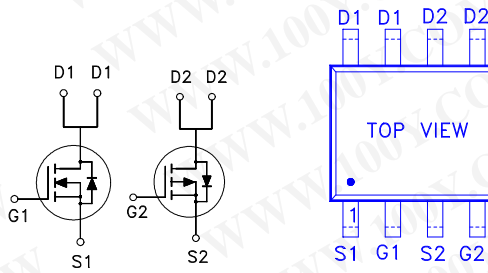


PRODUCT SUMMARY

	$V_{(BR)DSS}$	$R_{DS(ON)}$	I_D
N-Channel	40	28mΩ	7A
P-Channel	-40	65mΩ	-6A



G : GATE
D : DRAIN
S : SOURCE

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}	40	-40	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		$^\circ\text{C}$
Lead Temperature (¹ / ₁₆ " from case for 10 sec.)		T_L	275		

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 ≤ 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	$V_{(BR)DSS}$	$V_{GS} = 0V, I_D = 250\mu\text{A}$	N-Ch	40		V
		$V_{GS} = 0V, I_D = -250\mu\text{A}$	P-Ch	-40		
Gate Threshold Voltage	$V_{GS(th)}$	$V_{DS} = V_{GS}, I_D = 250\mu\text{A}$	N-Ch	1	2	3
		$V_{DS} = V_{GS}, I_D = -250\mu\text{A}$	P-Ch	-1	-2	-3
Gate-Body Leakage	I_{GSS}	$V_{DS} = 0V, V_{GS} = \pm 20V$	N-Ch			±100
		$V_{DS} = 0V, V_{GS} = \pm 20V$	P-Ch			±100

Zero Gate Voltage Drain Current	I_{DSS}	$V_{DS} = 32V, V_{GS} = 0V$	N-Ch		1	μA
		$V_{DS} = -32V, V_{GS} = 0V$	P-Ch		-1	
		$V_{DS} = 30V, V_{GS} = 0V, T_J = 55^\circ C$	N-Ch		10	
		$V_{DS} = -30V, V_{GS} = 0V, T_J = 55^\circ C$	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	$R_{DS(ON)}$	$V_{GS} = 5V, I_D = 6A$	N-Ch	27	42	$m\Omega$
		$V_{GS} = -5V, I_D = -4.5A$	P-Ch	80	94	
		$V_{GS} = 10V, I_D = 7A$	N-Ch	21	28	
		$V_{GS} = -10V, I_D = -5A$	P-Ch	50	65	
Forward Transconductance ¹	g_{fs}	$V_{DS} = 10V, I_D = 7A$	N-Ch	19		S
		$V_{DS} = -10V, I_D = -5A$	P-Ch	11		

DYNAMIC						
Input Capacitance	C_{iss}		N-Ch	790	988	
		N-Channel	P-Ch	690	863	
Output Capacitance	C_{oss}	$V_{GS} = 0V, V_{DS} = 10V, f = 1MHz$	N-Ch	175	245	pF
		P-Channel	P-Ch	310	430	
Reverse Transfer Capacitance	C_{rss}	$V_{GS} = 0V, V_{DS} = -10V, f = 1MHz$	N-Ch	65	98	
			P-Ch	75	113	
Total Gate Charge ²	Q_g	N-Channel	N-Ch	16		nC
		$V_{DS} = 0.5V_{(BR)DSS}, V_{GS} = 10V,$	P-Ch	14		
		$I_D = 7A$	N-Ch	2.5		
		P-Channel	P-Ch	2.2		
Gate-Source Charge ²	Q_{gs}					
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	
			P-Ch	6.7	13.4	
Rise Time ²	t_r	$V_{DS} = 20V$	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	nS
			P-Ch	19.8	35.6	
Fall Time ²	t_f	$V_{DS} = -20V, R_L = 1\Omega$	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_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 = I _S , V _{GS} = 0V	N-Ch	1	V
		I _F = I _S , V _{GS} = 0V	P-Ch	-1	

