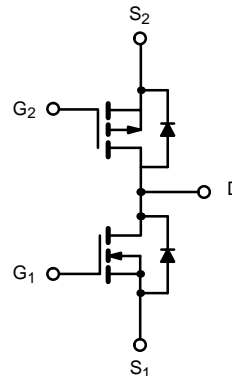
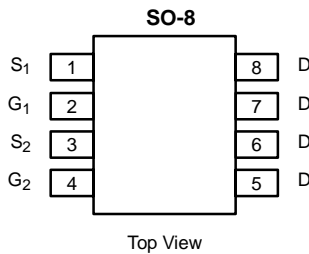




## Complementary MOSFET Half-Bridge (N- and P-Channel)

PRODUCT SUMMARY			
	V <sub>DS</sub> (V)	r <sub>DS(on)</sub> (Ω)	I <sub>D</sub> (A)
N-Channel	30	0.018 @ V <sub>GS</sub> = 10 V	±9
		0.027 @ V <sub>GS</sub> = 4.5 V	±7.4
P-Channel	-8	0.042 @ V <sub>GS</sub> = -4.5 V	±6.2
		0.060 @ V <sub>GS</sub> = -2.5 V	±5.2



ABSOLUTE MAXIMUM RATINGS (T <sub>A</sub> = 25 °C UNLESS OTHERWISE NOTED)				
Parameter	Symbol	N-Channel	P-Channel	Unit
Drain-Source Voltage	V <sub>DS</sub>	30	-8	V
Gate-Source Voltage	V <sub>GS</sub>	±20	±8	
Continuous Drain Current (T <sub>J</sub> = 150 °C) <sup>a, b</sup>	I <sub>D</sub>	T <sub>A</sub> = 25 °C	±9	A
		T <sub>A</sub> = 70 °C	±7.4	
Pulsed Drain Current	I <sub>DM</sub>	±30	±20	
Continuous Source Current (Diode Conduction) <sup>a, b</sup>	I <sub>S</sub>	1.7	-1.7	
Maximum Power Dissipation <sup>a, b</sup>	P <sub>D</sub>	T <sub>A</sub> = 25 °C	2.5	W
		T <sub>A</sub> = 70 °C	1.6	
Operating Junction and Storage Temperature Range	T <sub>J</sub> , T <sub>stg</sub>	-55 to 150		°C

THERMAL RESISTANCE RATINGS							
Parameter	Symbol	N-Channel		P-Channel		Unit	
		Typ	Max	Typ	Max		
Maximum Junction-to-Ambient <sup>a</sup>	t ≤ 10 sec	38	50	40	50	°C/W	
	Steady-State	73	95	73	95		
Maximum Junction-to-Foot	Steady-State	17	22	20	26		

