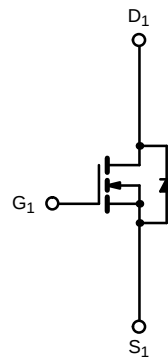
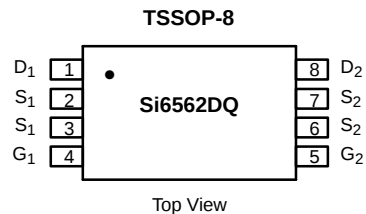




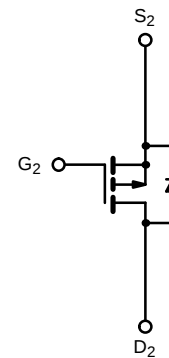
N- and P-Channel 2.5-V (G-S) MOSFET

PRODUCT SUMMARY			
	V_{DS} (V)	$r_{DS(on)}$ (Ω)	I_D (A)
N-Channel	20	0.030 @ $V_{GS} = 4.5$ V	± 4.5
		0.040 @ $V_{GS} = 2.5$ V	± 3.9
P-Channel	-20	0.050 @ $V_{GS} = -4.5$ V	± 3.5
		0.085 @ $V_{GS} = -2.5$ V	± 2.7

TrenchFET®
Power MOSFETs
2.5-V Rated



N-Channel MOSFET



P-Channel MOSFET

ABSOLUTE MAXIMUM RATINGS ($T_A = 25^\circ\text{C}$ UNLESS OTHERWISE NOTED)				
Parameter		Symbol	N-Channel	P-Channel
Drain-Source Voltage		V_{DS}	20	-20
Gate-Source Voltage		V_{GS}	± 12	± 12
Continuous Drain Current ($T_J = 150^\circ\text{C}$) ^a	$T_A = 25^\circ\text{C}$	I_D	± 4.5	± 3.5
	$T_A = 70^\circ\text{C}$		± 3.6	± 2.7
Pulsed Drain Current		I_{DM}	± 30	± 30
Continuous Source Current (Diode Conduction) ^a		I_S	1.25	-1.25
Maximum Power Dissipation ^a	$T_A = 25^\circ\text{C}$	P_D	1.0	
	$T_A = 70^\circ\text{C}$		0.64	
Operating Junction and Storage Temperature Range		T_J, T_{stg}	-55 to 150	

THERMAL RESISTANCE RATINGS			
Parameter	Symbol	N- or P-Channel	Unit
Maximum Junction-to-Ambient ^a	R_{thJA}	125	$^\circ\text{C/W}$

