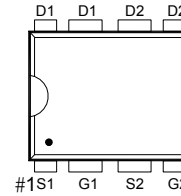
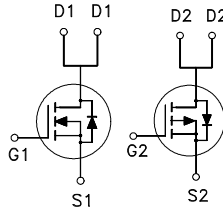


PRODUCT SUMMARY

	$V_{(BR)DSS}$	$R_{DS(ON)}$	I_D
N-Channel	30	25mΩ	7A
P-Channel	-30	45mΩ	-5A



G : GATE
D : DRAIN
S : SOURCE

100% Rg tested
100% UIS tested

ABSOLUTE MAXIMUM RATINGS ($T_A = 25\text{ }^\circ\text{C}$ 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	-5	A
	$T_C = 70\text{ }^\circ\text{C}$		6	-4	
Pulsed Drain Current ¹		I_{DM}	20	-20	
Avalanche Current		I_{AS}	18	-18	
Avalanche Energy	L = 0.1mH	E_{AS}	19		mJ
Power Dissipation	$T_C = 25\text{ }^\circ\text{C}$	P_D	2.5		W
	$T_C = 70\text{ }^\circ\text{C}$		1.6		
Junction & Storage Temperature Range		T_j, T_{stg}	-55 to 150		°C

THERMAL RESISTANCE RATINGS

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

¹Pulse width limited by maximum junction temperature.

²Duty cycle ≤ 1%

ELECTRICAL CHARACTERISTICS ($T_J = 25\text{ }^\circ\text{C}$, Unless Otherwise Noted)

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

Gate-Body Leakage	I_{GSS}	$V_{DS} = 0V, V_{GS} = \pm 20V$	N-Ch			± 100	nA
		$V_{DS} = 0V, V_{GS} = \pm 20V$	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 On-State Resistance ¹	$R_{DS(ON)}$	$V_{GS} = 4.5V, I_D = 6A$	N-Ch		25	37	m Ω
		$V_{GS} = -4.5V, I_D = -4A$	P-Ch		58	80	
		$V_{GS} = 10V, I_D = 7A$	N-Ch		18	25	
		$V_{GS} = -10V, I_D = -5A$	P-Ch		34	45	
Forward Transconductance ¹	g_{fs}	$V_{DS} = 5V, I_D = 7A$	N-Ch		19		S
		$V_{DS} = -5V, I_D = -5A$	P-Ch		11		

DYNAMIC

Input Capacitance	C_{iss}		N-Ch		790		pF
		N-Channel	P-Ch		690		
Output Capacitance	C_{oss}	$V_{GS} = 0V, V_{DS} = 10V, f = 1MHz$	N-Ch		175		pF
			P-Channel	P-Ch		310	
Reverse Transfer Capacitance	C_{rss}	$V_{GS} = 0V, V_{DS} = -10V, f = 1MHz$	N-Ch		65		pF
			P-Channel	P-Ch		75	
Gate Resistance	R_g	$V_{GS} = 0V, V_{DS} = 0V, f = 1MHz$	N-Ch		2		Ω
			P-Channel	P-Ch		6.25	

Total Gate Charge ²	Q_g	N-Channel $V_{DS} = 0.5V_{(BR)DSS}, V_{GS} = 10V,$	N-Ch		16		
			P-Ch		14		
Gate-Source Charge ²	Q_{gs}	$I_D = 7A$	N-Ch		2.5		nC
		P-Channel	P-Ch		2.2		
Gate-Drain Charge ²	Q_{gd}	$V_{DS} = 0.5V_{(BR)DSS}, V_{GS} = -10V,$	N-Ch		2.1		
		$I_D = -5A$	P-Ch		1.9		
Turn-On Delay Time ²	$t_{d(on)}$	N-Channel	N-Ch		2.2	4.4	nS
			P-Ch		6.7	13.4	
Rise Time ²	t_r	$V_{DD} = 10V$	N-Ch		7.5	15	
		$I_D \cong 1A, V_{GS} = 10V, R_{GEN} = 6\Omega$	P-Ch		9.7	19.4	
Turn-Off Delay Time ²	$t_{d(off)}$	P-Channel	N-Ch		11.8	21.3	
			P-Ch		19.8	35.6	
Fall Time ²	t_f	$V_{DD} = -10V$	N-Ch		3.7	7.4	
		$I_D \cong -1A, V_{GS} = -10V, R_{GEN} = 6\Omega$	P-Ch		12.3	22.2	
SOURCE-DRAIN DIODE RATINGS AND CHARACTERISTICS (T_J = 25 °C)							
Continuous Current	I_S		N-Ch			1.3	A
			P-Ch			-1.3	
Pulsed Current ³	I_{SM}		N-Ch			2.6	A
			P-Ch			-2.6	
Forward Voltage ¹	V_{SD}	$I_F = 7A, V_{GS} = 0V$	N-Ch			1	V
		$I_F = -5A, V_{GS} = 0V$	P-Ch			-1	

