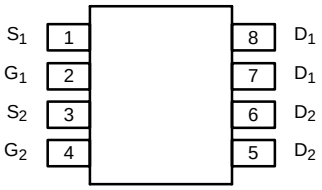
Dual N-Channel 80-V (D-S) MOSFET

PRODUCT SUMMARY		
V_{DS} (V)	$r_{DS(on)}$ (Ω)	I_D (A)
80	0.075 @ V_{GS} = 10 V	3.7
	0.095 @ V_{GS} = 6.0 V	3.2

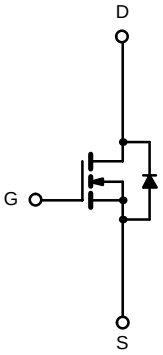
TrenchFET® Power MOSFETs

SO-8



Top View

Ordering Information: Si4980DY
Si4980DY-T1 (with Tape and Reel)



N-Channel MOSFET

ABSOLUTE MAXIMUM RATINGS (T_A = 25°C UNLESS OTHERWISE NOTED)				
Parameter		Symbol	Limit	Unit
Drain-Source Voltage		V_{DS}	80	V
Gate-Source Voltage		V_{GS}	±20	
Continuous Drain Current (T_J = 150°C)[a]	T_A = 25°C	I_D	3.7	A
	T_A = 70°C		2.9	
Pulsed Drain Current		I_{DM}	30	
Continuous Source Current (Diode Conduction)[a]		I_S	1.7	
Maximum Power Dissipation[a]	T_A = 25°C	P_D	2.0	W
	T_A = 70°C		1.3	
Operating Junction and Storage Temperature Range		T_J, T_{stg}	-55 to 150	°C

THERMAL RESISTANCE RATINGS			
Parameter	Symbol	Limit	Unit
Maximum Junction-to-Ambient[a]	R_{thJA}	62.5	°C/W

Notes
a. Surface Mounted on FR4 Board, t ≤ 10 sec.

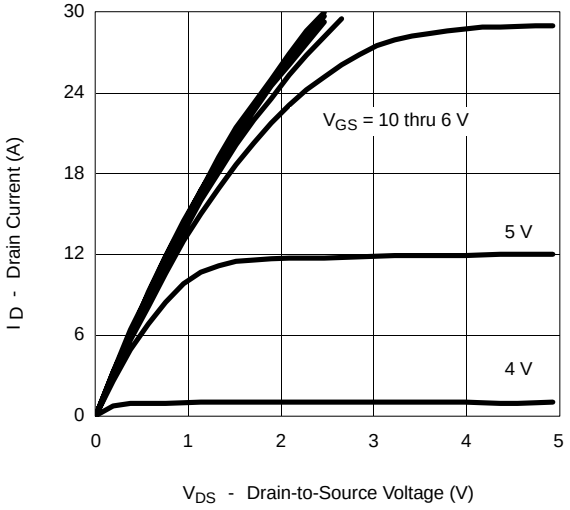
SPECIFICATIONS (T_J = 25°C UNLESS OTHERWISE NOTED)

Parameter	Symbol	Test Condition	Min	Typ	Max	Unit
Static						
Gate Threshold Voltage	$V_{GS(th)}$	V_{DS} = V_{GS}, I_D = 250 μA	2			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} = 80 V, V_{GS} = 0 V			1	μA
		V_{DS} = 80 V, V_{GS} = 0 V, T_J = 55°C			20	
On-State Drain Curren[a]	$I_{D(on)}$	V_{DS} = 5 V, V_{GS} = 10 V	20			A
Drain-Source On-State Resistance[a]	$r_{DS(on)}$	V_{GS} = 10 V, I_D = 3.7 A		0.062	0.075	Ω
		V_{GS} = 6.0 V, I_D = 3.2 A		0.071	0.095	
Forward Transconductance[a]	g_{fs}	V_{DS} = 15 V, I_D = 3.7 A		12		S
Diode Forward Voltage[a]	V_{SD}	I_S = 1.7 A, V_{GS} = 0 V			1.2	V
Dynamic[b]						
Total Gate Charge	Q_g	V_{DS} = 40 V, V_{GS} = 10 V, I_D = 3.7 A		15	30	nC
Gate-Source Charge	Q_{gs}			4		
Gate-Drain Charge	Q_{gd}			3.2		
Gate Resistance	R_g		1		5.1	Ω
Turn-On Delay Time	$t_{d(on)}$	V_{DD} = 40 V, R_L = 40 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	$t_{d(off)}$			30	60	
Fall Time	t_f			10	20	
Source-Drain Reverse Recovery Time	t_{rr}	I_F = 1.7 A, di/dt = 100 A/μs		75	110	