Notes

- a. Surface Mounted on FR4 Board.
- b. t ≤ 10 sec

**SPECIFICATIONS (T<sub>J</sub> = 25 °C UNLESS OTHERWISE NOTED)**

Parameter	Symbol	Test Condition	Min	Typ <sup>a</sup>	Max	Unit	
<b>Static</b>							
Gate Threshold Voltage	V <sub>GS(th)</sub>	V <sub>DS</sub> = V <sub>GS</sub> , I <sub>D</sub> = 250 μA	N-Ch	0.8		V	
		V <sub>DS</sub> = V <sub>GS</sub> , I <sub>D</sub> = -250 μA	P-Ch	-0.45			
Gate-Body Leakage	I <sub>GSS</sub>	V <sub>DS</sub> = 0 V, V <sub>GS</sub> = ±20 V	N-Ch		±100	nA	
		V <sub>DS</sub> = 0 V, V <sub>GS</sub> = ±8 V	P-Ch		±100		
Zero Gate Voltage Drain Current	I <sub>DSS</sub>	V <sub>DS</sub> = 24 V, V <sub>GS</sub> = 0 V	N-Ch		1	μA	
		V <sub>DS</sub> = -6.4 V, V <sub>GS</sub> = 0 V	P-Ch		-1		
		V <sub>DS</sub> = 24 V, V <sub>GS</sub> = 0 V, T <sub>J</sub> = 55 °C	N-Ch		5		
		V <sub>DS</sub> = -6.4 V, V <sub>GS</sub> = 0 V, T <sub>J</sub> = 55 °C	P-Ch		-5		
On-State Drain Current <sup>b</sup>	I <sub>D(on)</sub>	V <sub>DS</sub> = 5 V, V <sub>GS</sub> = 10 V	N-Ch	30		A	
		V <sub>DS</sub> = -5 V, V <sub>GS</sub> = -4.5 V	P-Ch	-20			
Drain-Source On-State Resistance <sup>b</sup>	r <sub>DS(on)</sub>	V <sub>GS</sub> = 10 V, I <sub>D</sub> = 9 A	N-Ch		0.015	0.018	Ω
		V <sub>GS</sub> = -4.5 V, I <sub>D</sub> = -6.2 A	P-Ch		0.034	0.042	
		V <sub>GS</sub> = 4.5 V, I <sub>D</sub> = 7.4 A	N-Ch		0.022	0.027	
		V <sub>GS</sub> = -2.5 V, I <sub>D</sub> = -5.2 A	P-Ch		0.048	0.060	
Forward Transconductance <sup>b</sup>	g <sub>fs</sub>	V <sub>DS</sub> = 15 V, I <sub>D</sub> = 9 A	N-Ch		20	S	
		V <sub>DS</sub> = -15 V, I <sub>D</sub> = -6.2 A	P-Ch		14		
Diode Forward Voltage <sup>b</sup>	V <sub>SD</sub>	I <sub>S</sub> = 1.7 A, V <sub>GS</sub> = 0 V	N-Ch		0.71	1.1	V
		I <sub>S</sub> = -1.7 A, V <sub>GS</sub> = 0 V	P-Ch		-0.70	-1.1	
<b>Dynamic<sup>a</sup></b>							
Total Gate Charge	Q <sub>g</sub>	N-Channel V <sub>DS</sub> = 15 V, V <sub>GS</sub> = 5 V, I <sub>D</sub> = 9 A P-Channel V <sub>DS</sub> = -4 V, V <sub>GS</sub> = -5 V, I <sub>D</sub> = -6.2 A	N-Ch		4.5	20	nC
Gate-Source Charge	Q <sub>gs</sub>		P-Ch		15	25	
			N-Ch		3.3		
Gate-Drain Charge	Q <sub>gd</sub>		P-Ch		3.0		
			N-Ch		6.6		
Turn-On Delay Time	t <sub>d(on)</sub>		P-Ch		2.0		
		N-Ch		13	20		
Rise Time	t <sub>r</sub>	N-Channel V <sub>DD</sub> = 15 V, R <sub>L</sub> = 15 Ω I <sub>D</sub> ≅ 1 A, V <sub>GEN</sub> = 10 V, R <sub>G</sub> = 6 Ω	N-Ch		9	18	ns
		P-Channel V <sub>DD</sub> = -4 V, R <sub>L</sub> = 4 Ω I <sub>D</sub> ≅ -1 A, V <sub>GEN</sub> = -4.5 V, R <sub>G</sub> = 6 Ω	P-Ch		50	100	
Turn-Off Delay Time	t <sub>d(off)</sub>		N-Ch		35	50	
		P-Ch		110	220		
Fall Time	t <sub>f</sub>	N-Ch		17	30		
		P-Ch		60	120		
Source-Drain Reverse Recovery Time	t <sub>rr</sub>	I <sub>F</sub> = 1.7 A, di/dt = 100 A/μs	N-Ch		35	70	
			P-Ch		60	100	

## Notes

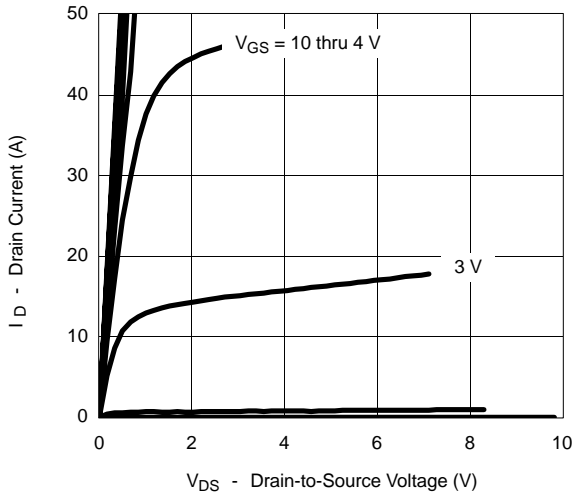
- a. Guaranteed by design, not subject to production testing.  
 b. Pulse test; pulse width ≤ 300 μs, duty cycle ≤ 2%.