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

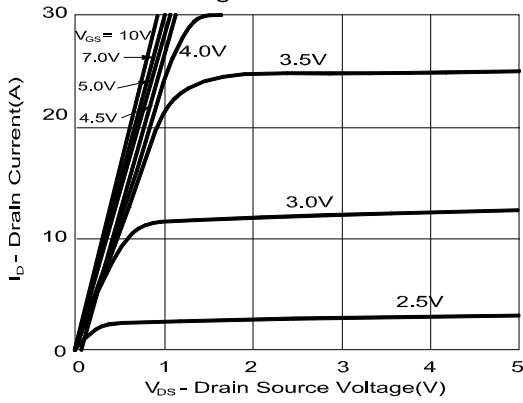
²Independent of operating temperature.

³Pulse width limited by maximum junction temperature.

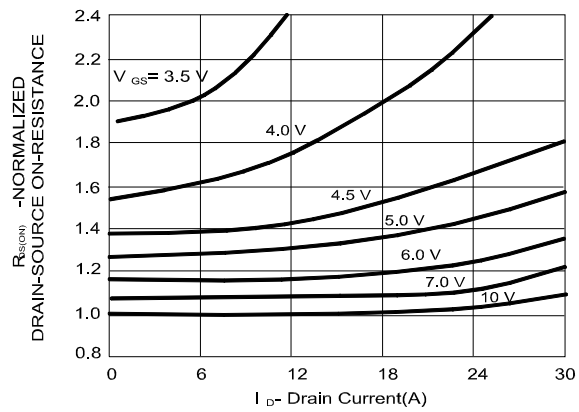
REMARK: THE PRODUCT MARKED WITH "P2503NPG", DATE CODE or LOT #

N-CHANNEL

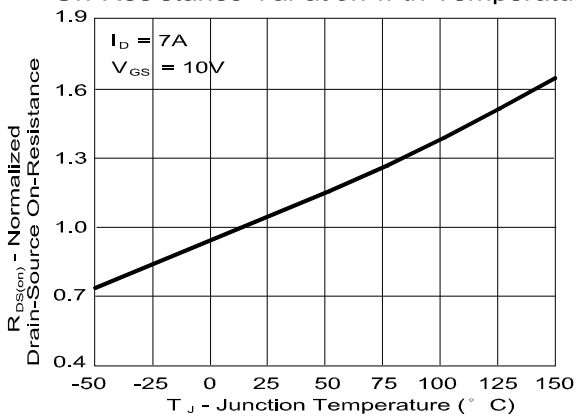
On-Region Characteristics



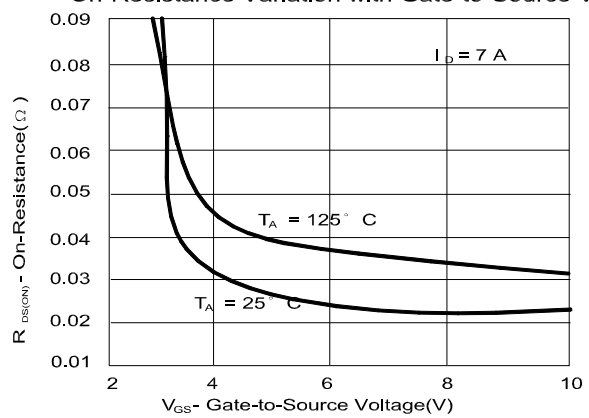
On-Resistance Variation with Drain Current and Gate Voltage



