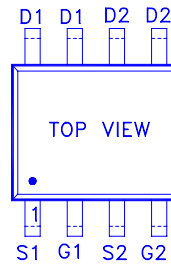
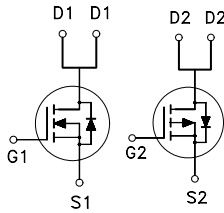


NIKO-SEM**N- & P-Channel Enhancement Mode
Field Effect Transistor****P3503QVG**
SOP-8
Lead-Free**PRODUCT SUMMARY**

	$V_{(BR)DSS}$	$R_{DS(ON)}$	I_D
N-Channel	30	25m	7A
P-Channel	-30	35m	-6A



G : GATE
D : DRAIN
S : SOURCE

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}	30	-30	V
Gate-Source Voltage		V_{GS}	± 20	± 20	V
Continuous Drain Current	$T_C = 25\text{ }^\circ\text{C}$	I_D	7	-6	A
	$T_C = 70\text{ }^\circ\text{C}$		6	-5	
Pulsed Drain Current ¹		I_{DM}	20	-20	
Power Dissipation	$T_C = 25\text{ }^\circ\text{C}$	P_D	2		W
	$T_C = 70\text{ }^\circ\text{C}$		1.3		
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	$R_{\theta JA}$	48	62.5	$^\circ\text{C} / \text{W}$

¹Pulse width limited by maximum junction temperature.²Duty cycle $\leq 1\%$ **ELECTRICAL CHARACTERISTICS ($T_C = 25\text{ }^\circ\text{C}$, Unless Otherwise Noted)**

PARAMETER	SYMBOL	TEST CONDITIONS	LIMITS			UNIT
			MIN	TYP	MAX	
STATIC						
Drain-Source Breakdown Voltage	$V_{(BR)DSS}$	$V_{GS} = 0\text{V}, I_D = 250\mu\text{A}$	N-Ch	30		V
		$V_{GS} = 0\text{V}, I_D = -250\mu\text{A}$	P-Ch	-30		
Gate Threshold Voltage	$V_{GS(th)}$	$V_{DS} = V_{GS}, I_D = 250\mu\text{A}$	N-Ch	1	1.5	2.5
		$V_{DS} = V_{GS}, I_D = -250\mu\text{A}$	P-Ch	-1	-1.5	-2.5
Gate-Body Leakage	I_{GSS}	$V_{DS} = 0\text{V}, V_{GS} = \pm 20\text{V}$	N-Ch			± 100
		$V_{DS} = 0\text{V}, V_{GS} = \pm 20\text{V}$	P-Ch			± 100

Zero Gate Voltage Drain Current	I_{DSS}	$V_{DS} = 24V, V_{GS} = 0V$	N-Ch			1	μA
		$V_{DS} = -24V, V_{GS} = 0V$	P-Ch			-1	
		$V_{DS} = 20V, V_{GS} = 0V, T_J = 55^\circ C$	N-Ch			10	
		$V_{DS} = -20V, V_{GS} = 0V, T_J = 55^\circ C$	P-Ch			-10	
On-State Drain Current ¹	$I_{D(ON)}$	$V_{DS} = 5V, V_{GS} = 10V$	N-Ch	20			A
		$V_{DS} = -5V, V_{GS} = -10V$	P-Ch	-20			
Drain-Source Resistance ¹	On-State $R_{DS(ON)}$	$V_{GS} = 4.5V, I_D = 6A$	N-Ch		25	37	m
		$V_{GS} = -4.5V, I_D = -5A$	P-Ch		44	60	
		$V_{GS} = 10V, I_D = 7A$	N-Ch		18	25	
		$V_{GS} = -10V, I_D = -6A$	P-Ch		28	35	
Forward Transconductance ¹	g_{fs}	$V_{DS} = 5V, I_D = 7A$	N-Ch		19		S
		$V_{DS} = -5V, I_D = -5A$	P-Ch		10		

