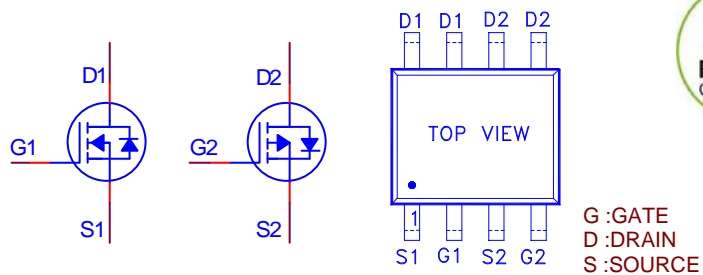




**PRODUCT SUMMARY**

	$V_{(BR)DSS}$	$R_{DS(ON)}$	$I_D$
N-Channel	20	24mΩ	10A
P-Channel	-20	43mΩ	-5.2A



**ABSOLUTE MAXIMUM RATINGS ( $T_C = 25\text{ }^\circ\text{C}$  Unless Otherwise Noted)**

PARAMETERS/TEST CONDITIONS		SYMBOL	N-Channel	P-Channel	UNITS
Drain-Source Voltage		$V_{DS}$	20	-20	V
Gate-Source Voltage		$V_{GS}$	±12	±12	V
Continuous Drain Current	$T_A = 25\text{ }^\circ\text{C}$	$I_D$	10	-5.2	A
	$T_A = 70\text{ }^\circ\text{C}$		6.3	-3.2	
Pulsed Drain Current <sup>1</sup>		$I_{DM}$	40	-21	
Power Dissipation	$T_A = 25\text{ }^\circ\text{C}$	$P_D$	2.5		W
	$T_A = 70\text{ }^\circ\text{C}$		1.6		
Junction & Storage Temperature Range		$T_j, T_{stg}$	-55 to 150		$^\circ\text{C}$

**THERMAL RESISTANCE RATINGS**

THERMAL RESISTANCE	SYMBOL	TYPICAL	MAXIMUM	UNITS
Junction-to-Ambient	$R_{\theta JA}$		50	$^\circ\text{C} / \text{W}$

<sup>1</sup>Pulse width limited by maximum junction temperature.