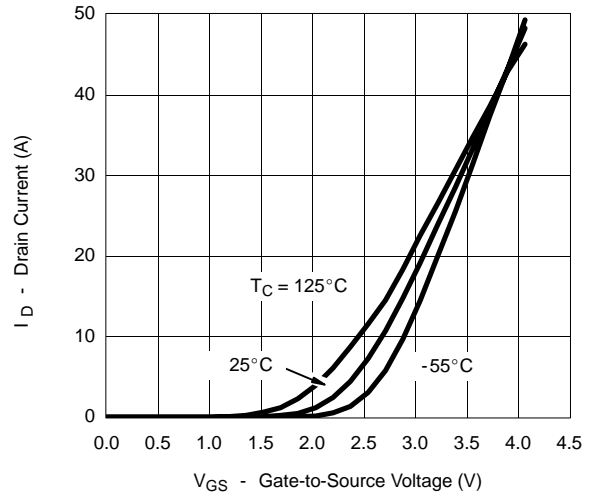
**TYPICAL CHARACTERISTICS (25°C UNLESS NOTED)**

**NCHANNEL**

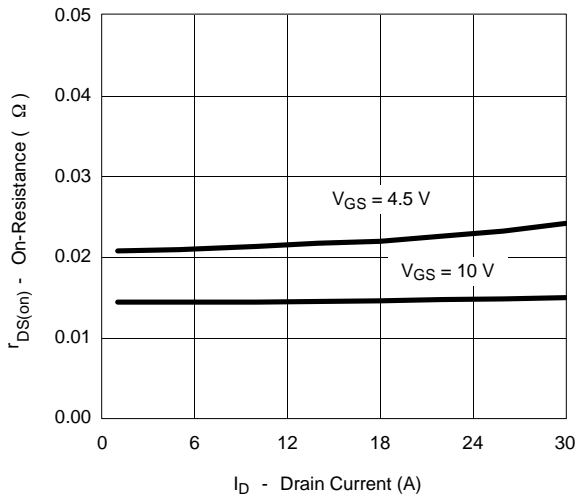
**Output Characteristics**



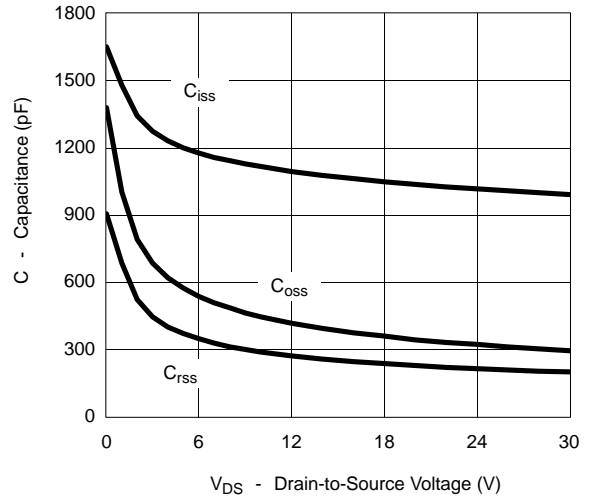
**Transfer Characteristics**



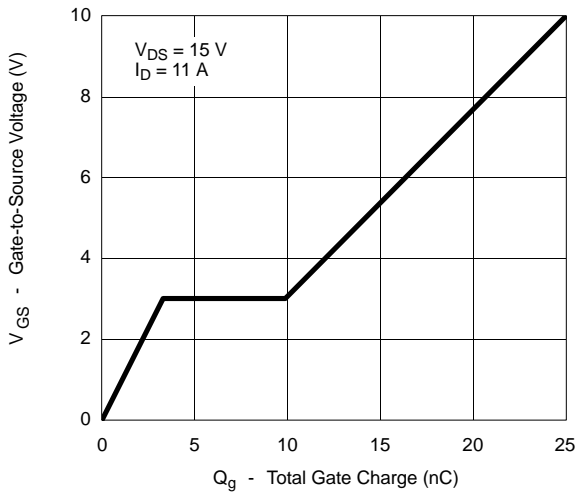