DYNAMIC

Input Capacitance	C_{iss}	N-Channel	N-Ch		790	988	
			P-Ch		970	1213	
Output Capacitance	C_{oss}	$V_{GS} = 0V, V_{DS} = 10V, f = 1MHz$	N-Ch		175	245	pF
			P-Ch		370	520	
Reverse Transfer Capacitance	C_{rss}	$V_{GS} = 0V, V_{DS} = -10V, f = 1MHz$	N-Ch		65	98	
			P-Ch		180	270	
Total Gate Charge ²	Q_g	N-Channel $V_{DS} = 0.5V_{(BR)DSS}, V_{GS} = 10V,$ $I_D = 6A$	N-Ch		16		nC
			P-Ch		28		
Gate-Source Charge ²	Q_{gs}	P-Channel $V_{DS} = 0.5V_{(BR)DSS}, V_{GS} = -10V,$ $I_D = -5A$	N-Ch		2.5		
			P-Ch		6		
Gate-Drain Charge ²	Q_{gd}		N-Ch		2.1		
			P-Ch		12		
Turn-On Delay Time ²	$t_{d(on)}$	N-Channel $V_{DD} = 10V$	N-Ch		2.2	4.4	
			P-Ch		20		
Rise Time ²	t_r	$I_D \cong 1A, V_{GS} = 10V, R_{GEN} = 6$	N-Ch		7.5	15	
			P-Ch		17		
Turn-Off Delay Time ²	$t_{d(off)}$	P-Channel $V_{DD} = -15V$	N-Ch		11.8	21.3	nS
			P-Ch		160		
Fall Time ²	t_f	$I_D \cong -1A, V_{GS} = -10V, R_{GEN} = 6$	N-Ch		3.7	7.4	
			P-Ch		75		

SOURCE-DRAIN DIODE RATINGS AND CHARACTERISTICS (T_C = 25 °C)

Continuous Current	I _S		N-Ch			1.3	A
			P-Ch			-1.3	
Pulsed Current ³	I _{SM}		N-Ch			2.6	
			P-Ch			-2.6	
Forward Voltage ¹	V _{SD}	I _F = 1A, V _{GS} = 0V	N-Ch			1	V
		I _F = -1A, V _{GS} = 0V	P-Ch			-1	

¹Pulse test : Pulse Width ≤ 300 μsec, Duty Cycle ≤ 2%.