<sup>2</sup>Duty cycle ≤ 1%

**ELECTRICAL CHARACTERISTICS (T<sub>C</sub> = 25 °C, Unless Otherwise Noted)**

PARAMETER	SYMBOL	TEST CONDITIONS	LIMITS			UNIT	
			MIN	TYP	MAX		
<b>STATIC</b>							
Drain-Source Breakdown Voltage	V <sub>(BR)DSS</sub>	V <sub>GS</sub> = 0V, I <sub>D</sub> = 250μA	N-Ch	20		V	
		V <sub>GS</sub> = 0V, I <sub>D</sub> = -250μA	P-Ch	-20			
Gate Threshold Voltage	V <sub>GS(th)</sub>	V <sub>DS</sub> = V <sub>GS</sub> , I <sub>D</sub> = 250μA	N-Ch	0.4	0.8	1.2	
		V <sub>DS</sub> = V <sub>GS</sub> , I <sub>D</sub> = -250μA	P-Ch	-0.4	-0.8	-1.2	
Gate-Body Leakage	I <sub>GSS</sub>	V <sub>DS</sub> = 0V, V <sub>GS</sub> = ±12V	N-Ch			±100	
		V <sub>DS</sub> = 0V, V <sub>GS</sub> = ±12V	P-Ch			±100	
Zero Gate Voltage Drain Current	I <sub>DSS</sub>	V <sub>DS</sub> = 16V, V <sub>GS</sub> = 0V	N-Ch			1	
		V <sub>DS</sub> = -16V, V <sub>GS</sub> = 0V	P-Ch			-1	
		V <sub>DS</sub> = 16V, V <sub>GS</sub> = 0V, T <sub>J</sub> = 55 °C	N-Ch				10
		V <sub>DS</sub> = -16V, V <sub>GS</sub> = 0V, T <sub>J</sub> = 55 °C	P-Ch				-10
Drain-Source On-State Resistance <sup>1</sup>	R <sub>DS(ON)</sub>	V <sub>GS</sub> = 2.5V, I <sub>D</sub> = 5.2A	N-Ch		28	36	
		V <sub>GS</sub> = -2.5V, I <sub>D</sub> = -4A	P-Ch		47	68	
		V <sub>GS</sub> = 4.5V, I <sub>D</sub> = 8A	N-Ch		18	24	
		V <sub>GS</sub> = -4.5V, I <sub>D</sub> = -5A	P-Ch		32	43	
<b>DYNAMIC</b>							
Input Capacitance	C <sub>iss</sub>	N-Channel	N-Ch		732		
			P-Ch		1110		
Output Capacitance	C <sub>oss</sub>	V <sub>GS</sub> = 0V, V <sub>DS</sub> = 10V, f = 1MHz	N-Ch		241		
		P-Channel	P-Ch		242		
Reverse Transfer Capacitance	C <sub>rss</sub>	V <sub>GS</sub> = 0V, V <sub>DS</sub> = -10V, f = 1MHz	N-Ch		169		
			P-Ch		173		
Total Gate Charge <sup>2</sup>	Q <sub>g</sub>	N-Channel	N-Ch		10		
			P-Ch		11		
Gate-Source Charge <sup>2</sup>	Q <sub>gs</sub>	V <sub>DS</sub> = 10V, V <sub>GS</sub> = 4.5V, I <sub>D</sub> = 5A	N-Ch		0.8		
		P-Channel	P-Ch		2		
Gate-Drain Charge <sup>2</sup>	Q <sub>gd</sub>	V <sub>DS</sub> = -10V, V <sub>GS</sub> = -4.5V, I <sub>D</sub> = -5A	N-Ch		3.7		
			P-Ch		3.5		

Turn-On Delay Time <sup>2</sup>	$t_{d(on)}$	N-Channel $V_{DS} = 10V,$ $I_D \cong 1A, V_{GS} = 4.5V, R_{GEN} = 10\Omega$ P-Channel $V_{DS} = -4V,$ $I_D \cong -1A, V_{GS} = -4.5V,$ $R_{GEN} = 10\Omega$	N-Ch		6	nS	
Rise Time <sup>2</sup>	$t_r$		P-Ch		23		
Turn-Off Delay Time <sup>2</sup>	$t_{d(off)}$		N-Ch		5		
Fall Time <sup>2</sup>	$t_f$		P-Ch		45		
			N-Ch		16		
			P-Ch		45		
			N-Ch		5		
			P-Ch		32		
<b>SOURCE-DRAIN DIODE RATINGS AND CHARACTERISTICS (T<sub>c</sub> = 25 °C)</b>							
Continuous Current	$I_S$		N-Ch			1.9	A
			P-Ch			-1.9	
Pulsed Current <sup>3</sup>	$I_{SM}$		N-Ch			7.6	
			P-Ch			-9	
Forward Voltage <sup>1</sup>	$V_{SD}$	$I_F = 1A, V_{GS} = 0V$	N-Ch			1.3	V
		$I_F = -1A, V_{GS} = 0V$	P-Ch			-1.3	

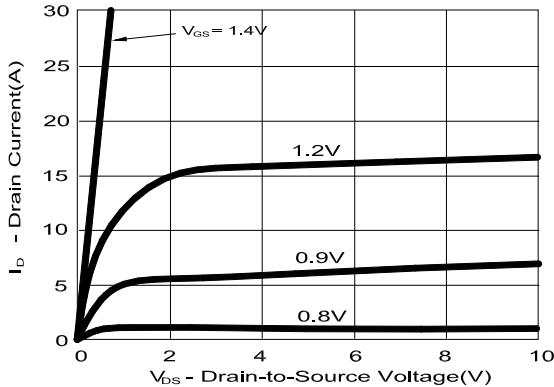
<sup>1</sup>Pulse test : Pulse Width  $\leq 300 \mu\text{sec}$ , Duty Cycle  $\leq 2\%$ .