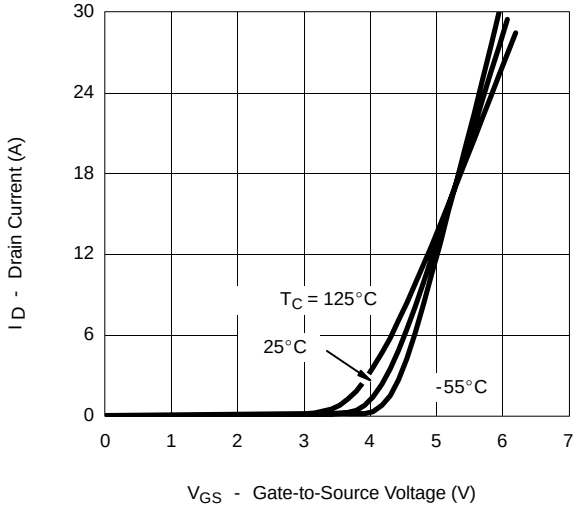
Notes
a. Pulse test; pulse width ≤ 300 μs, duty cycle ≤ 2%.
b. For design aid only; not subject to production testing.

TYPICAL CHARACTERISTICS (25°C UNLESS NOTED)

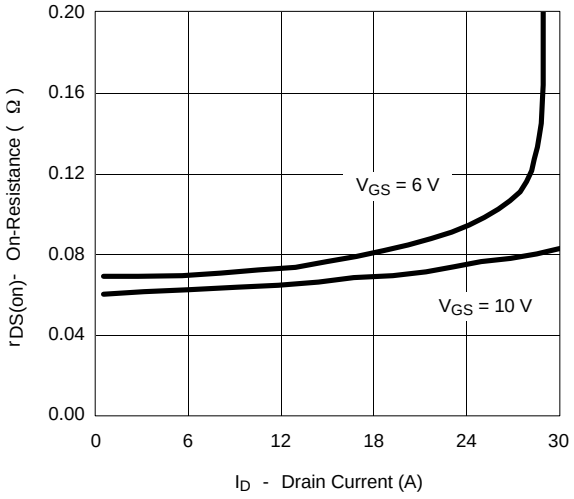
Output Characteristics



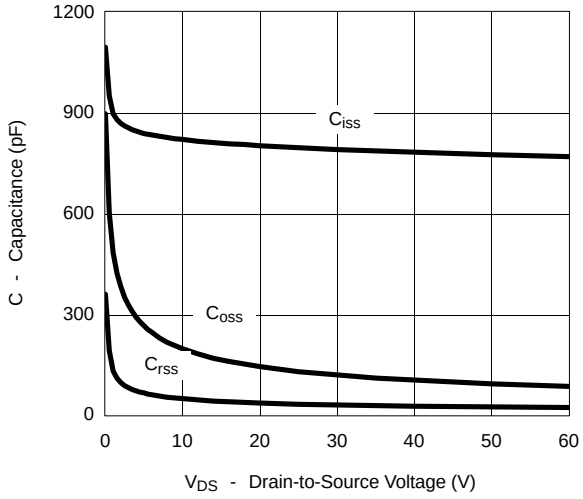
Transfer Characteristics



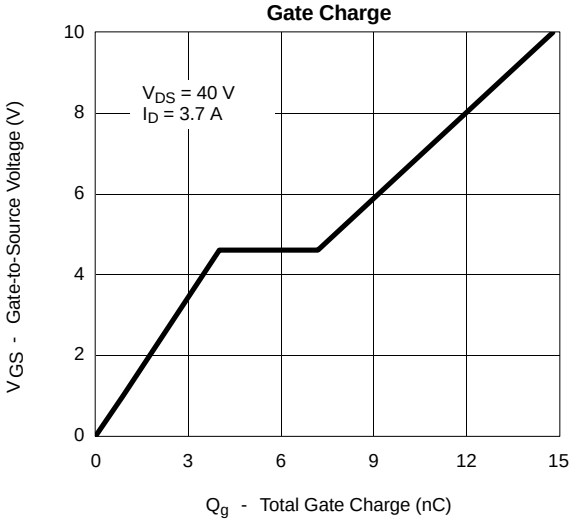
On-Resistance vs. Drain Current



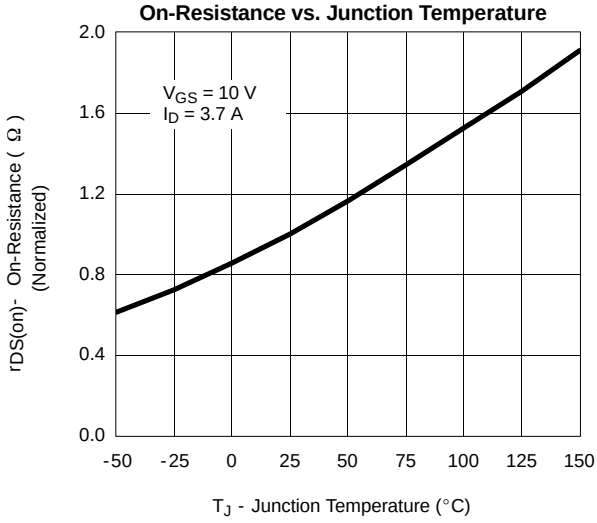