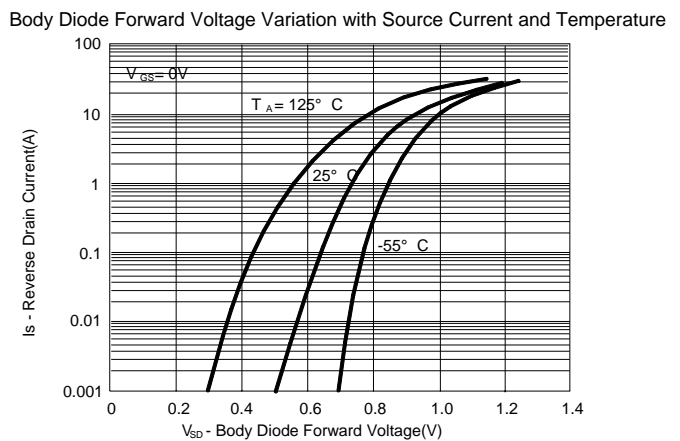
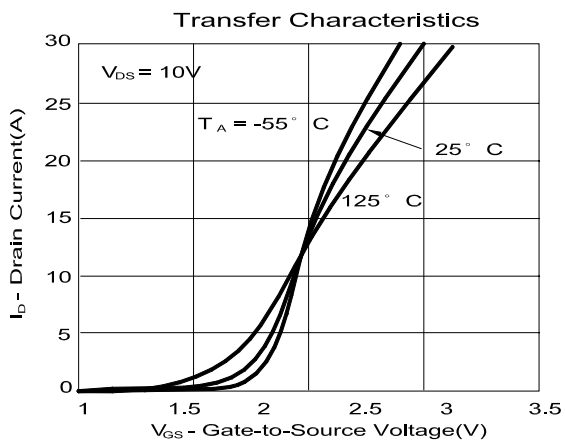
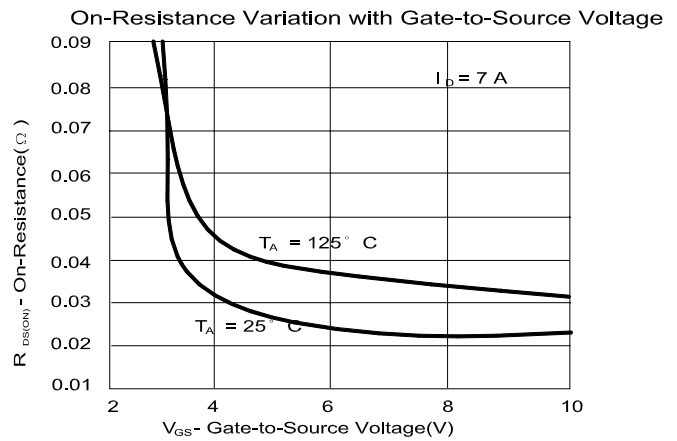
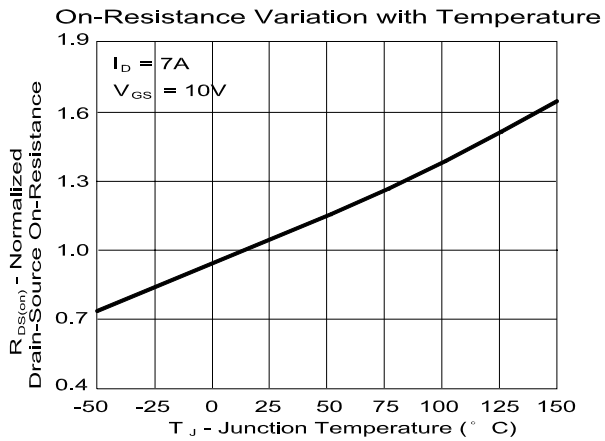
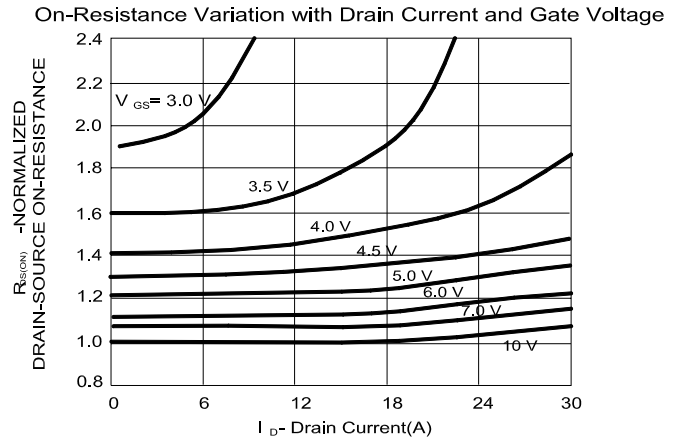
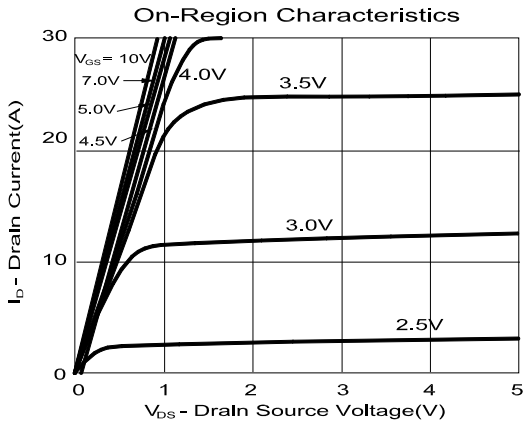
²Independent of operating temperature.