<sup>2</sup>Independent of operating temperature.

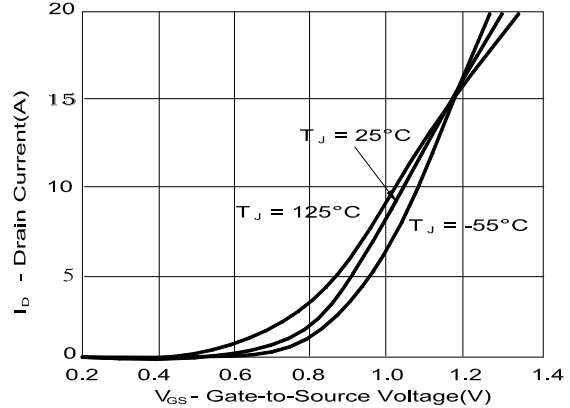
<sup>3</sup>Pulse width limited by maximum junction temperature.

**N-CHANNEL**

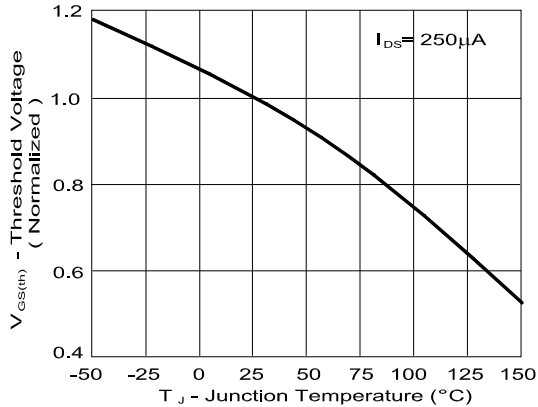
Output Characteristics



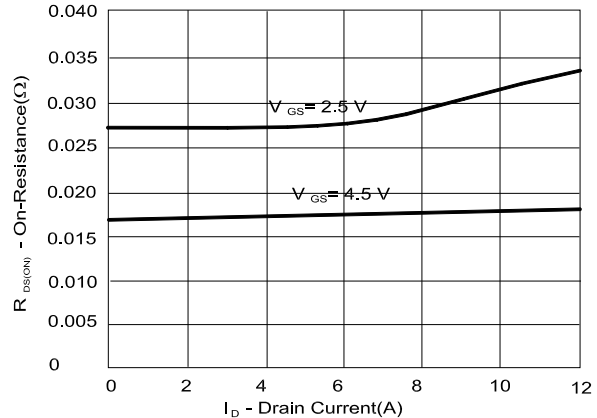
Transfer Characteristics



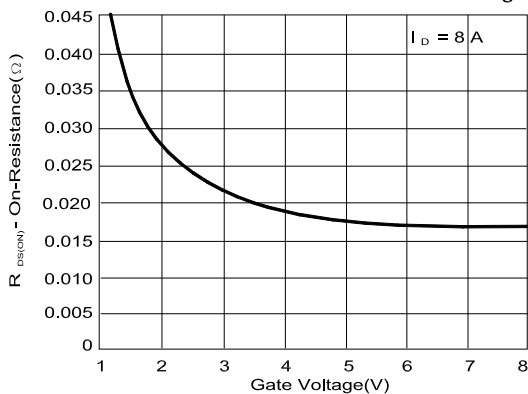
Threshold Voltage vs. Junction Temperature