**On-Resistance vs. Drain Current**



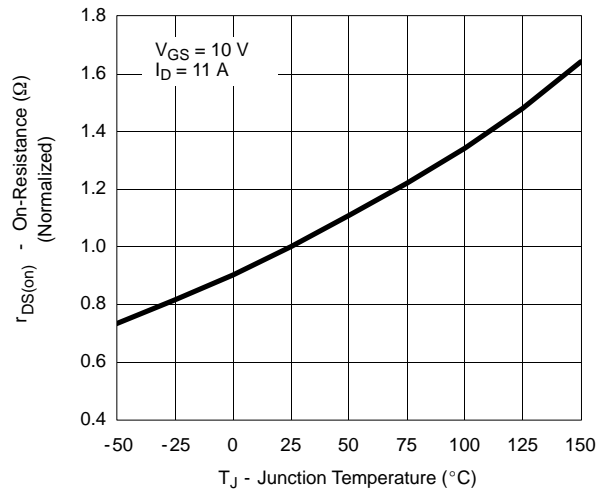
**Capacitance**



**Gate Charge**

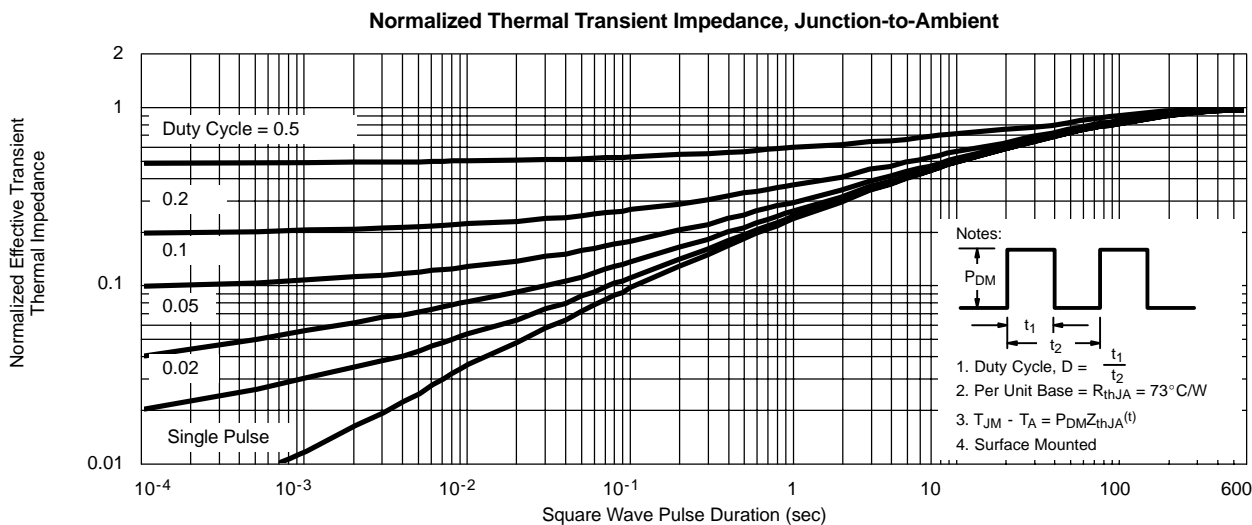
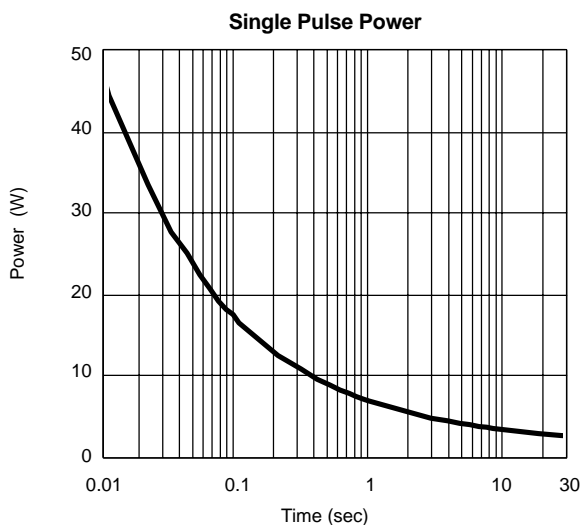
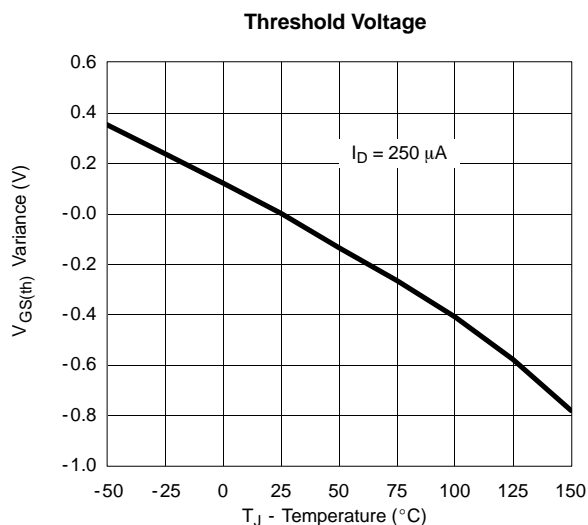
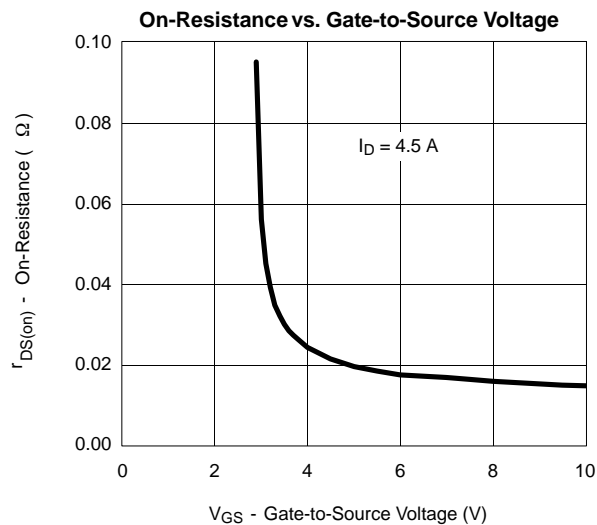
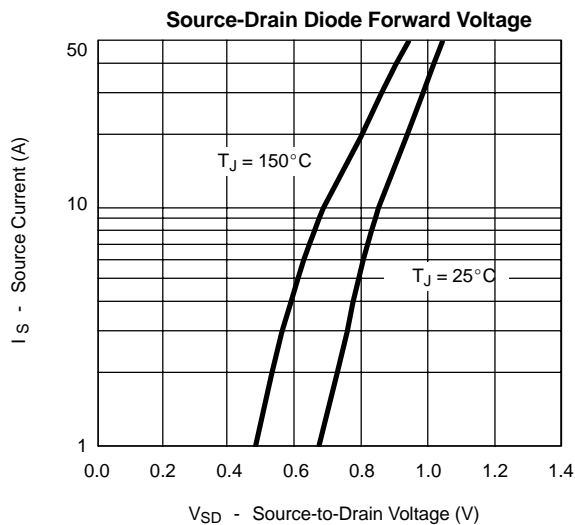


