

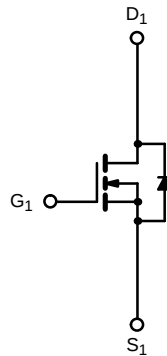
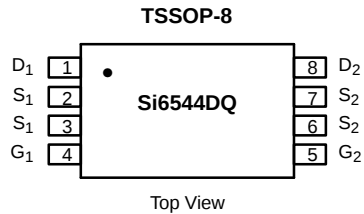


N- and P-Channel 30-V (D-S) MOSFET

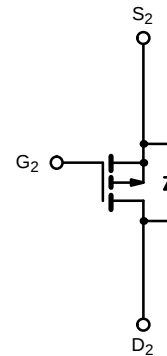
PRODUCT SUMMARY

	V_{DS} (V)	$r_{DS(on)}$ (Ω)	I_D (A)
N-Channel	30	0.035 @ $V_{GS} = 10$ V	± 4.0
		0.050 @ $V_{GS} = 4.5$ V	± 3.4
P-Channel	-30	0.045 @ $V_{GS} = -10$ V	± 3.5
		0.090 @ $V_{GS} = -4.5$ V	± 2.5

TrenchFET[®]
Power MOSFETs



N-Channel MOSFET



P-Channel MOSFET

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

Parameter		Symbol	N-Channel	P-Channel	Unit
Drain-Source Voltage		V _{DS}	30	−30	V
Gate-Source Voltage		V _{GS}	± 20	± 20	
Continuous Drain Current (T _J = 150 °C) ^a	T _A = 25 °C	I _D	± 4.0	± 3.5	A
	T _A = 70 °C		± 3.2	± 2.8	
Pulsed Drain Current		I _{DM}	± 20	± 20	
Continuous Source Current (Diode Conduction) ^a		I _S	1.25	−1.25	
Maximum Power Dissipation ^a	T _A = 25 °C	P _D	1.0		W
	T _A = 70 °C		0.64		
Operating Junction and Storage Temperature Range		T _J , T _{stg}	−55 to 150		°C

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	1.0			V	
		V _{DS} = V _{GS} , I _D = −250 μA	P-Ch	−1.0				
Gate-Body Leakage	I _{GSS}	V _{DS} = 0 V, V _{GS} = ±20 V	N-Ch P-Ch			±100 ±100	nA	
Zero Gate Voltage Drain Current	I _{DSS}	V _{DS} = 30 V, V _{GS} = 0 V	N-Ch			1	μA	
		V _{DS} = −30 V, V _{GS} = 0 V	P-Ch			−1		
		V _{DS} = 30 V, V _{GS} = 0 V, T _J = 55°C	N-Ch			5		
		V _{DS} = −30 V, V _{GS} = 0 V, T _J = 55°C	P-Ch			−5		
On-State Drain Current ^a	I _{D(on)}	V _{DS} ≥ 5 V, V _{GS} = 10 V	N-Ch	20			A	
		V _{DS} ≥ −5 V, V _{GS} = −10 V	P-Ch	−20				
Drain-Source On-State Resistance ^a	r _{DS(on)}	V _{GS} = 10 V, I _D = 4.0 A	N-Ch		0.027	0.035	Ω	
		V _{GS} = −10 V, I _D = −3.5 A	P-Ch		0.035	0.045		
		V _{GS} = 4.5 V, I _D = 3.4 A	N-Ch		0.038	0.050		
		V _{GS} = −4.5 V, I _D = −2.5 A	P-Ch		0.062	0.090		
Forward Transconductance ^a	g _{fs}	V _{DS} = 15 V, I _D = 4.0 A	N-Ch		13		S	
		V _{DS} = −15 V, I _D = −3.5 A	P-Ch		7.2			
Diode Forward Voltage ^a	V _{SD}	I _S = 1.25 A, V _{GS} = 0 V	N-Ch		0.73	1.2	V	
		I _S = −1.25 A, V _{GS} = 0 V	P-Ch		−0.77	−1.2		
Dynamic ^b								
Total Gate Charge	Q _g	N-Channel V _{DS} = 15 V, V _{GS} = 10 V, I _D = 4.0 A P-Channel V _{DS} = −15 V, V _{GS} = −10 V, I _D = −3.5 A	N-Ch P-Ch		17.5 17	30 30	nC	
Gate-Source Charge	Q _{gs}		N-Ch P-Ch		4.0 4.4			
Gate-Drain Charge	Q _{gd}		N-Ch P-Ch		2.5 3.1			
Turn-On Delay Time	t _{d(on)}		N-Channel V _{DD} = 15 V, R _L = 15 Ω I _D ≅ 1 A, V _{GEN} = 10 V, R _G = 6 Ω P-Channel V _{DD} = −15 V, R _L = 15 Ω I _D ≅ −1 A, V _{GEN} = −10 V, R _G = 6 Ω	N-Ch P-Ch		12 13	20 20	ns
Rise Time	t _r	N-Ch P-Ch			9 10	20 20		
Turn-Off Delay Time	t _{d(off)}	N-Ch P-Ch			25 33	50 60		
Fall Time	t _f	N-Ch P-Ch			20 10	40 20		
Source-Drain Reverse Recovery Time	t _{rr}	I _F = 1.25 A, di/dt = 100 A/μs		N-Ch		25	60	
		I _F = −1.25 A, di/dt = 100 A/μs		P-Ch		30	60	