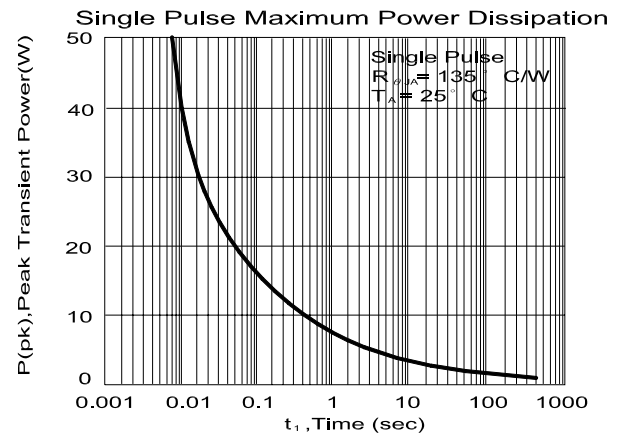
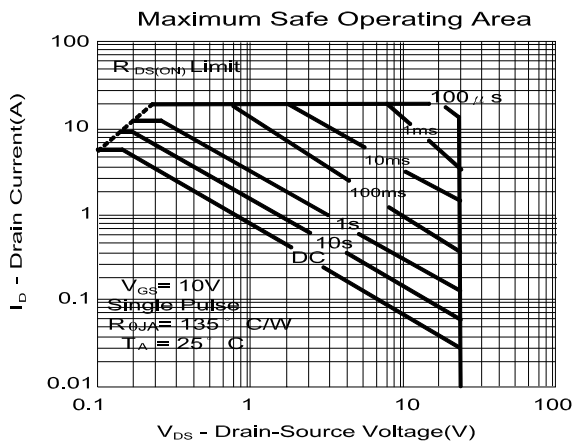
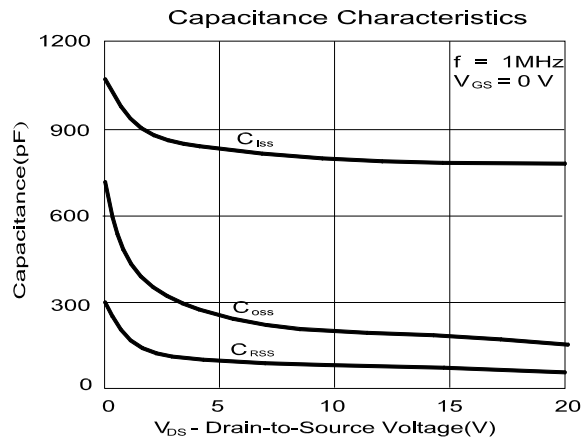
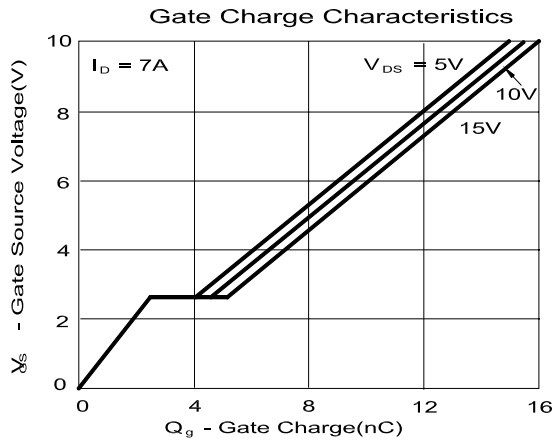
³Pulse width limited by maximum junction temperature.

REMARK: THE PRODUCT MARKED WITH “P3503QVG”, DATE CODE or LOT #

Orders for parts with Lead-Free plating can be placed using the PXXXXXXG parts name.