**On-Resistance vs. Junction Temperature**



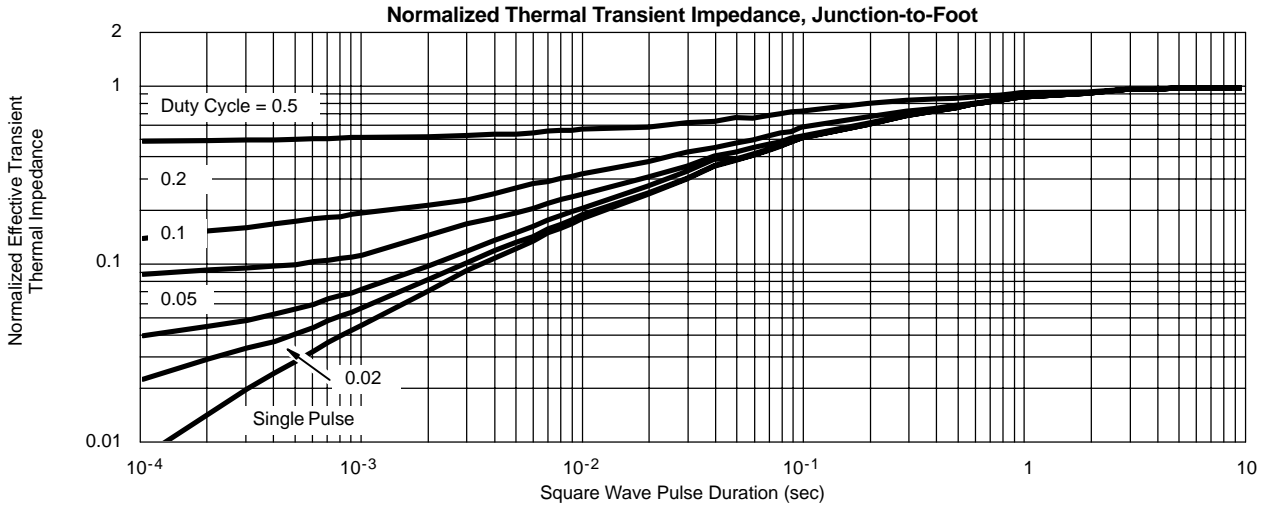
### TYPICAL CHARACTERISTICS (25°C UNLESS NOTED)