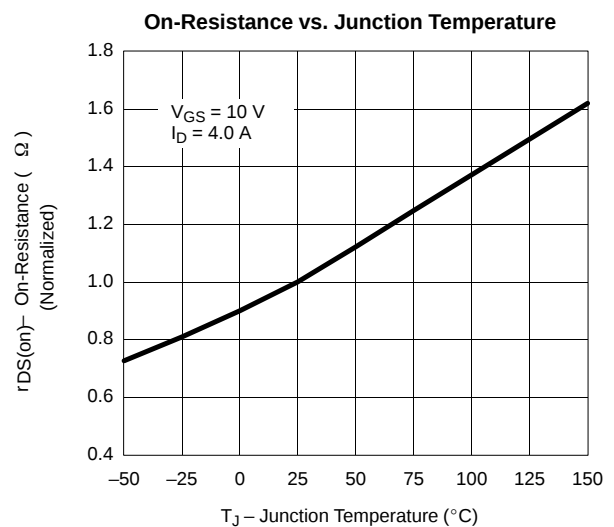
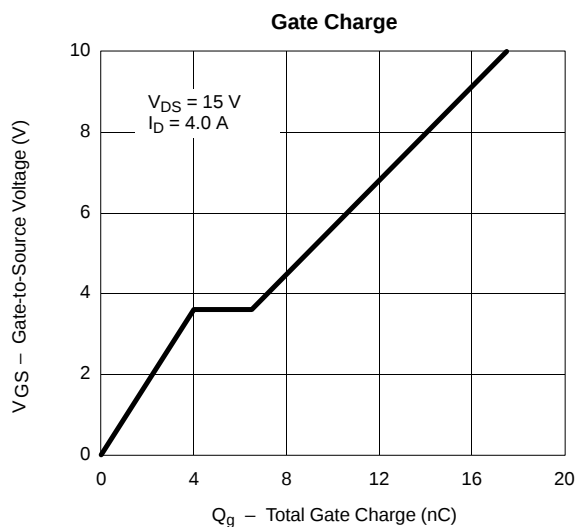
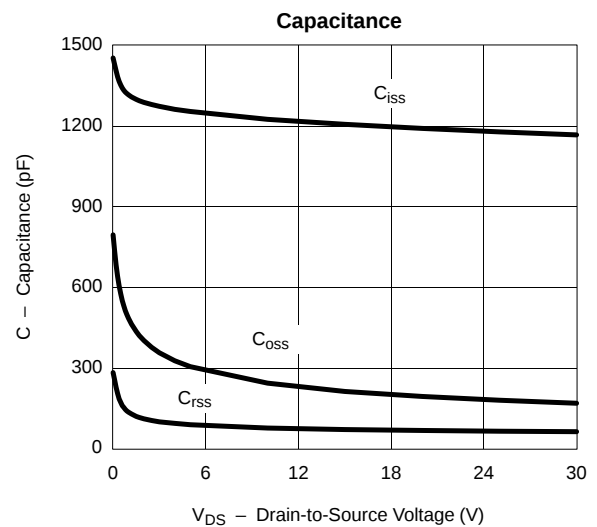
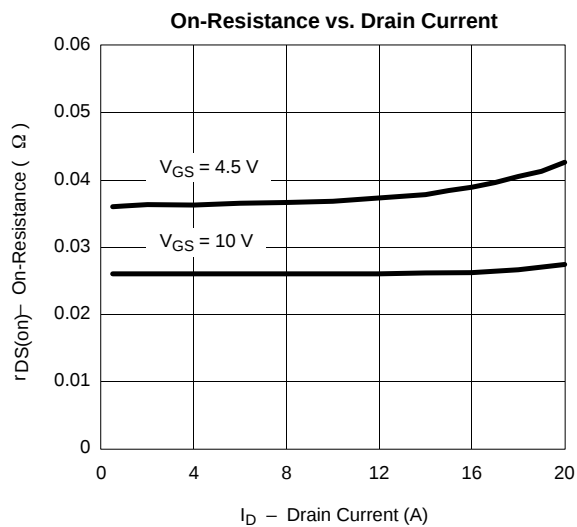
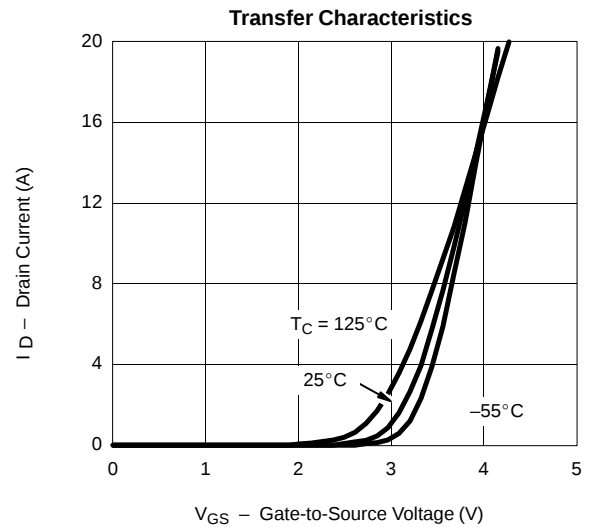
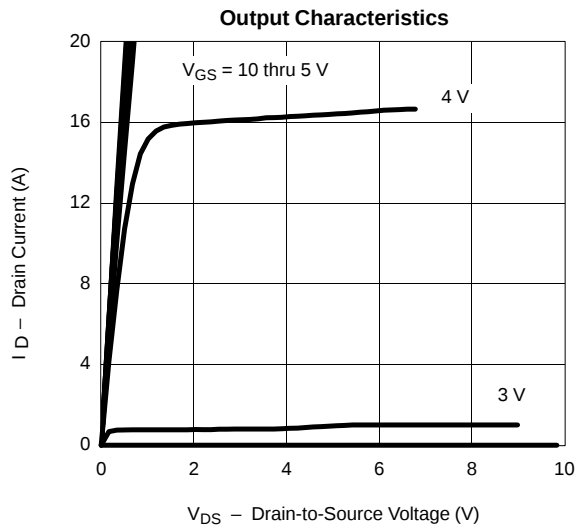
Notes