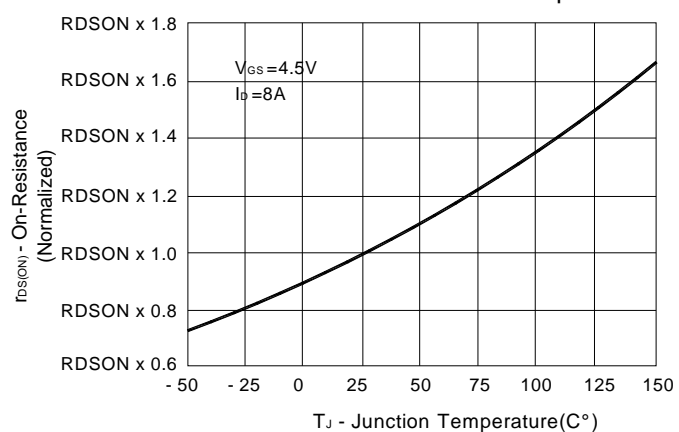
On-Resistance vs. Drain Current

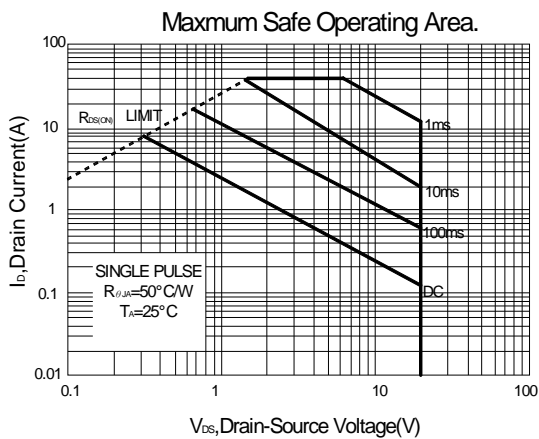
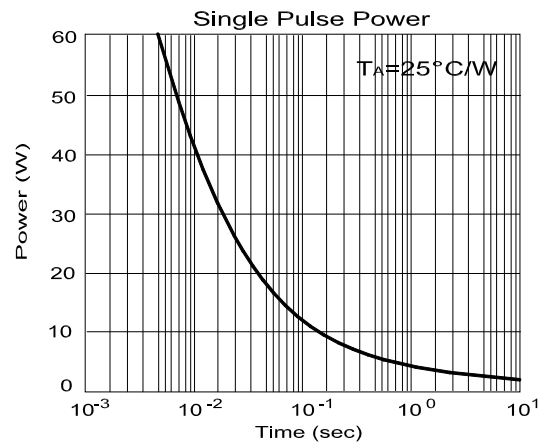
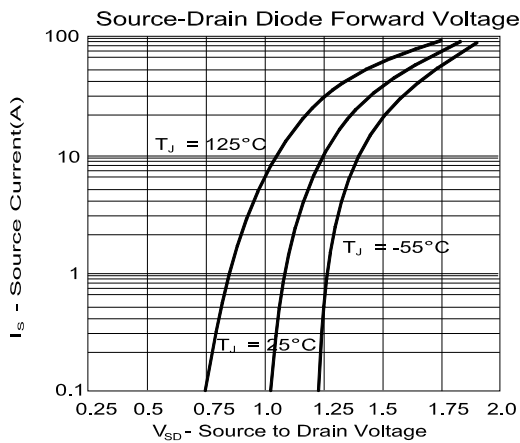
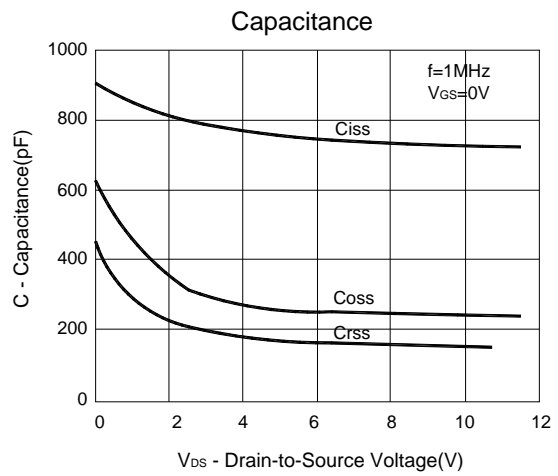
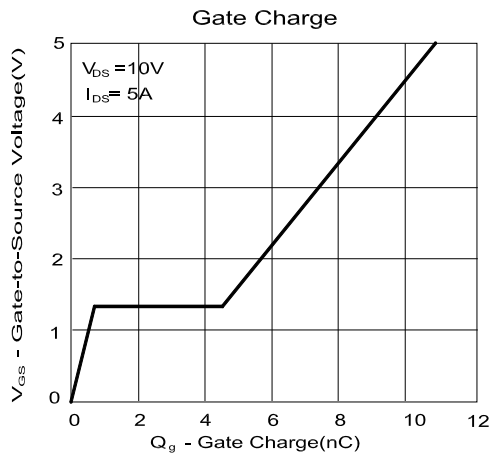


