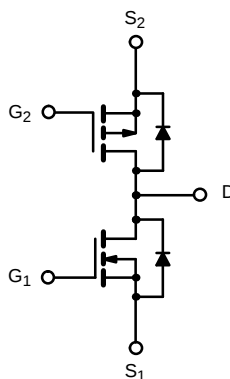
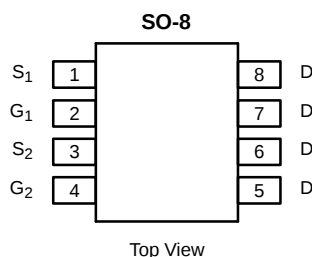




N-/P-Channel, Reduced Q_g , Fast Switching Half-Bridge

High-Efficiency
PWM Optimized

PRODUCT SUMMARY			
	V_{DS} (V)	$r_{DS(on)}$ (Ω)	I_D (A)
N-Channel	20	0.055 @ $V_{GS} = 4.5$ V	± 4.5
		0.075 @ $V_{GS} = 3.0$ V	± 3.8
P-Channel	-20	0.080 @ $V_{GS} = -4.5$ V	± 4.0
		0.120 @ $V_{GS} = -3.0$ V	± 3.0



ABSOLUTE MAXIMUM RATINGS (T _A = 25°C UNLESS OTHERWISE NOTED)						
Parameter			Symbol	N-Channel	P-Channel	Unit
Drain-Source Voltage			V _{DS}	20	−20	V
Gate-Source Voltage			V _{GS}	± 14		
Continuous Drain Current (T _J = 150°C) ^a	T _A = 25°C		I _D	± 4.5	± 4.0	A
	T _A = 70°C			± 3.6	± 3.0	
Pulsed Drain Current			I _{DM}	± 20		
Continuous Source Current (Diode Conduction) ^a			I _S	1.7	−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	N- or P-Channel	Unit
Maximum Junction-to-Ambient ^a	R_{thJA}	62.5	$^\circ\text{C/W}$

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 = 70 °C	N-Ch			25			
		V _{DS} = −20 V, V _{GS} = 0 V, T _J = 70 °C	P-Ch			−25			
On-State Drain Current ^a	I _{D(on)}	V _{DS} = 5 V, V _{GS} = 4.5 V	N-Ch	20			A		
		V _{DS} = −5 V, V _{GS} = −4.5 V	P-Ch	−20					
Drain-Source On-State Resistance ^a	r _{DS(on)}	V _{GS} = 4.5 V, I _D = 4.5 A	N-Ch		0.044	0.055	Ω		
		V _{GS} = −4.5 V, I _D = −4.0 A	P-Ch		0.064	0.080			
		V _{GS} = 3.0 V, I _D = 3.8 A	N-Ch		0.055	0.075			
		V _{GS} = −3.0 V, I _D = −3.0 A	P-Ch		0.086	0.120			
Forward Transconductance ^a	g _{fs}	V _{DS} = 15 V, I _D = 4.5 A	N-Ch		11.5		S		
		V _{DS} = −15 V, I _D = −4.0 A	P-Ch		9.8				
Diode Forward Voltage ^a	V _{SD}	I _S = 1.7 A, V _{GS} = 0 V	N-Ch		0.73	1.2	V		
		I _S = −1.7 A, V _{GS} = 0 V	P-Ch		−0.75	−1.2			
Dynamic ^b									
Total Gate Charge	Q _g	N-Channel V _{DS} = 3.5 V, V _{GS} = 4.5 V, I _D = 0.8 A P-Channel V _{DS} = −3.5 V, V _{GS} = −4.5 V I _D = −0.8 A	N-Ch		5.2	10	nC		
Gate-Source Charge	Q _{gs}		P-Ch		7.9	15			
Gate-Drain Charge	Q _{gd}		N-Ch P-Ch		1.15 1.90				
Turn-On Delay Time	t _{d(on)}	N-Channel V _{DD} = 3.5 V, R _L = 4.3 Ω I _D ≅ 0.8 A, V _{GEN} = 4.5 V, R _G = 6 Ω P-Channel V _{DD} = −3.5 V, R _L = 4.3 Ω I _D ≅ −0.8 A, V _{GEN} = −4.5 V, R _G = 6 Ω	N-Ch P-Ch		12 20	20 40	ns		
Rise Time	t _r		N-Ch P-Ch		22 52	50 90			
Turn-Off Delay Time	t _{d(off)}		N-Ch P-Ch		27 37	50 60			
Fall Time	t _f		N-Ch P-Ch		8 11	20 20			
Source-Drain Reverse Recovery Time	t _{rr}		N-Channel—I _F = 1.7 A, di/dt = 100 A/μs	N-Ch		60		100	
			P-Channel—I _F = −1.7 A, di/dt = 100 A/μs	P-Ch		60		100	