Capacitance



Gate Charge

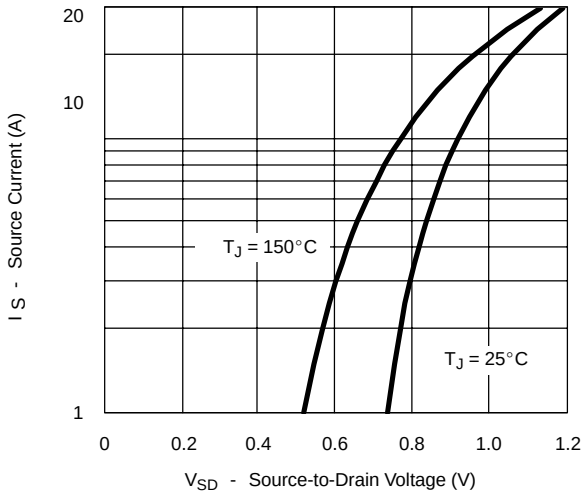


On-Resistance vs. Junction Temperature

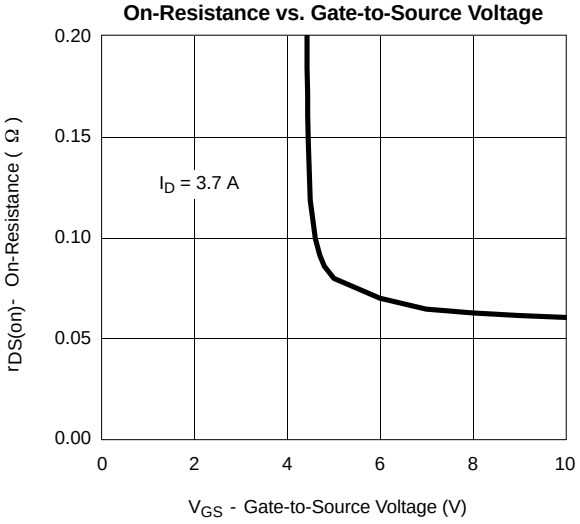


TYPICAL CHARACTERISTICS (25°C UNLESS NOTED)

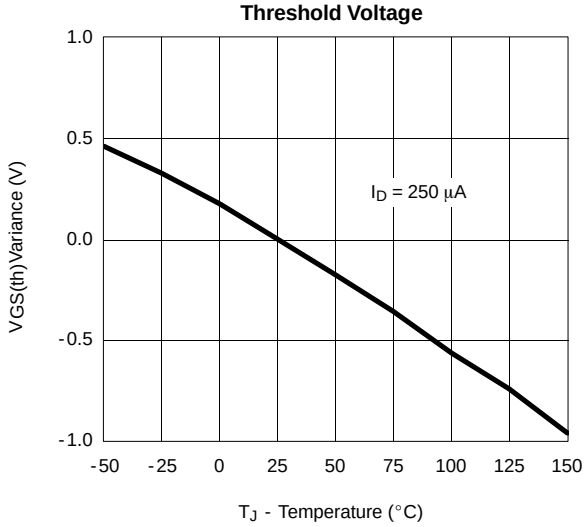
Source-Drain Diode Forward Voltage



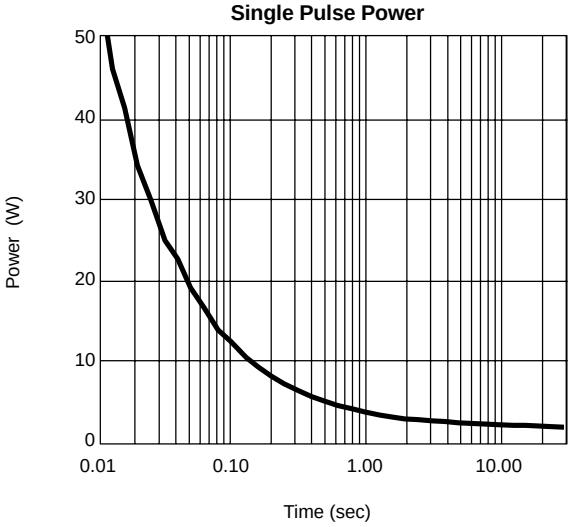
On-Resistance vs. Gate-to-Source Voltage



Threshold Voltage



Single Pulse Power



Normalized Thermal Transient Impedance, Junction-to-Ambient