On-Resistance vs. Gate-to-Source Voltage

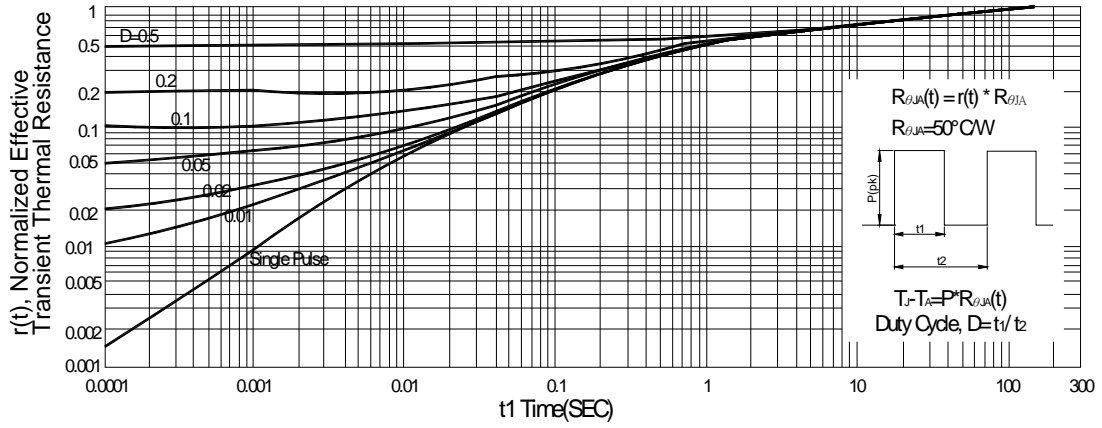


On-Resistance vs. Junction Temperature



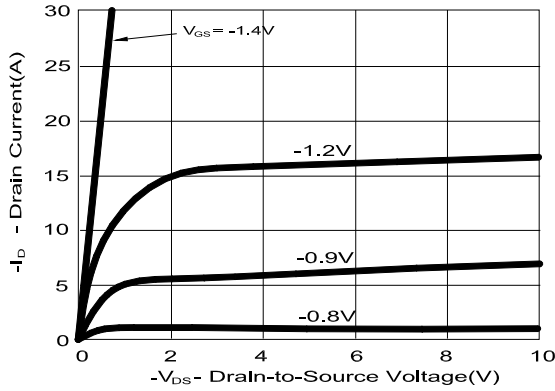


Transient Thermal Response Curve.