### NCHANNEL

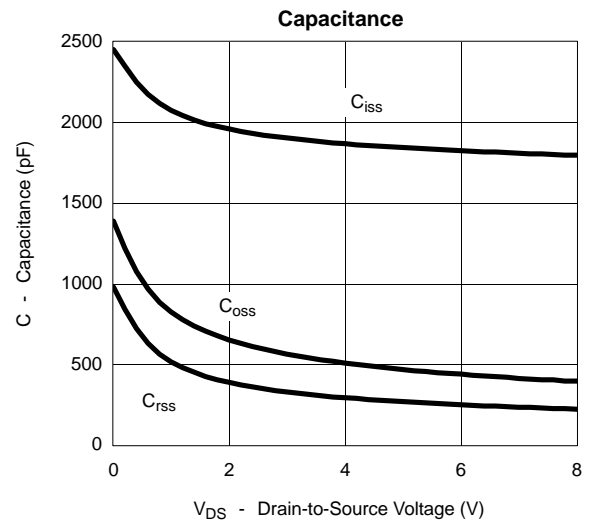
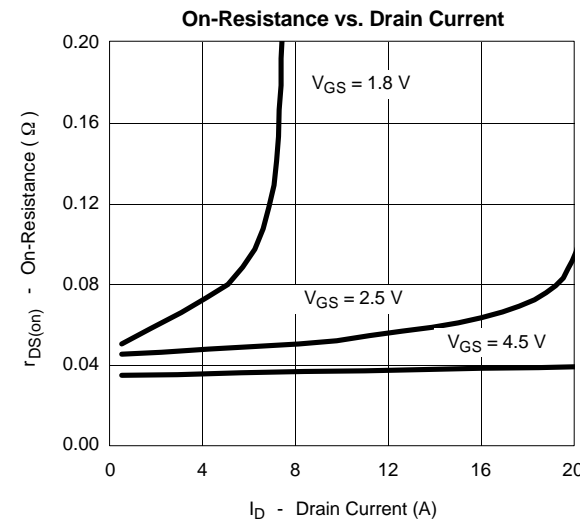
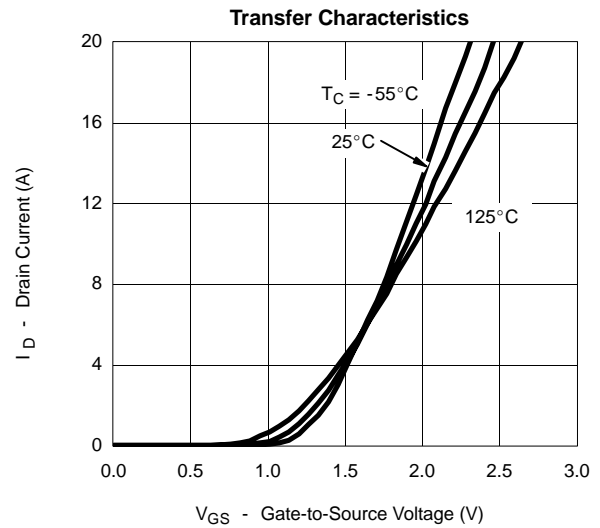
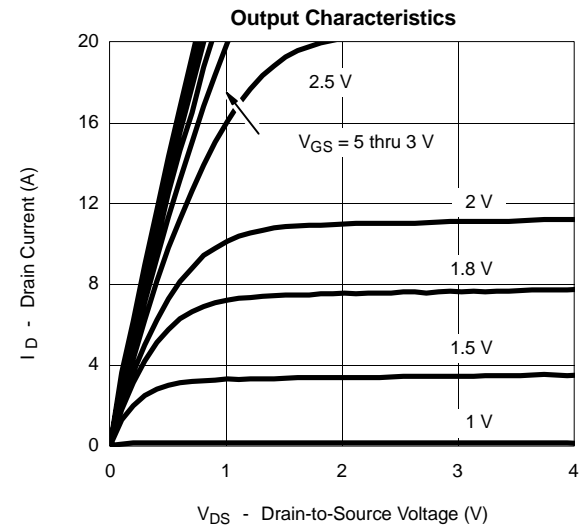