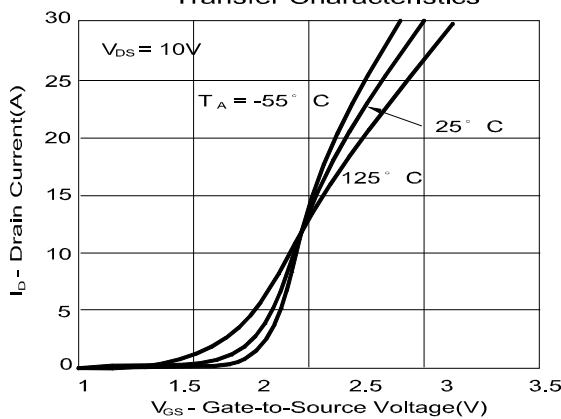
On-Resistance Variation with Temperature



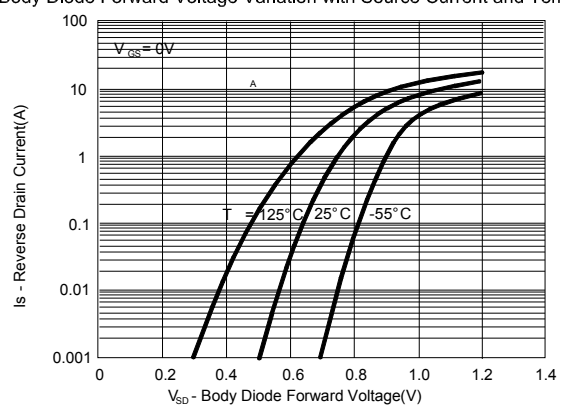
On-Resistance Variation with Gate-to-Source Voltage

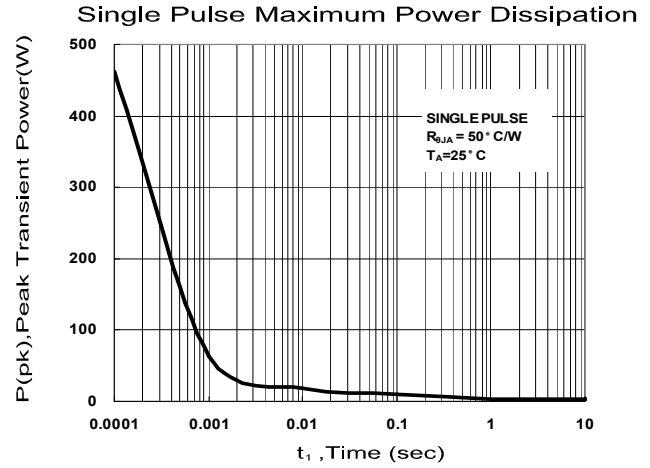
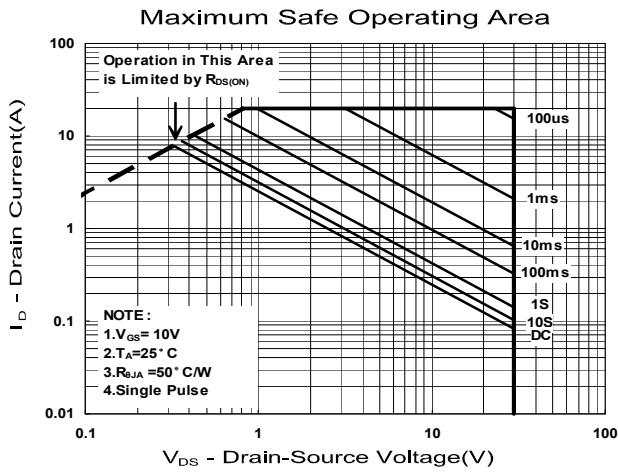
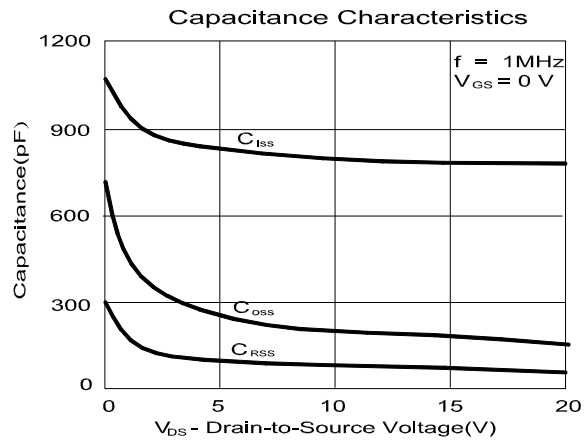
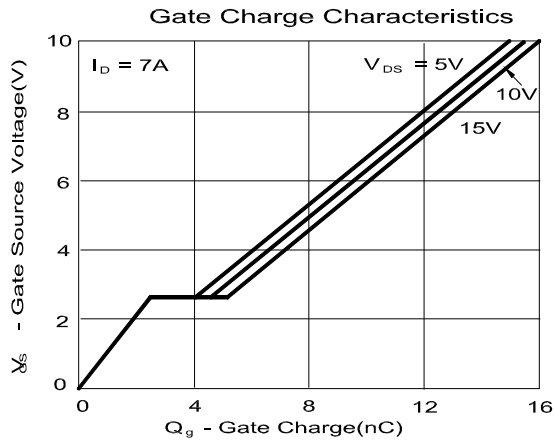