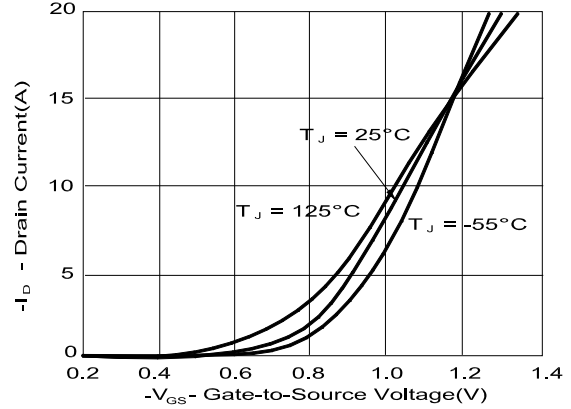


**P-CHANNEL**

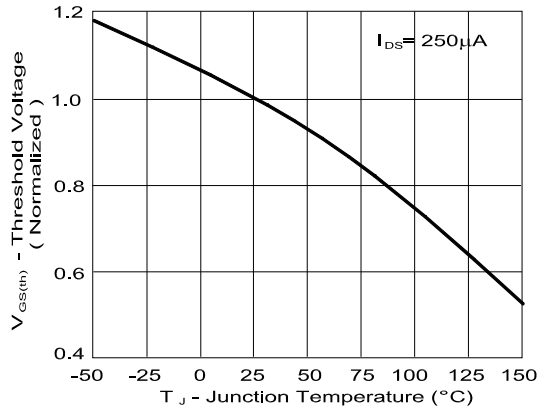
Output Characteristics



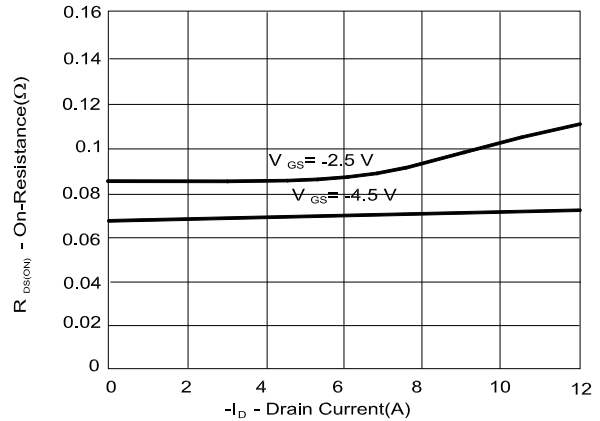
Transfer Characteristics



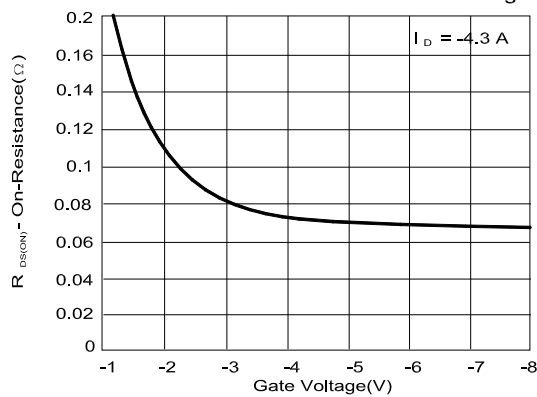
Threshold Voltage vs. Junction Temperature