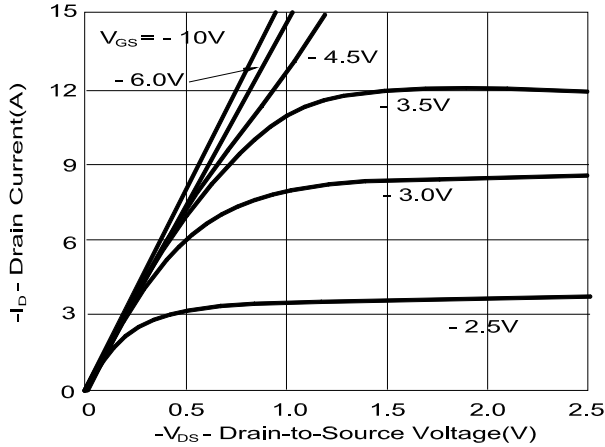
**TYPICAL PERFORMANCE CHARACTERISTICS
N-CHANNEL**



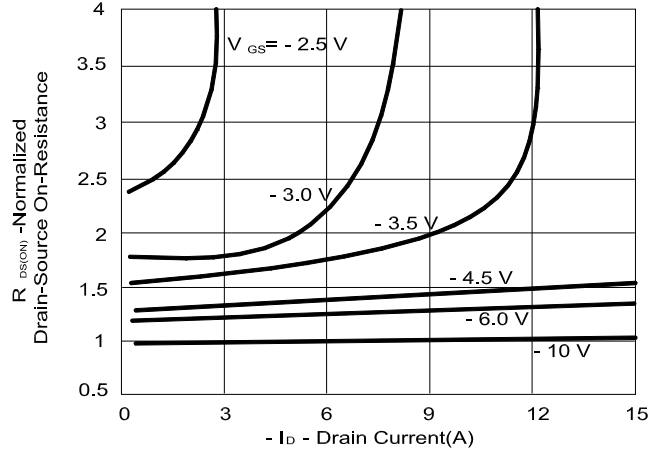


P-CHANNEL

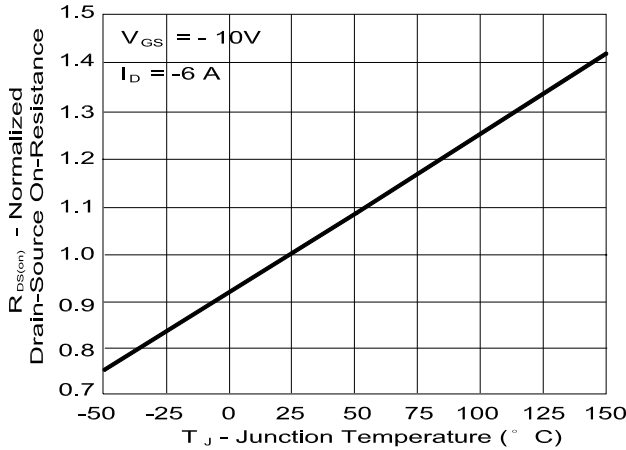
On-Region Characteristics



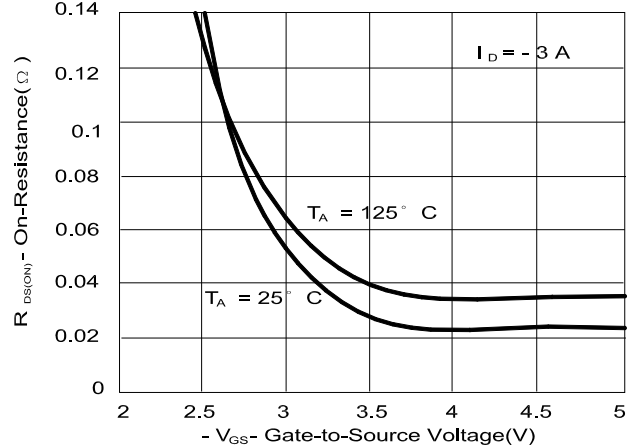
On-Resistance Variation with Drain Current and Gate Voltage