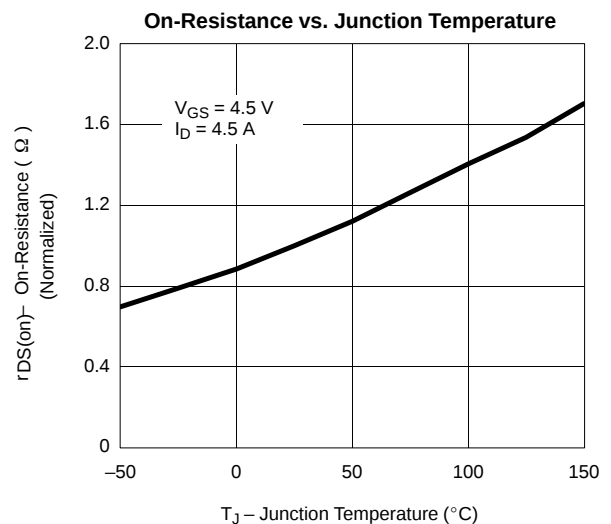
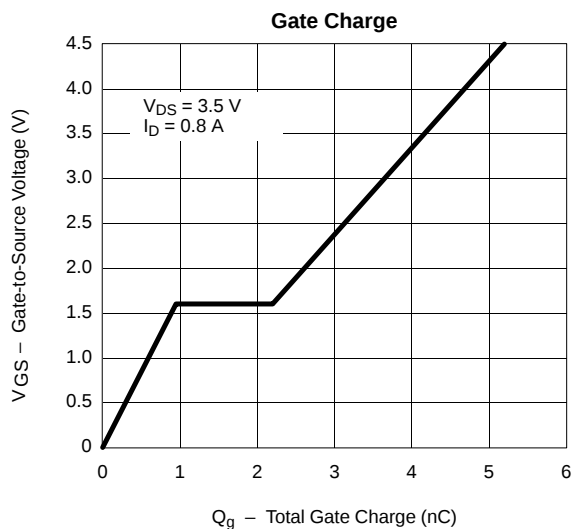
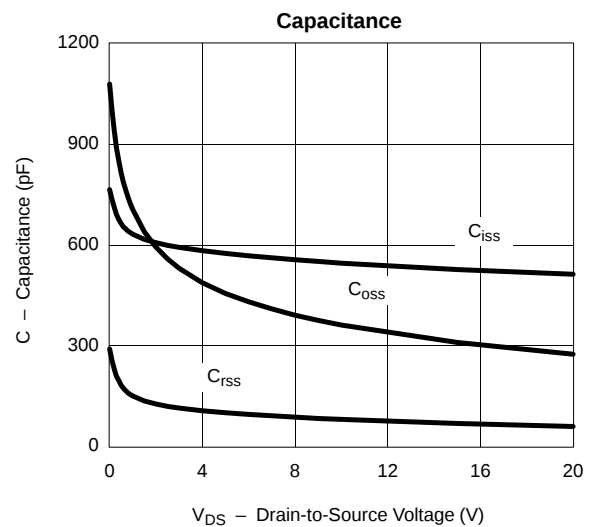
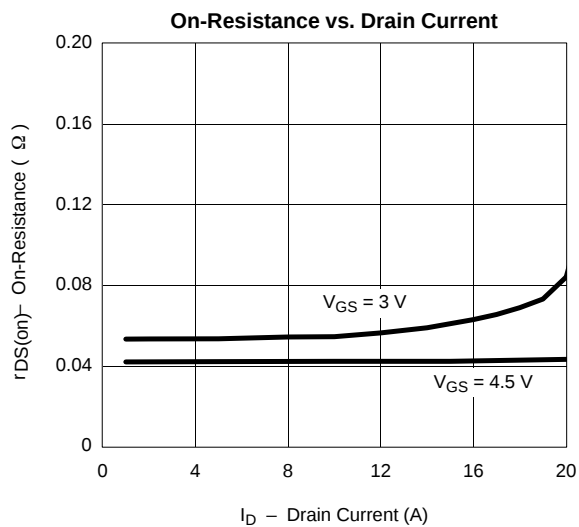
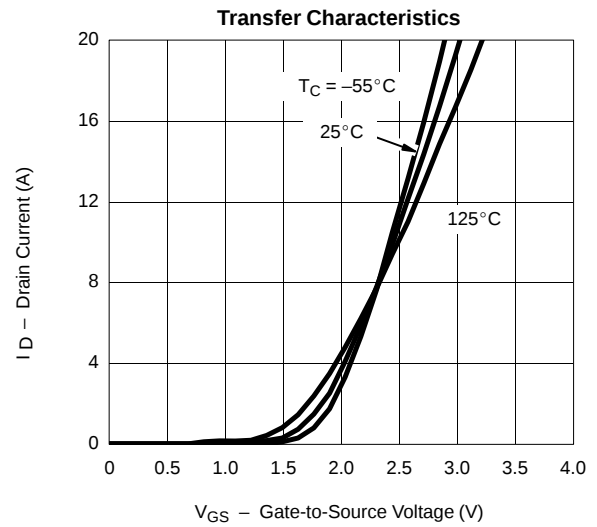
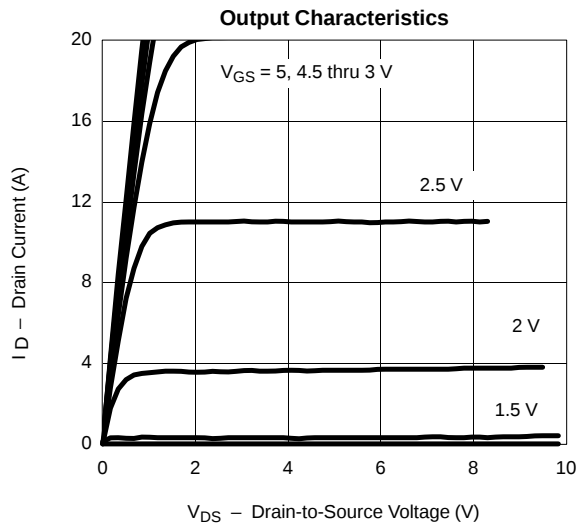
Notes