**TYPICAL CHARACTERISTICS (25°C UNLESS NOTED) NCHANNEL**



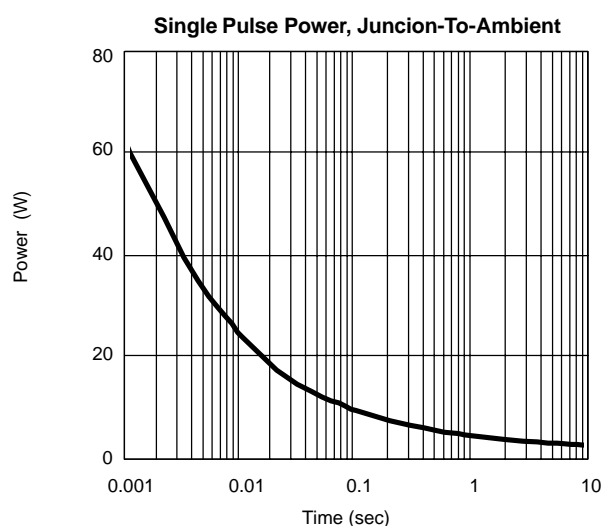
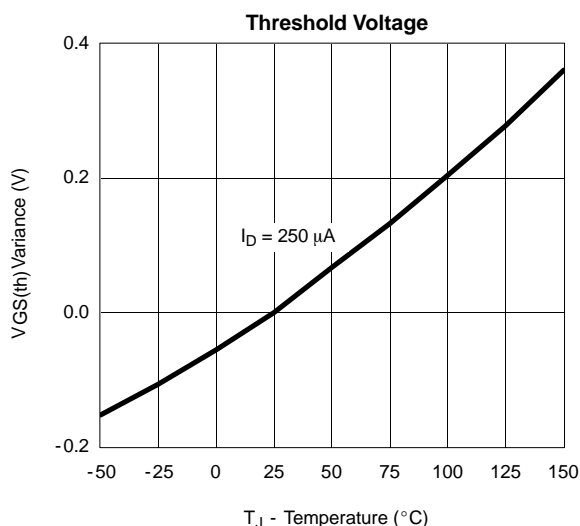
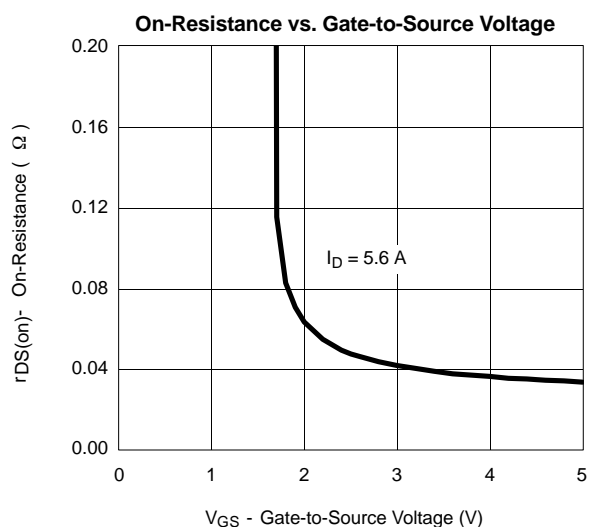
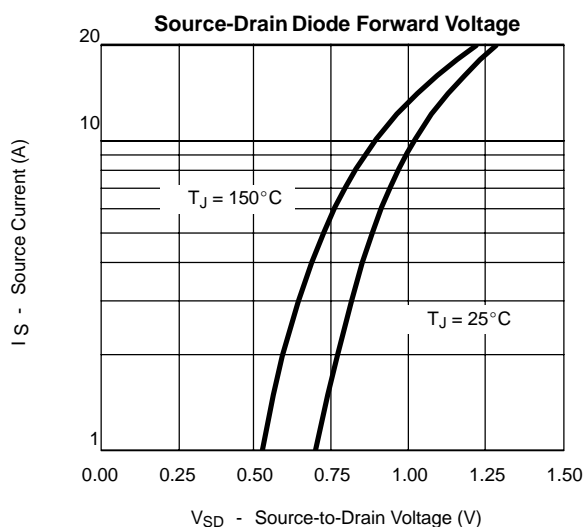
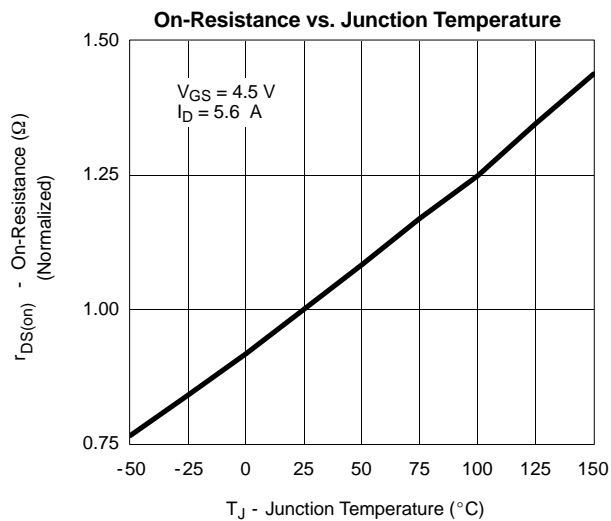
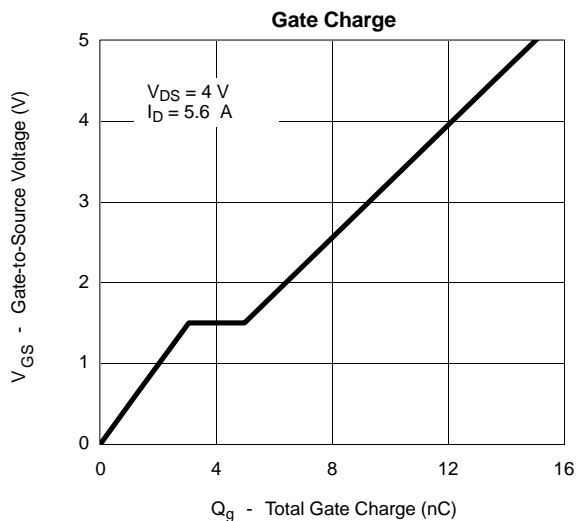
**TYPICAL CHARACTERISTICS (25°C UNLESS NOTED) PCHANNEL**