Notes

a. Surface Mounted on FR4 Board, $t \leq 10$ 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	N-Ch	0.6			V
		V _{DS} = V _{GS} , I _D = −250 μA	P-Ch	−0.6			
Gate-Body Leakage	I _{GSS}	V _{DS} = 0 V, V _{GS} = ±12 V	N-Ch P-Ch			±100 ±100	nA
Zero Gate Voltage Drain Current	I _{DSS}	V _{DS} = 20 V, V _{GS} = 0 V	N-Ch			1	μA
		V _{DS} = −20 V, V _{GS} = 0 V	P-Ch			−1	
		V _{DS} = 20 V, V _{GS} = 0 V, T _J = 55°C	N-Ch			25	
		V _{DS} = −20 V, V _{GS} = 0 V, T _J = 55°C	P-Ch			−25	
On-State Drain Current ^a	I _{D(on)}	V _{DS} ≥ 5 V, V _{GS} = 4.5 V	N-Ch	30			A
		V _{DS} ≥ −5 V, V _{GS} = −4.5 V	P-Ch	−30			
Drain-Source On-State Resistance ^a	r _{DS(on)}	V _{GS} = 4.5 V, I _D = 4.5 A	N-Ch		0.023	0.030	Ω
		V _{GS} = −4.5 V, I _D = −3.5 A	P-Ch		0.040	0.050	
		V _{GS} = 2.5 V, I _D = 3.9 A	N-Ch		0.030	0.040	
		V _{GS} = −2.5 V, I _D = −2.7 A	P-Ch		0.060	0.085	
Forward Transconductance ^a	g _{fs}	V _{DS} = 10 V, I _D = 4.5 A	N-Ch		20		S
		V _{DS} = −10 V, I _D = −3.5 A	P-Ch		10		
Diode Forward Voltage ^a	V _{SD}	I _S = 1.25 A, V _{GS} = 0 V	N-Ch		0.65	1.2	V
		I _S = −1.25 A, V _{GS} = 0 V	P-Ch		0.72	−1.2	
Dynamic ^b							
Total Gate Charge	Q _g	N-Channel V _{DS} = 15 V, V _{GS} = 4.5 V, I _D = 4.5 A P-Channel V _{DS} = −15 V, V _{GS} = −4.5 V, I _D = −3.5 A	N-Ch P-Ch		13 14.5	25 25	nC
Gate-Source Charge	Q _{gs}		N-Ch P-Ch		3.0 3.5		
Gate-Drain Charge	Q _{gd}		N-Ch P-Ch		3.3 3.5		
Turn-On Delay Time	t _{d(on)}		N-Ch P-Ch		22 27	50 50	
Rise Time	t _r	N-Channel V _{DD} = 10 V, R _L = 10 Ω I _D ≅ 1 A, V _{GEN} = 10 V, R _G = 6 Ω P-Channel V _{DD} = −10 V, R _L = 10 Ω I _D ≅ −1 A, V _{GEN} = −10 V, R _G = 6 Ω	N-Ch P-Ch		40 30	80 60	ns
Turn-Off Delay Time	t _{d(off)}		N-Ch P-Ch		50 57	100 100	
Fall Time	t _f		N-Ch P-Ch		20 21	40 40	
Source-Drain Reverse Recovery Time	t _{rr}		I _F = 1.25 A, di/dt = 100 A/μs I _F = −1.25 A, di/dt = 100 A/μs	N-Ch P-Ch		30 60	