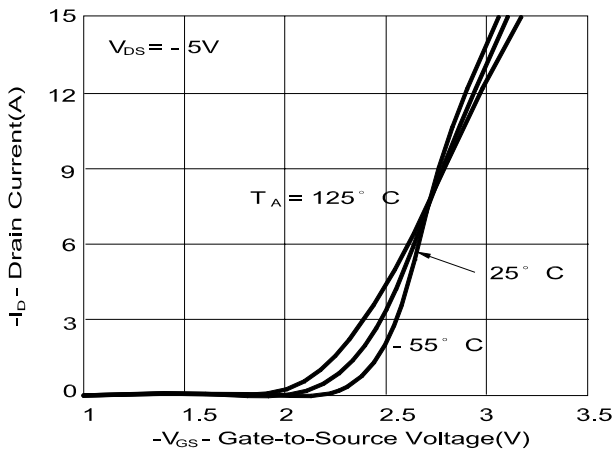
On-Resistance Variation with Temperature



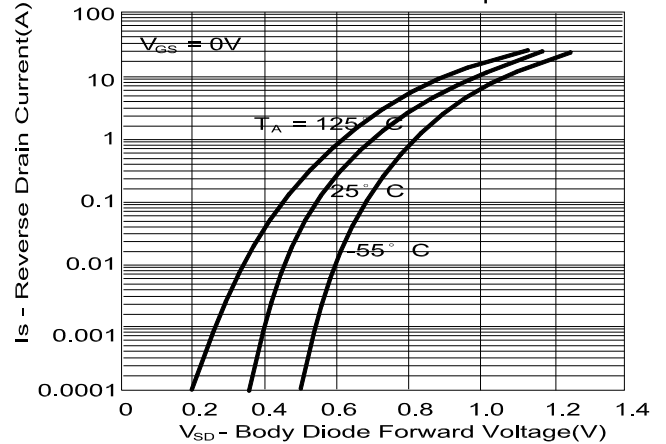
On-Resistance Variation with Gate-to-Source Voltage