Transfer Characteristics



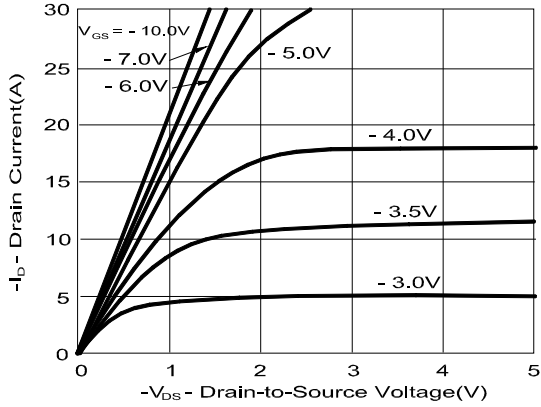
Body Diode Forward Voltage Variation with Source Current and Temperature



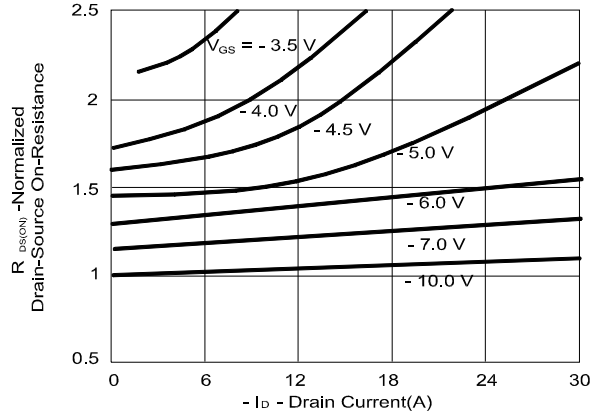


P-CHANNEL

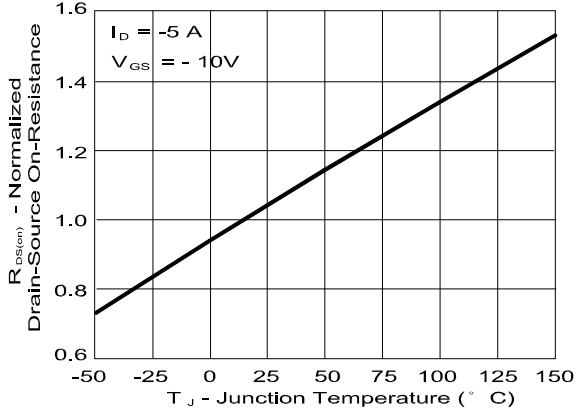
On-Region Characteristics



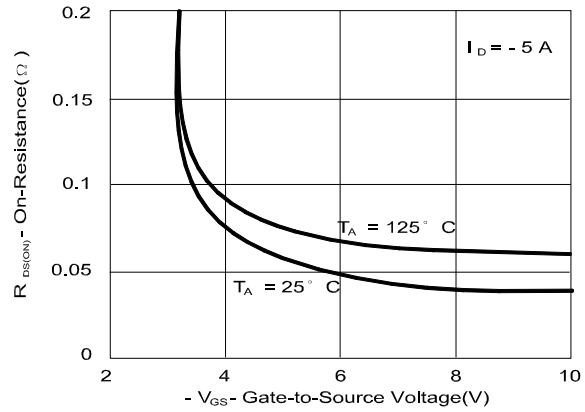
On-Resistance Variation with Drain Current and Gate Voltage