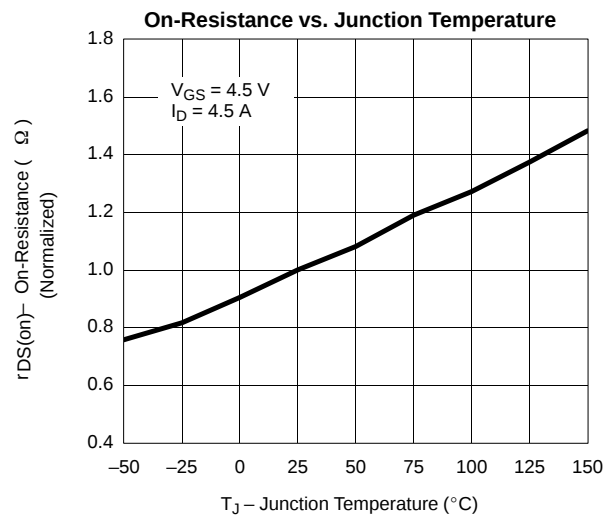
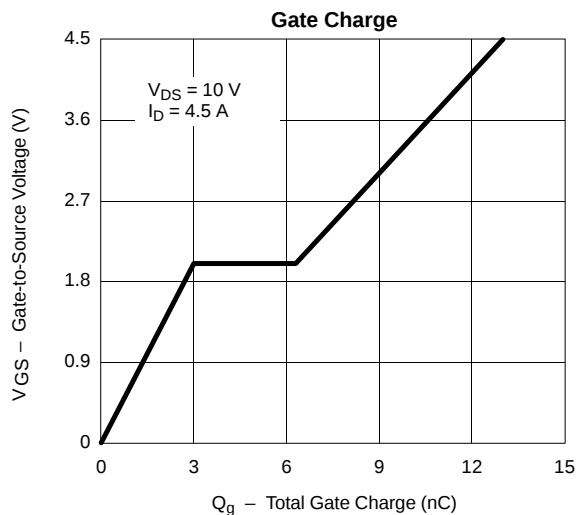
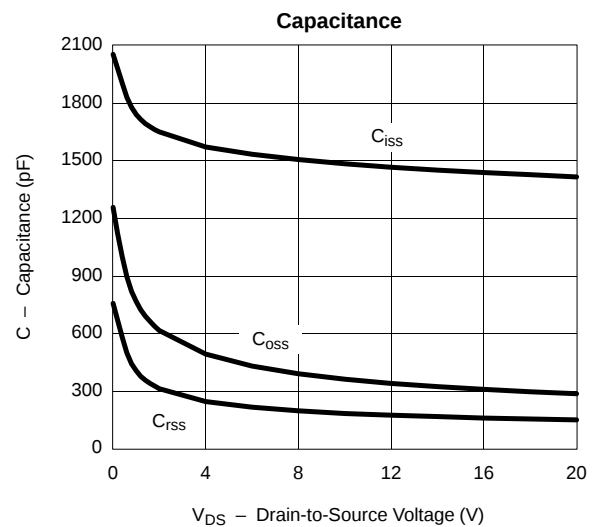
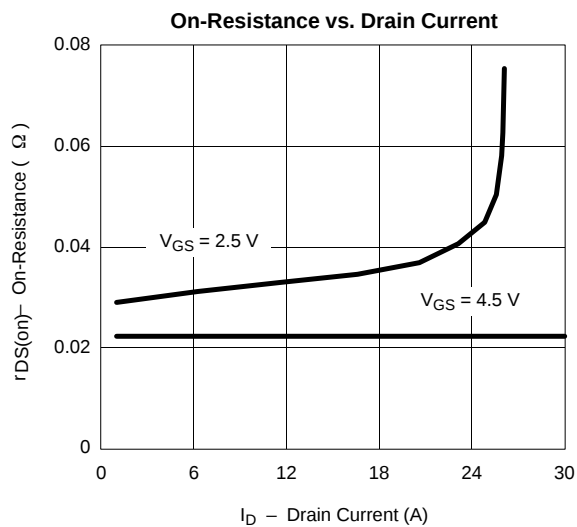
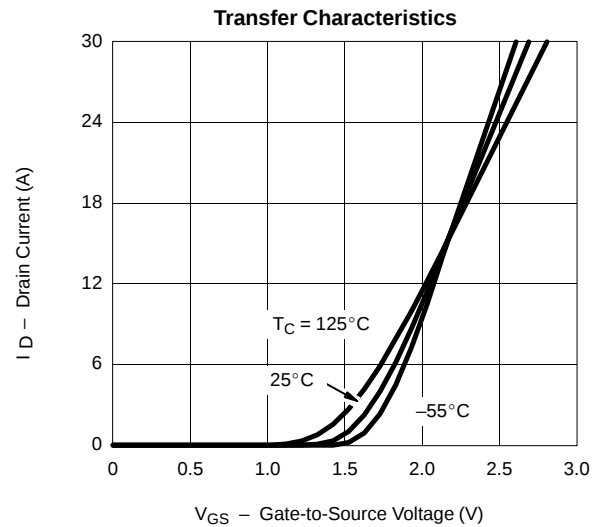
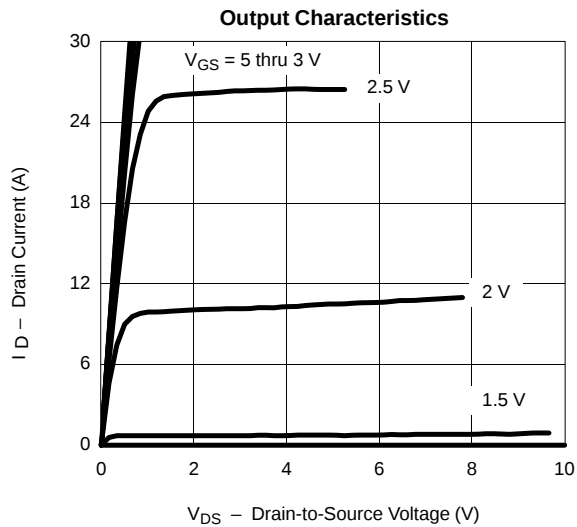
Notes