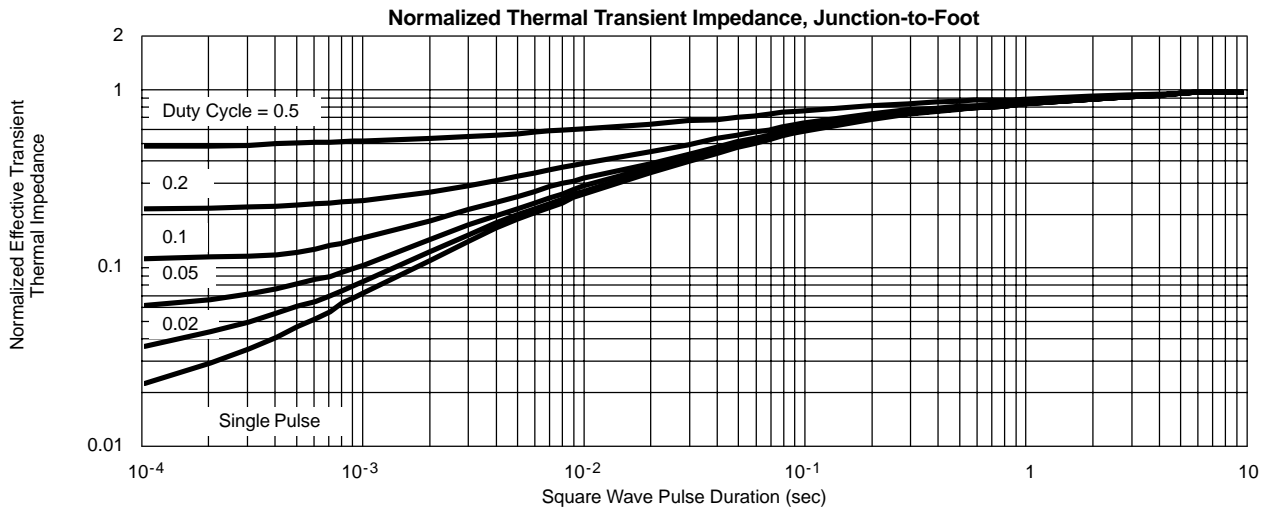
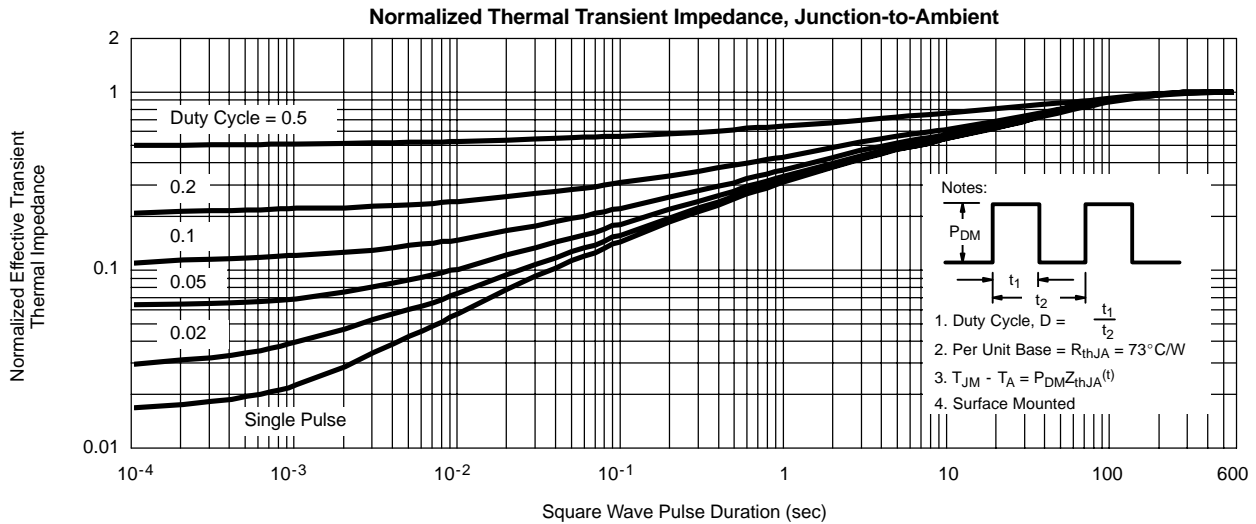
**TYPICAL CHARACTERISTICS (25°C UNLESS NOTED)**

**PCHANNEL**





**TYPICAL CHARACTERISTICS (25°C UNLESS NOTED) PCHANNEL**



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