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



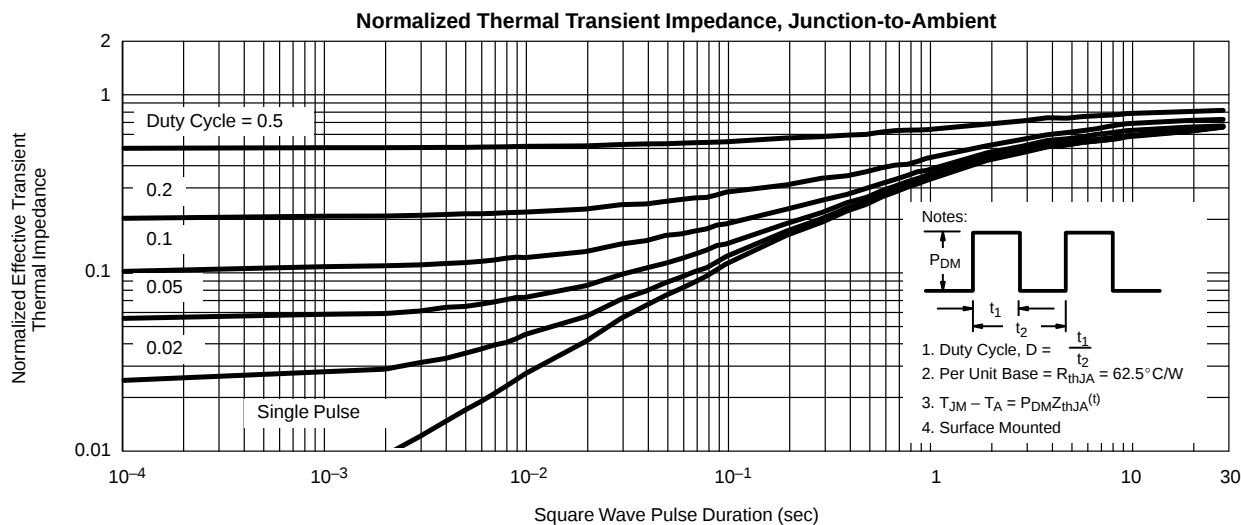
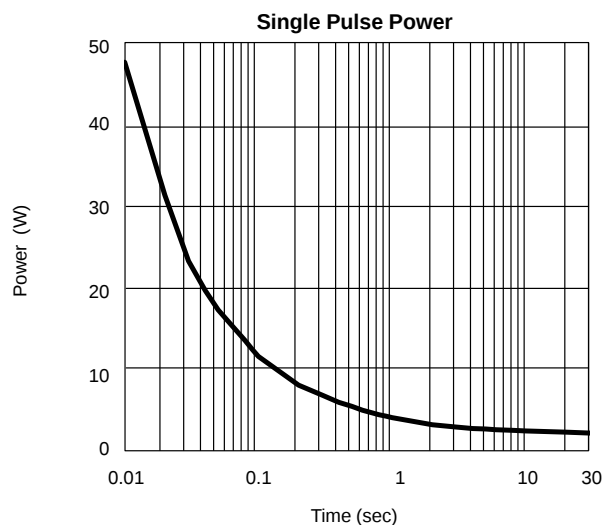