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



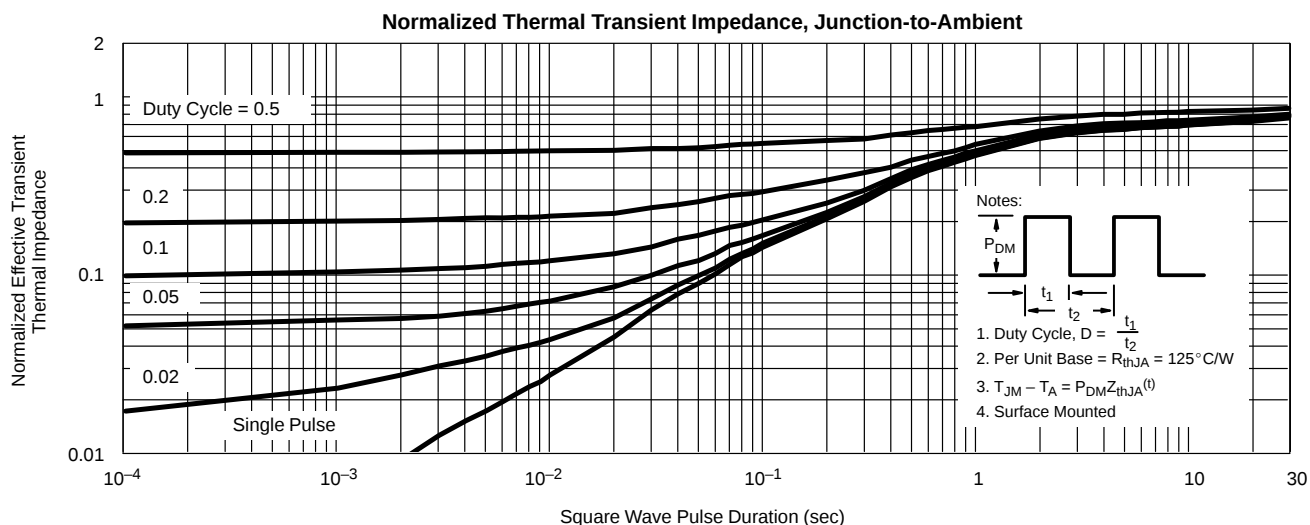
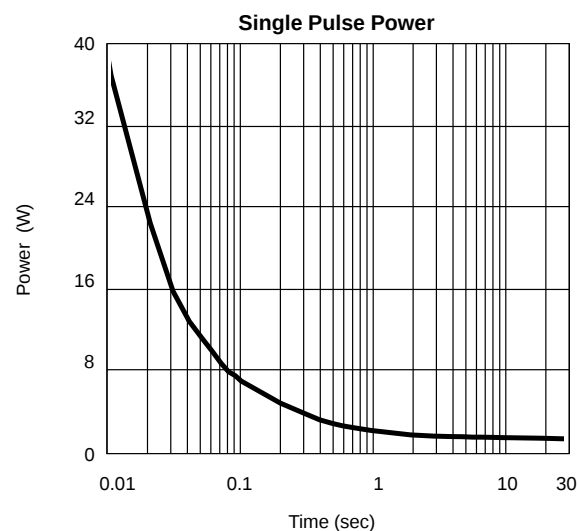