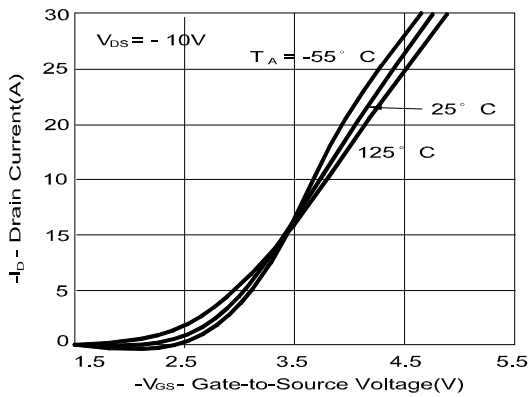
On-Resistance Variation with Temperature



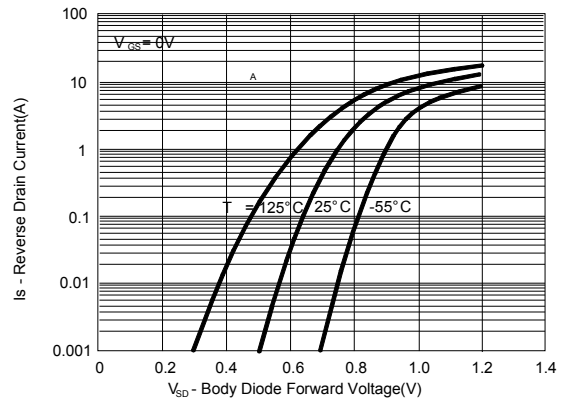
On-Resistance Variation with Gate-to-Source Voltage