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



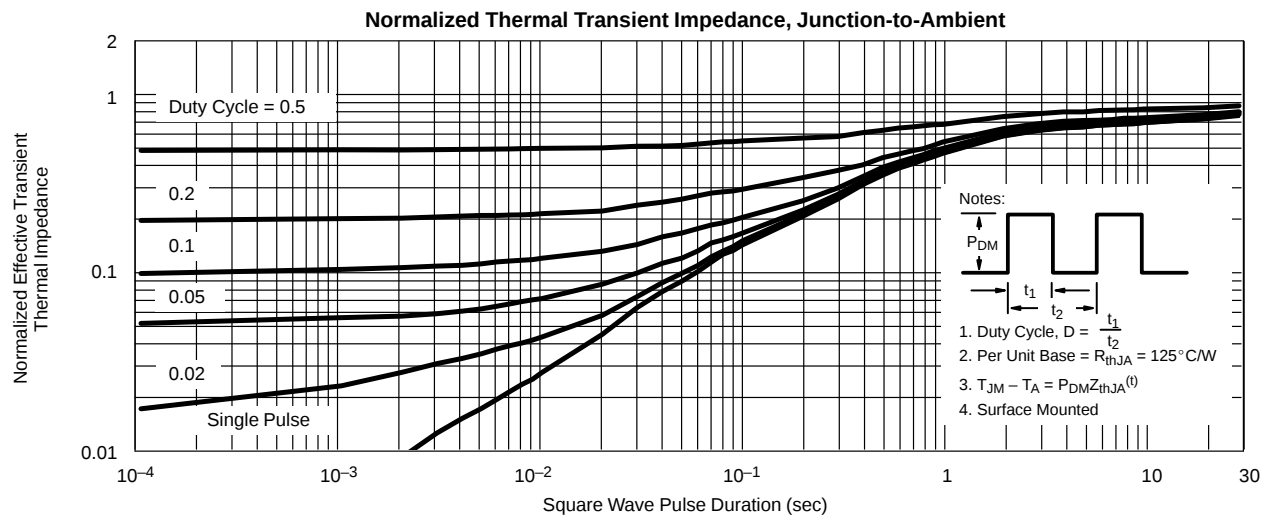
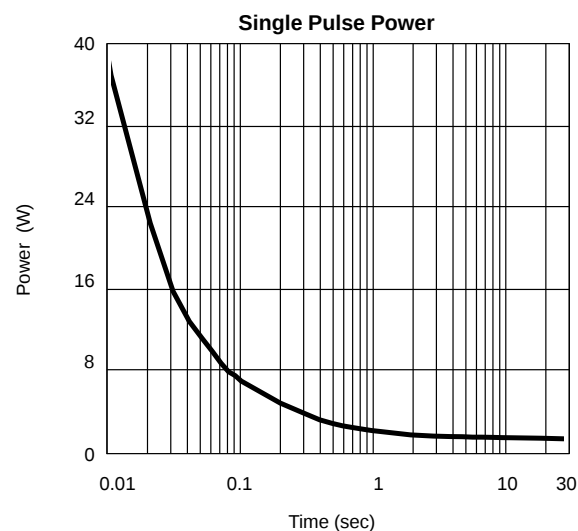
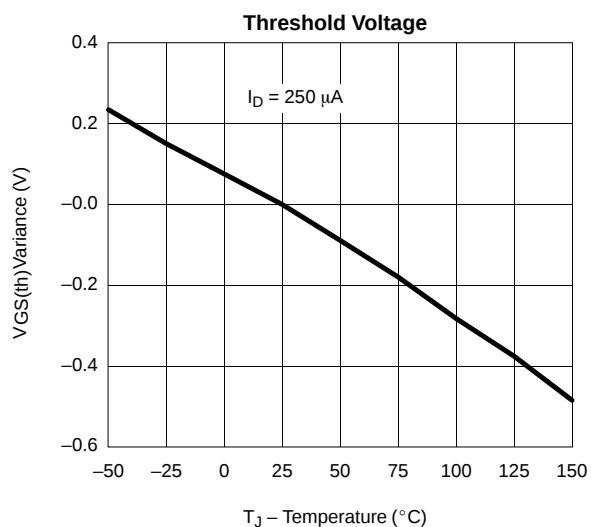
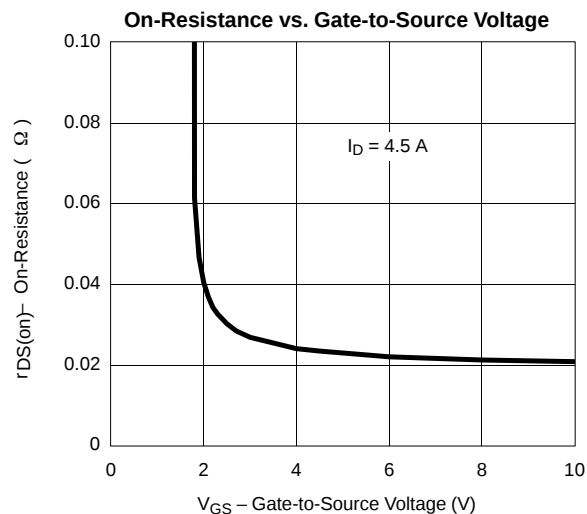
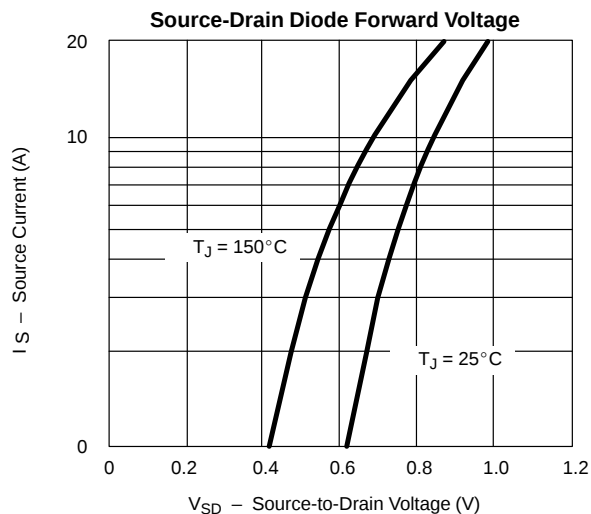
TYPICAL CHARACTERISTICS (25°C UNLESS NOTED)

