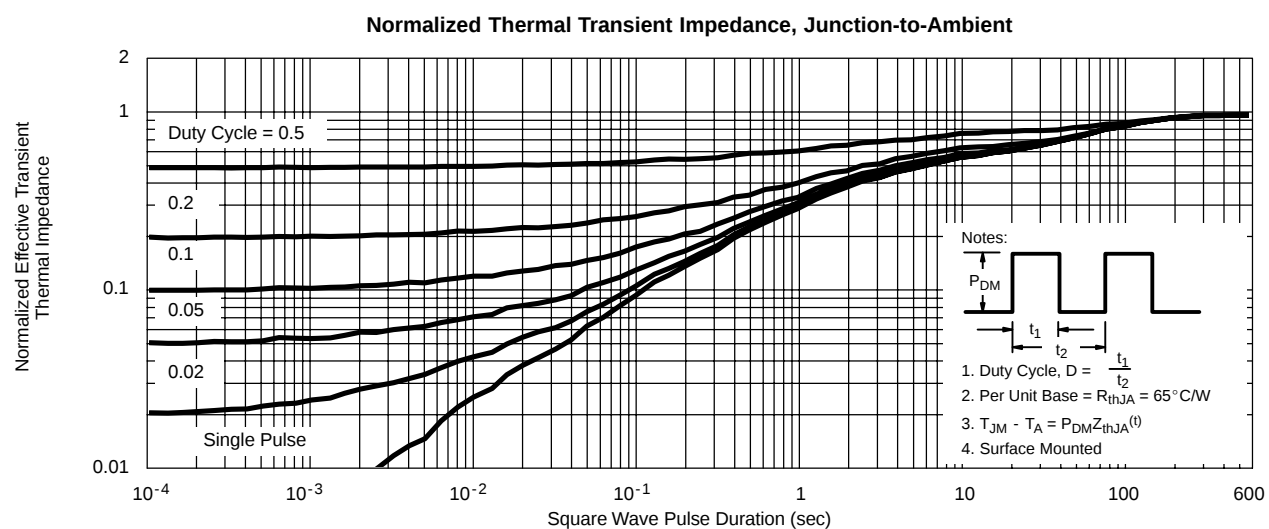
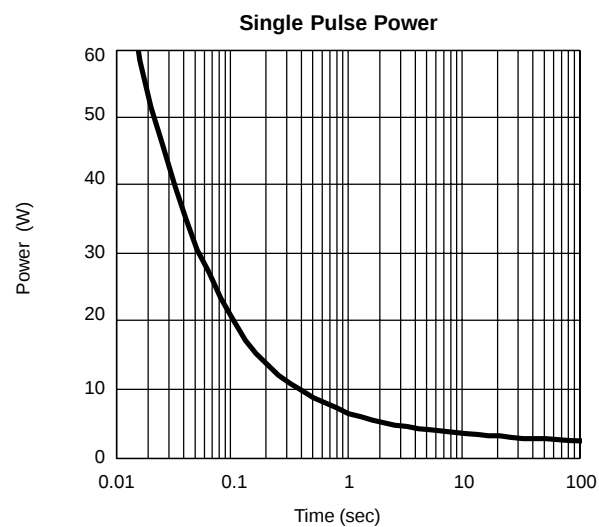
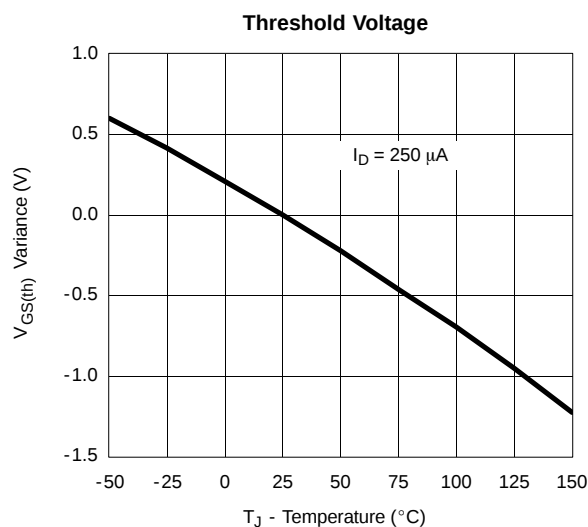


Source-Drain Diode Forward Voltage



On-Resistance vs. Gate-to-Source Voltage



TYPICAL CHARACTERISTICS (25°C UNLESS NOTED)




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