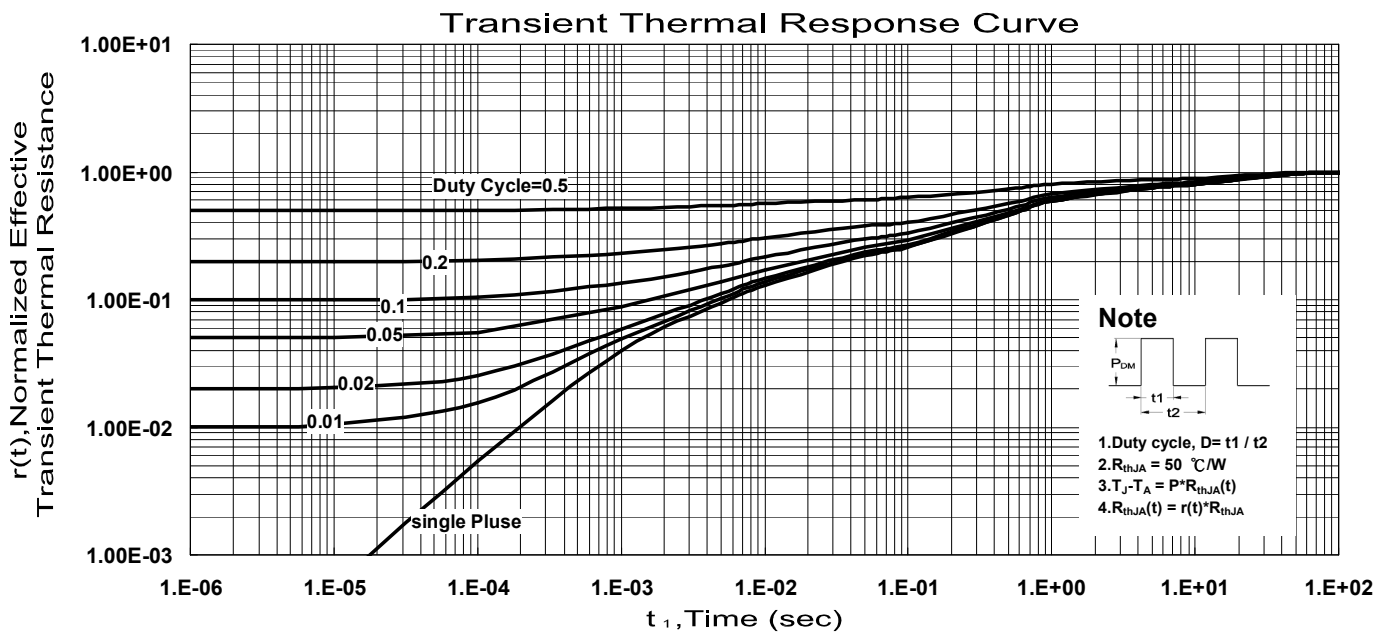
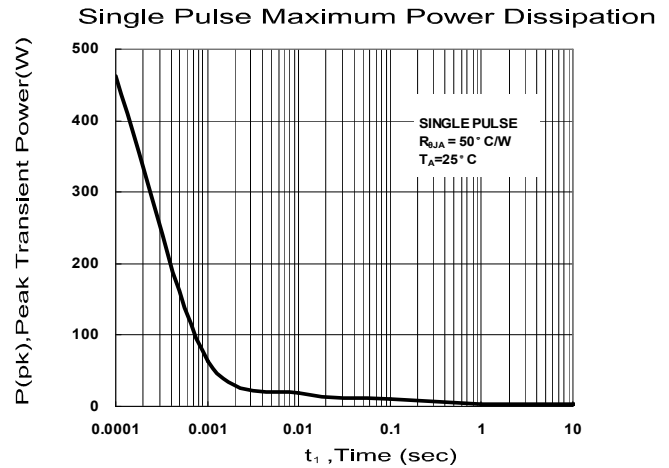
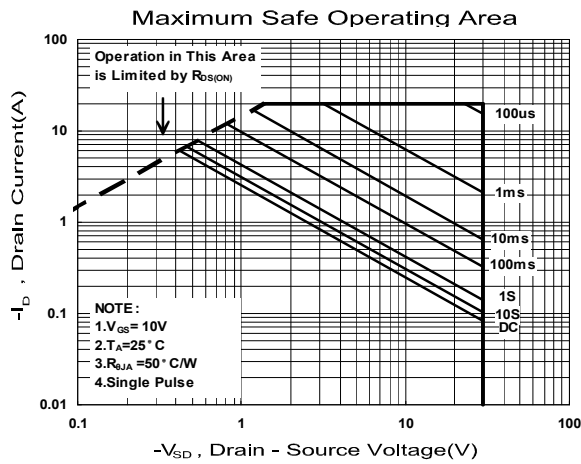
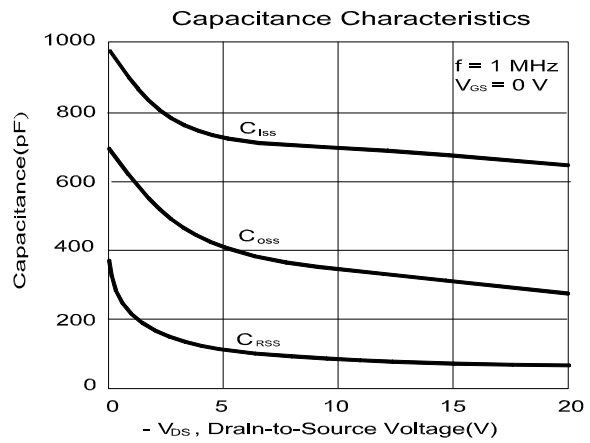
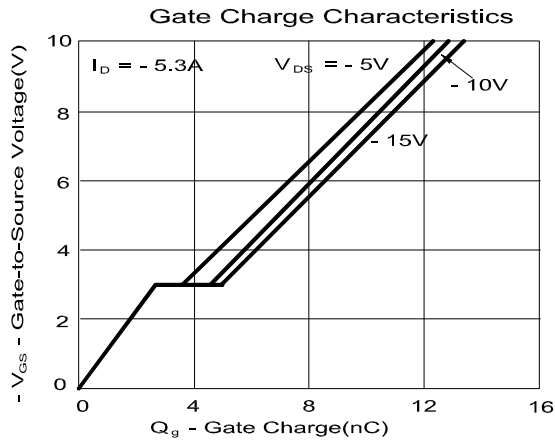


Transfer Characteristics



Body Diode Forward Voltage Variation with Source Current and Temperature





DIP-8 MECHANICAL DATA

Dimension	mm			Dimension	mm		
	Min.	Typ.	Max.		Min.	Typ.	Max.
A	6.017		10.16	E	0.381		
B	6.096		7.112	F	2.921		4.953
C	0.356		0.559	G	7.620		8.255
D		2.540		H			10.92