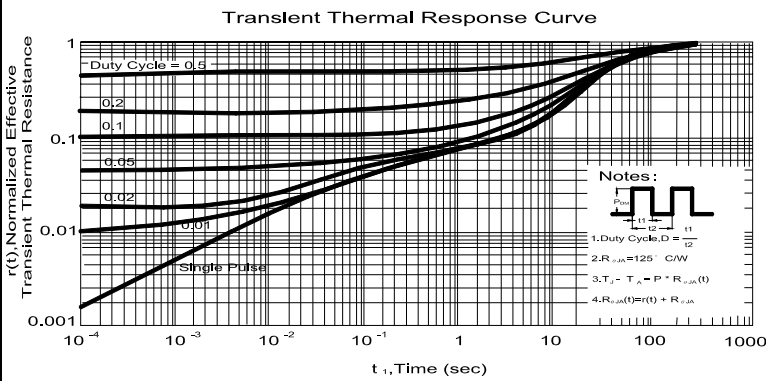
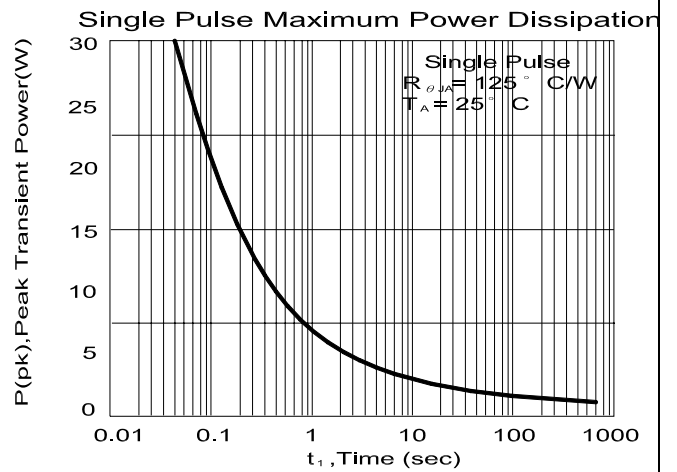
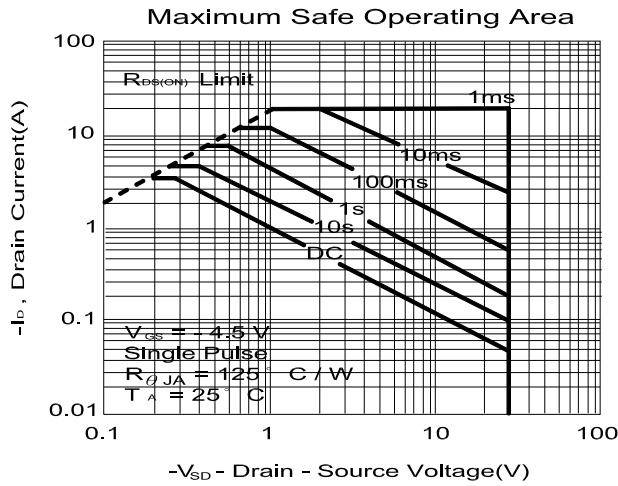
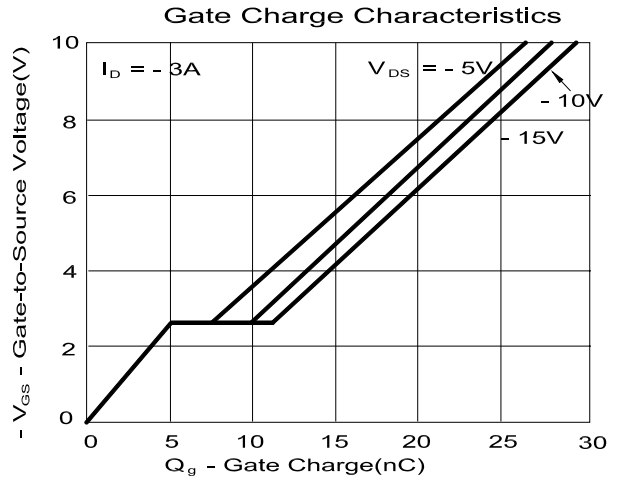
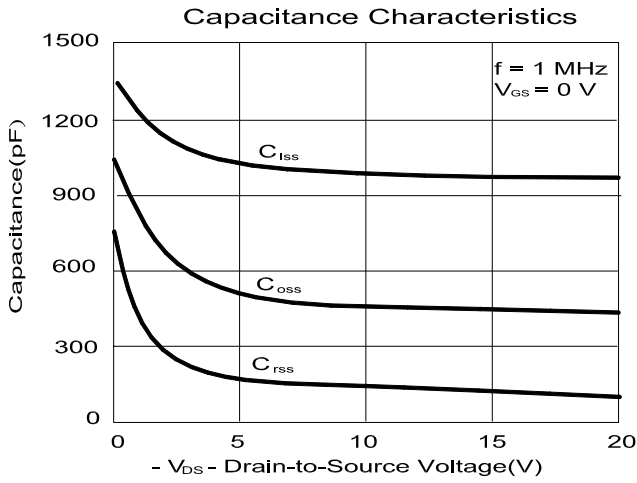


Transfer Characteristics



Body Diode Forward Voltage Variation with Source Current and Temperature





SOIC-8(D) MECHANICAL DATA

Dimension	mm			Dimension	mm		
	Min.	Typ.	Max.		Min.	Typ.	Max.
A	4.8	4.9	5.0	H	0.5	0.715	0.83
B	3.8	3.9	4.0	I	0.18	0.254	0.25
C	5.8	6.0	6.2	J		0.22	
D	0.38	0.445	0.51	K	0°	4°	8°
E		1.27		L			
F	1.35	1.55	1.75	M			
G	0.1	0.175	0.25	N			