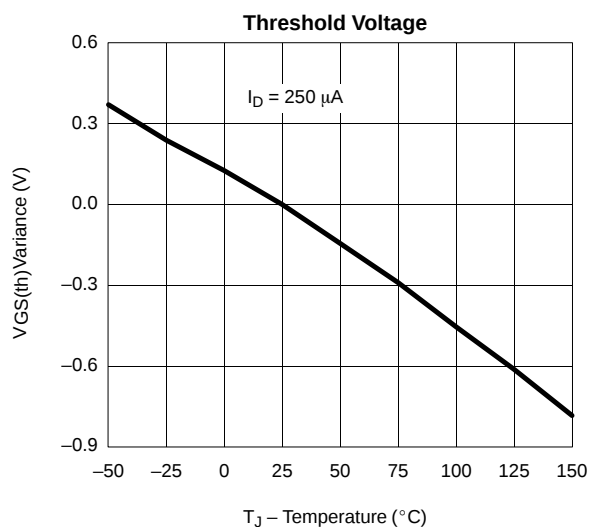
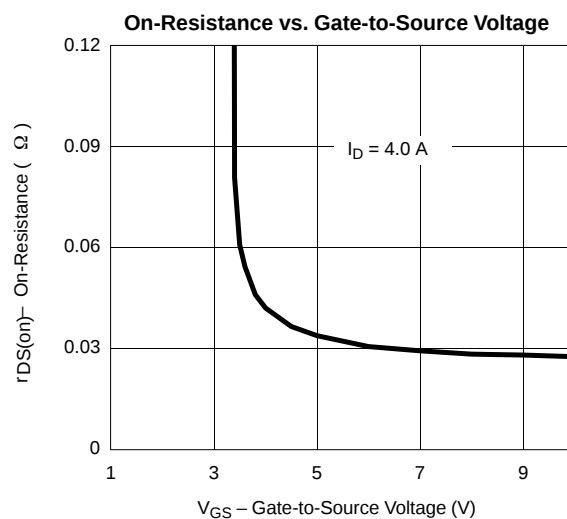
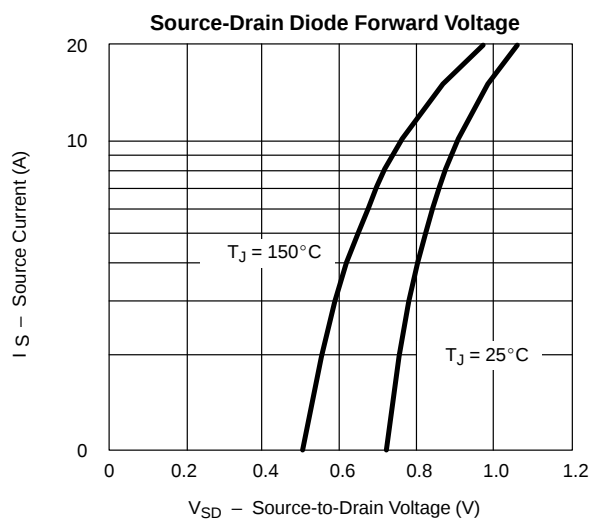
TYPICAL CHARACTERISTICS (25°C UNLESS NOTED)