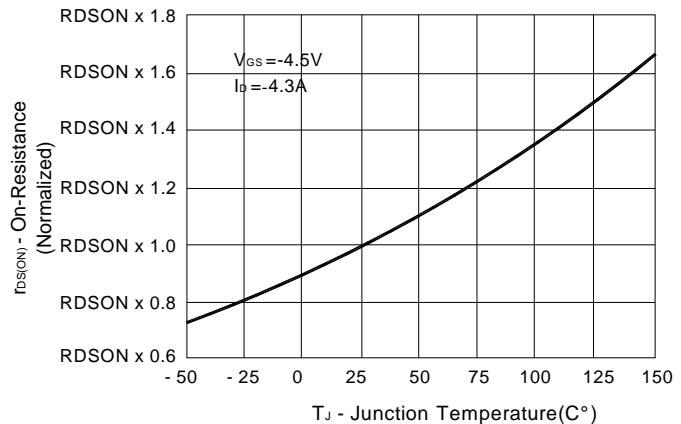
On-Resistance vs. Drain Current

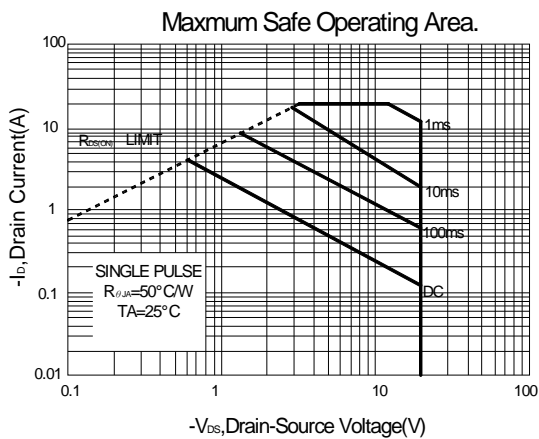
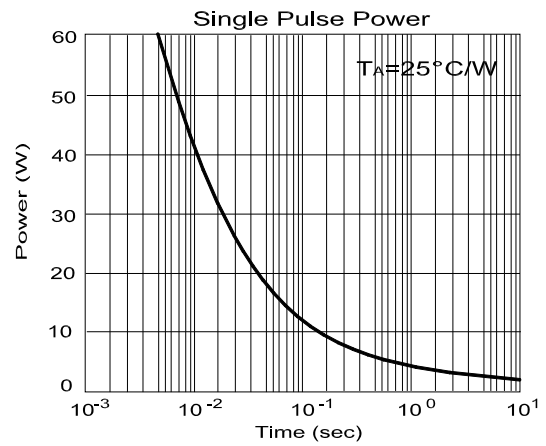
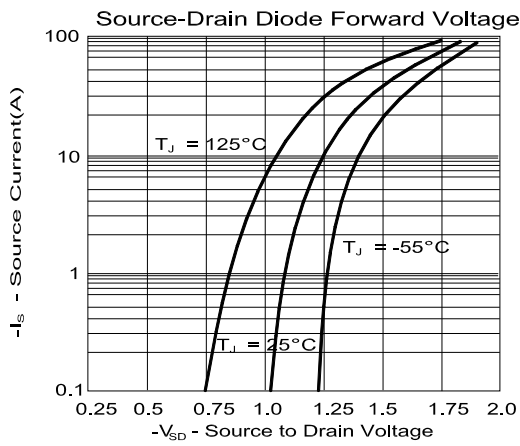
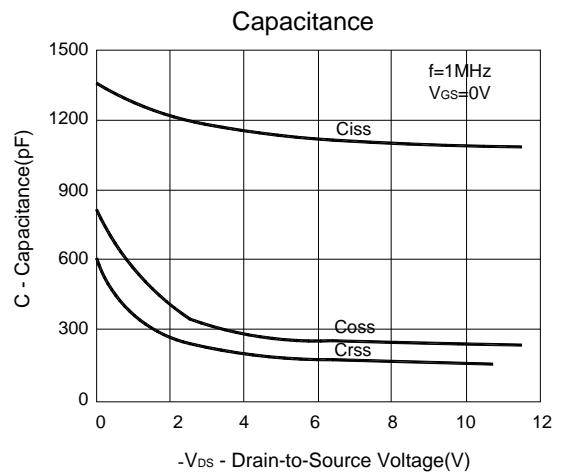
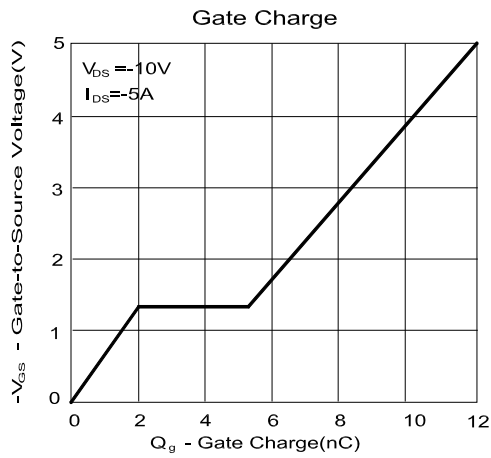


On-Resistance vs. Gate-to-Source Voltage



On-Resistance vs. Junction Temperature







Transient Thermal Response Curve.