N-CHANNEL



TYPICAL CHARACTERISTICS (25°C UNLESS NOTED)

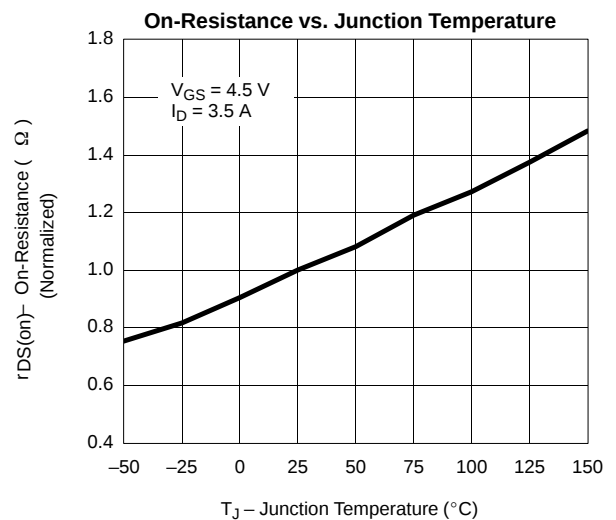
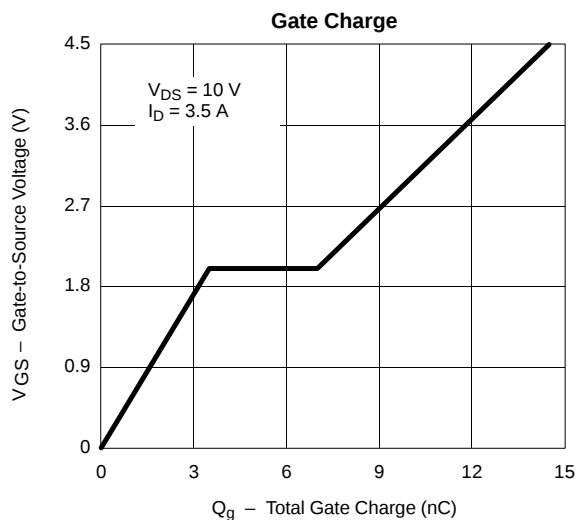
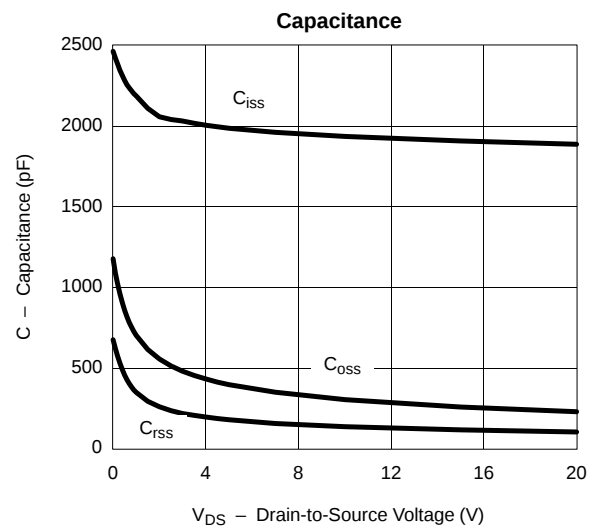
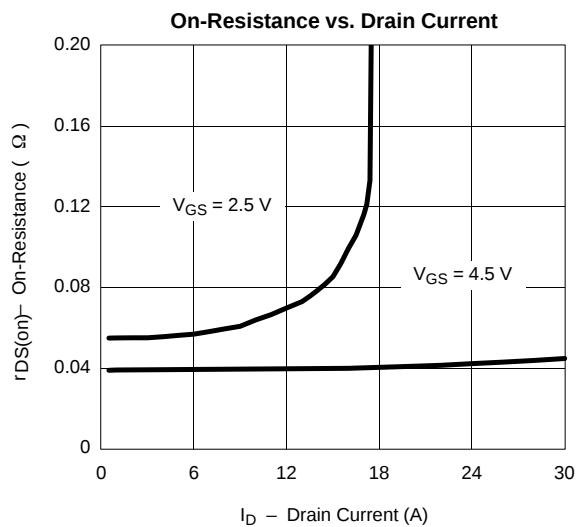