N-CHANNEL



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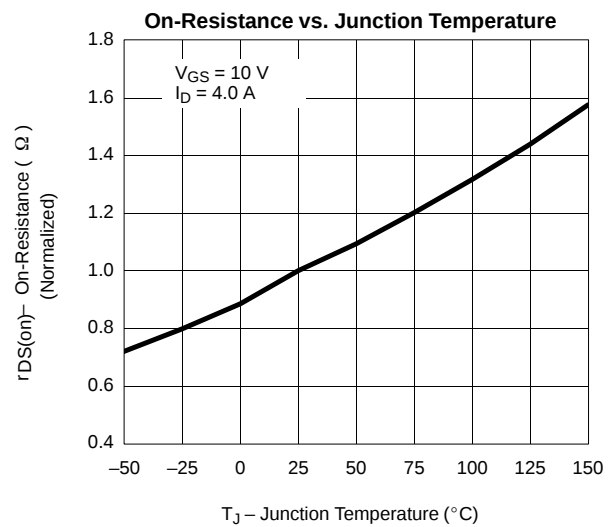
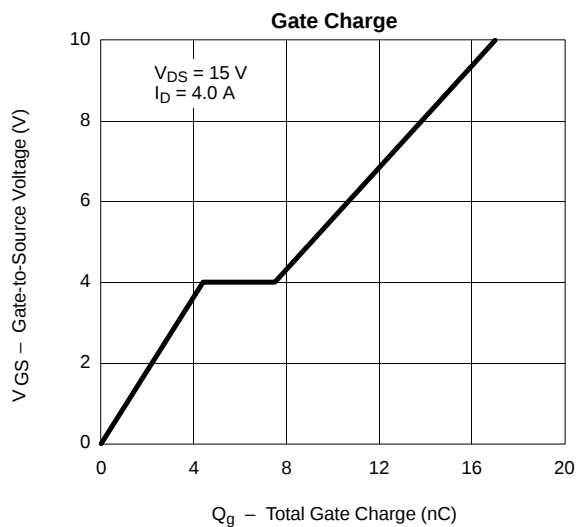
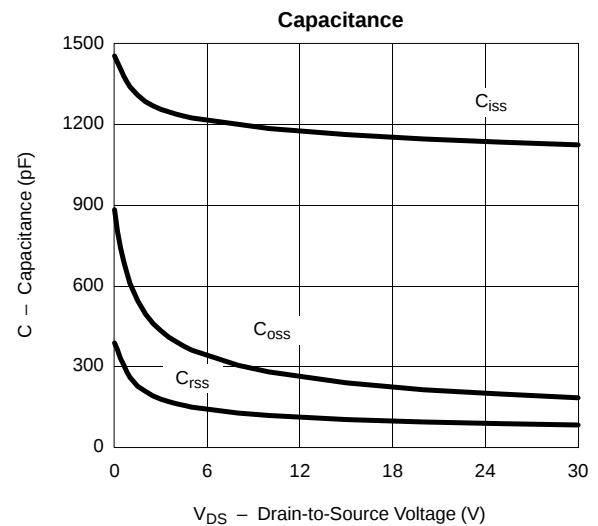
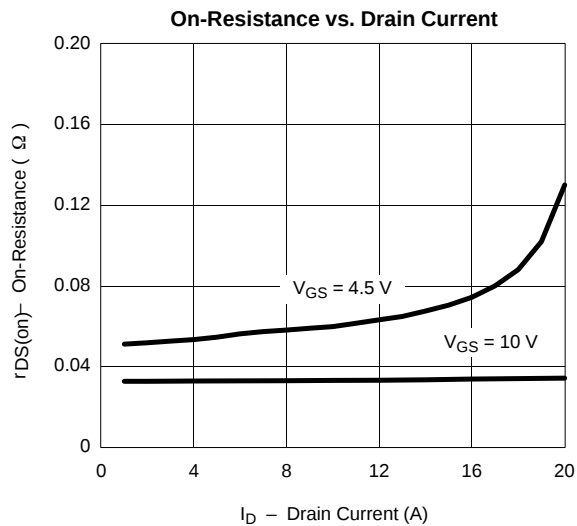