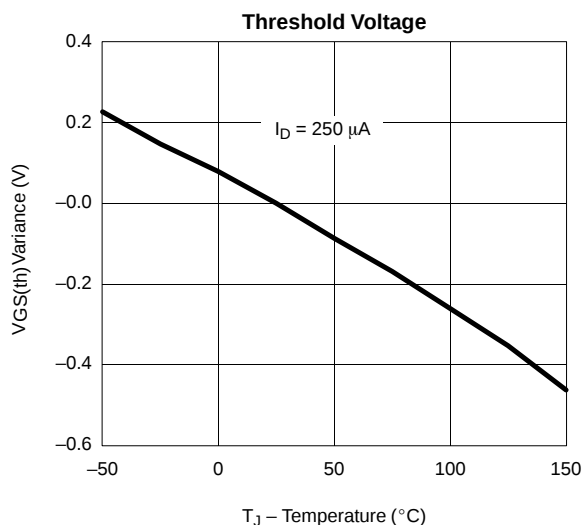
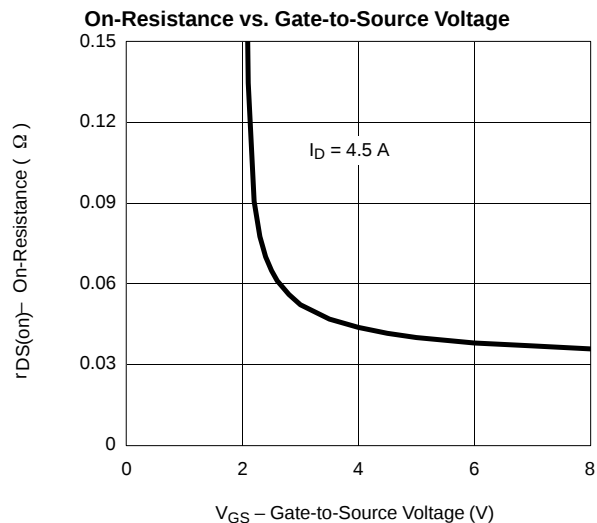
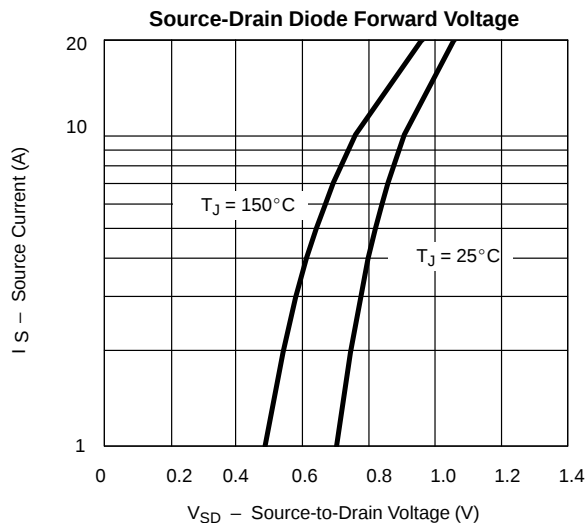
TYPICAL CHARACTERISTICS (25°C UNLESS NOTED)