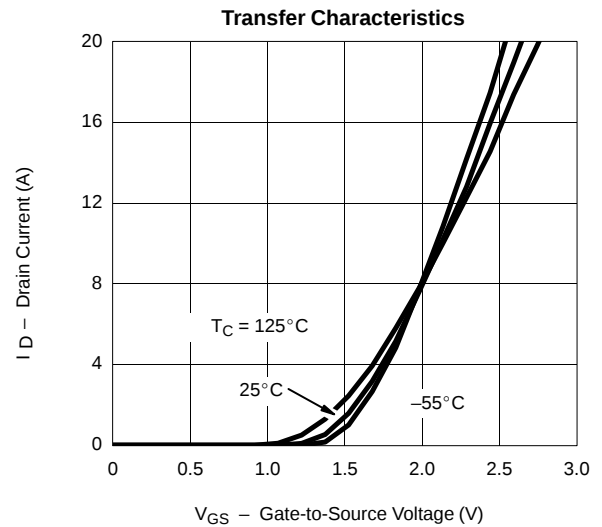
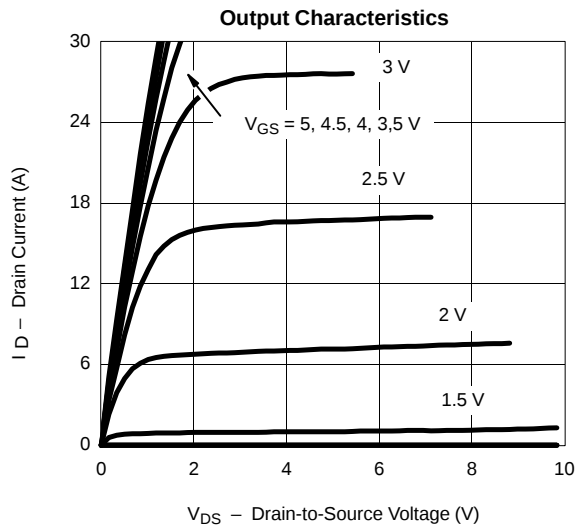
N-CHANNEL





TYPICAL CHARACTERISTICS (25°C UNLESS NOTED)

P-CHANNEL



TYPICAL CHARACTERISTICS (25°C UNLESS NOTED)

P-CHANNEL