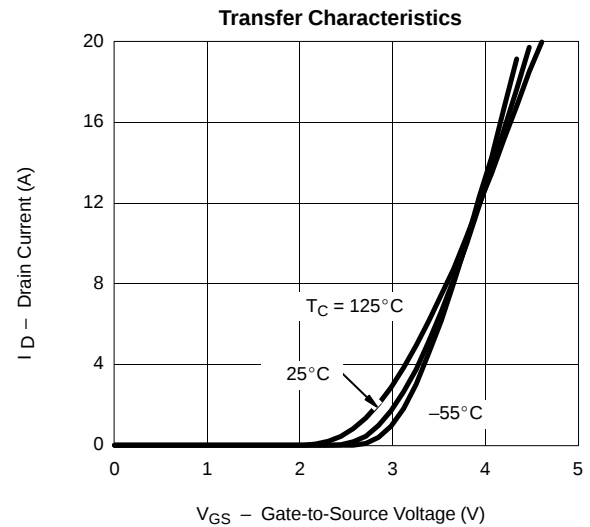
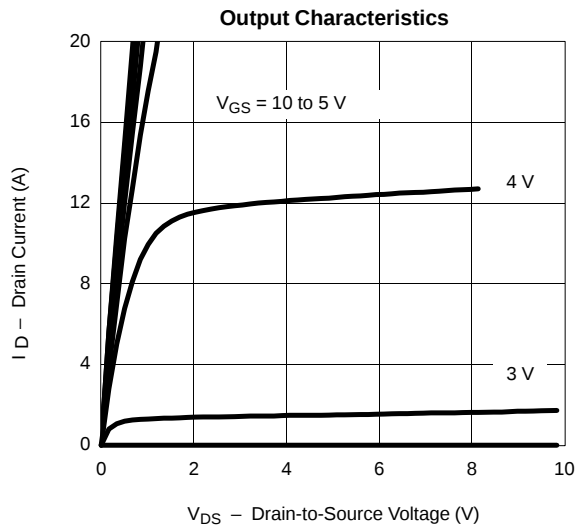
N-CHANNEL





TYPICAL CHARACTERISTICS (25°C UNLESS NOTED)

P-CHANNEL



TYPICAL CHARACTERISTICS (25°C UNLESS NOTED)

P-CHANNEL