N-CHANNEL



TYPICAL CHARACTERISTICS (25°C UNLESS NOTED)

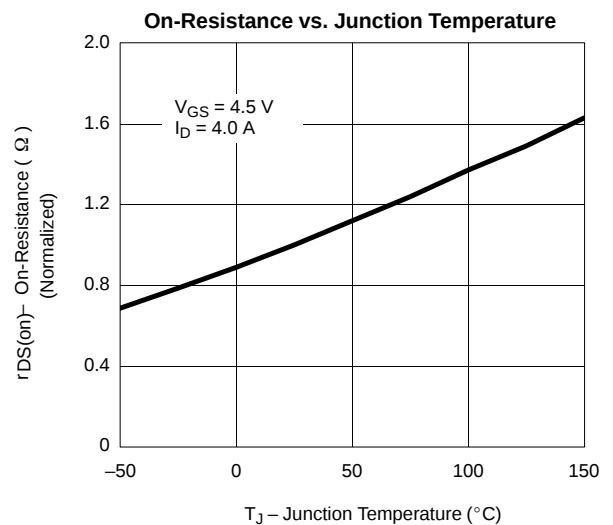
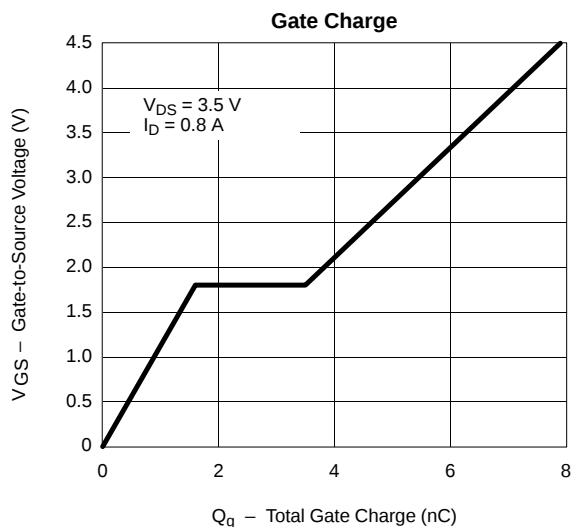
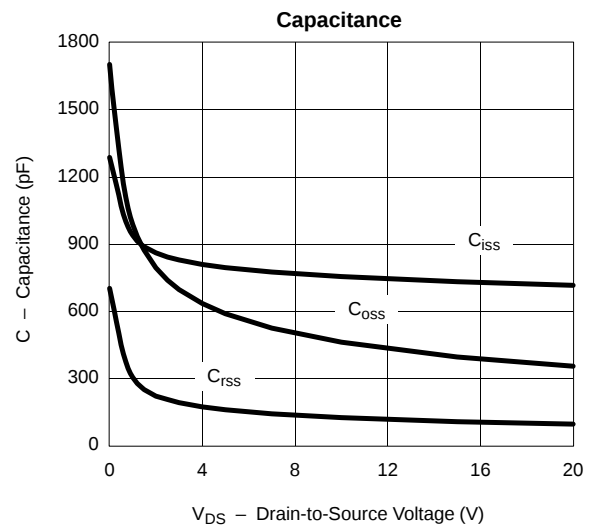
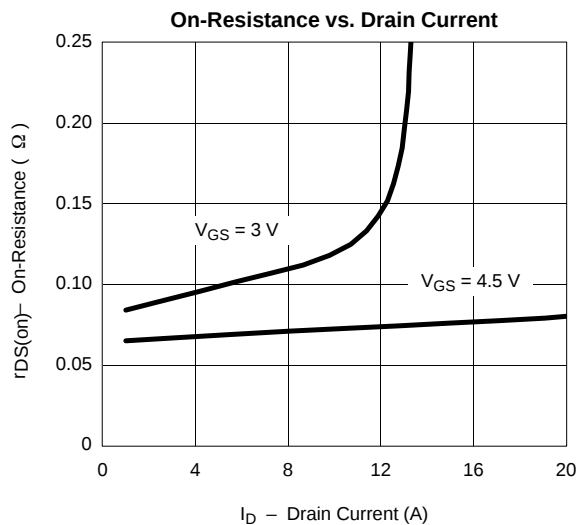
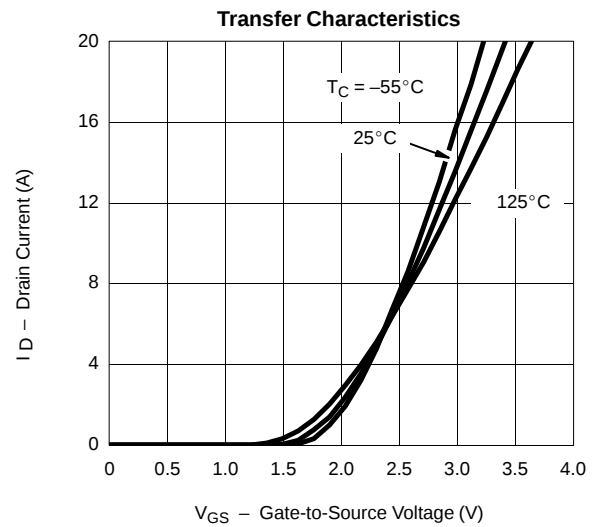
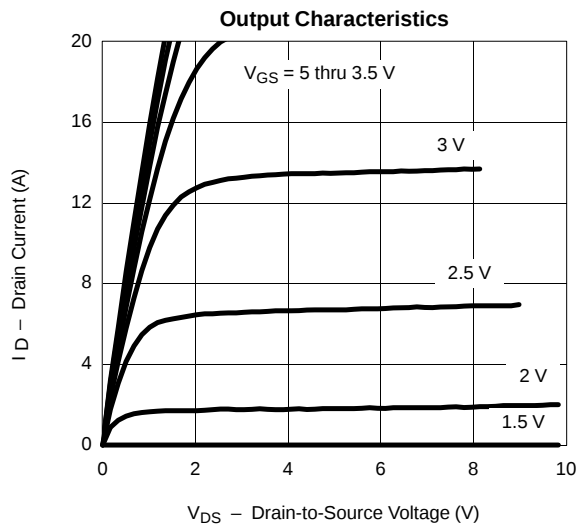
N-CHANNEL





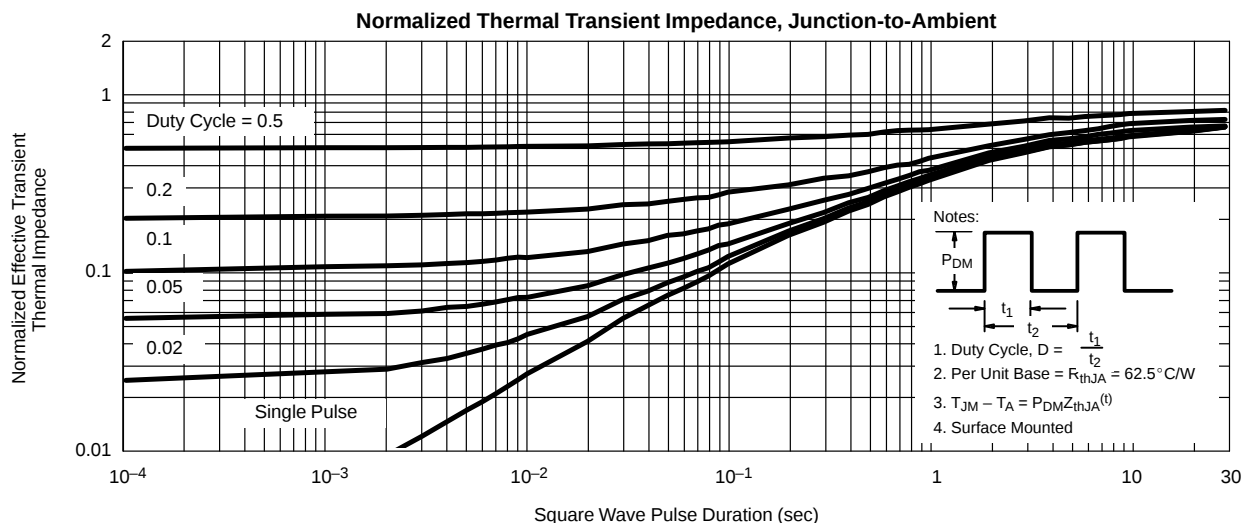
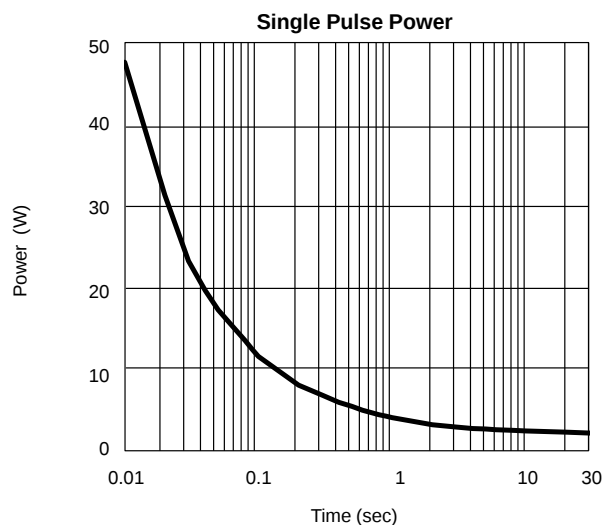
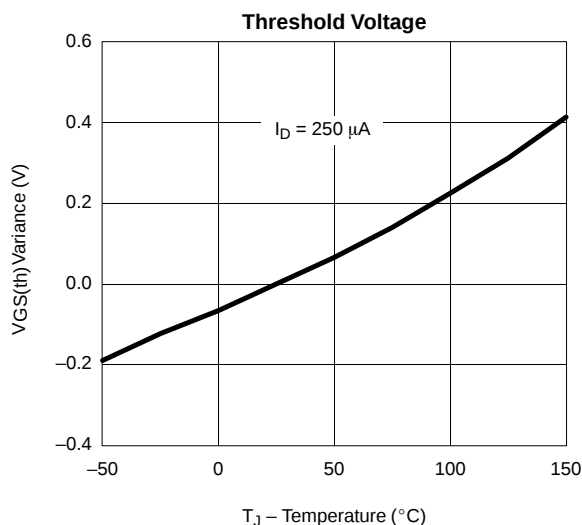
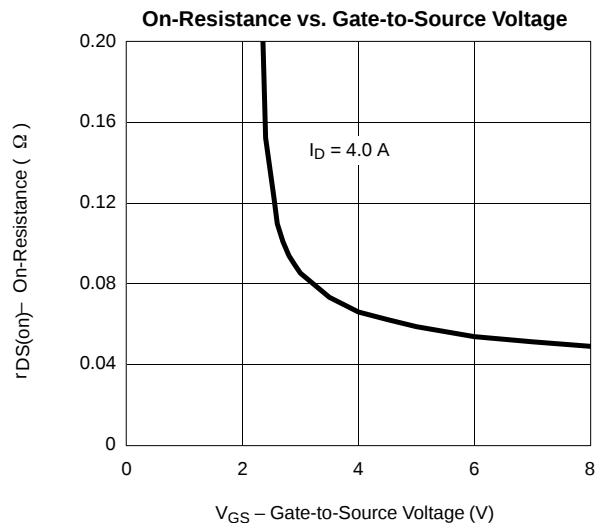
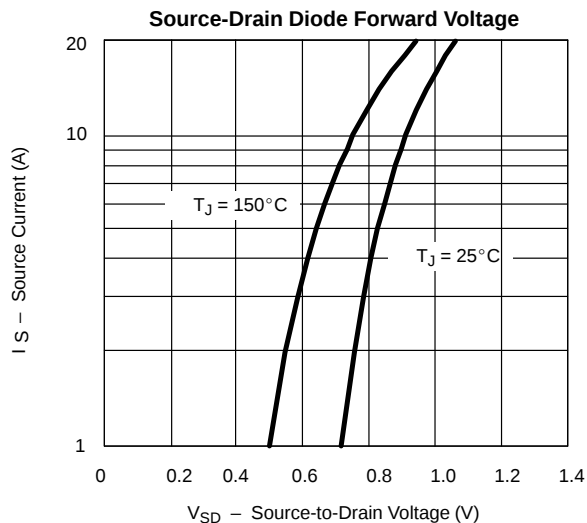
TYPICAL CHARACTERISTICS (25°C UNLESS NOTED)

P-CHANNEL



TYPICAL CHARACTERISTICS (25°C UNLESS NOTED)

P-CHANNEL





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