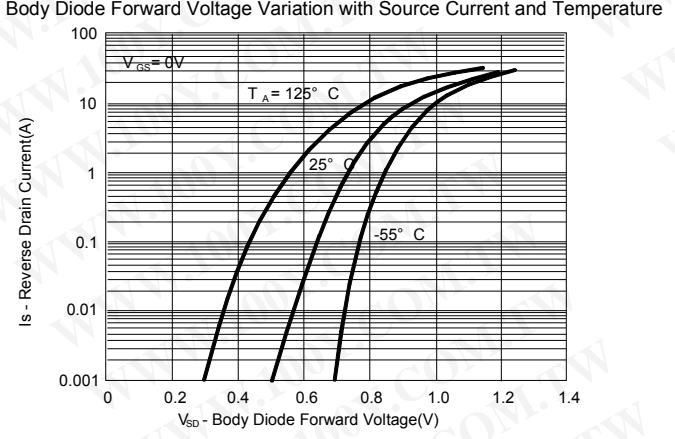
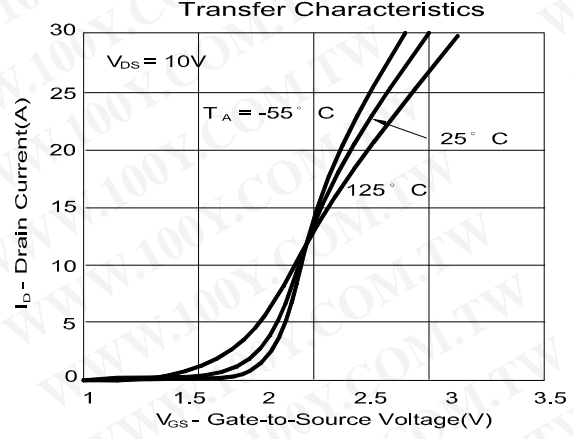
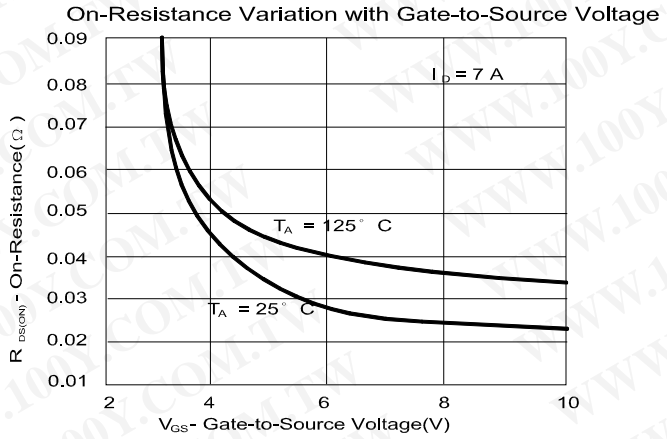
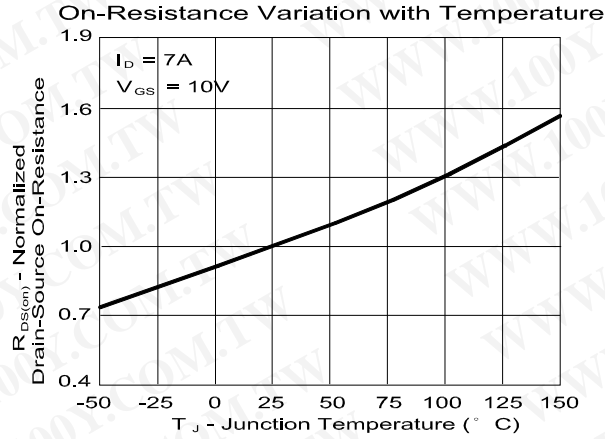
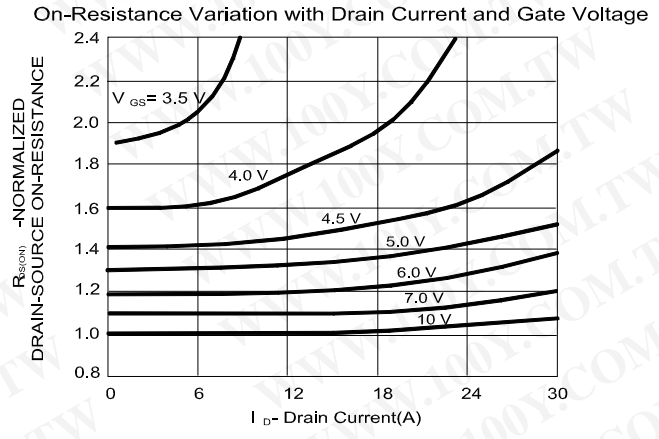
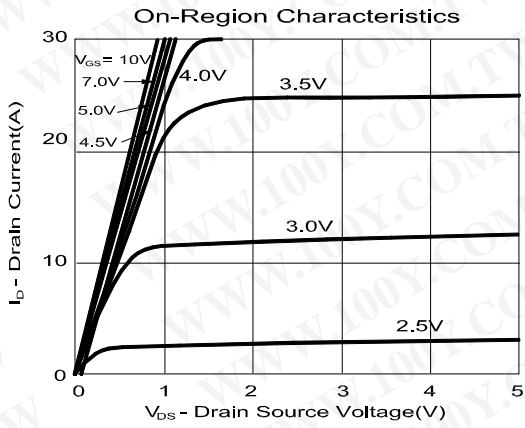
¹Pulse test : Pulse Width ≤ 300 μsec, Duty Cycle ≤ 2%.

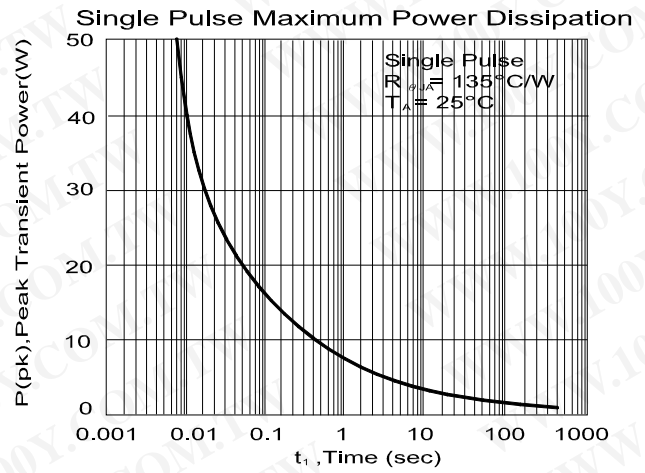
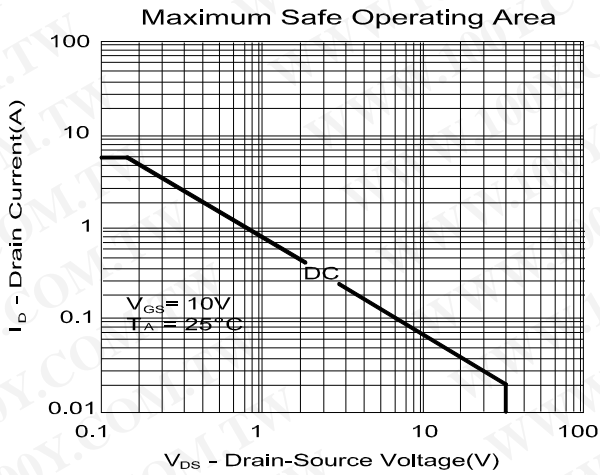
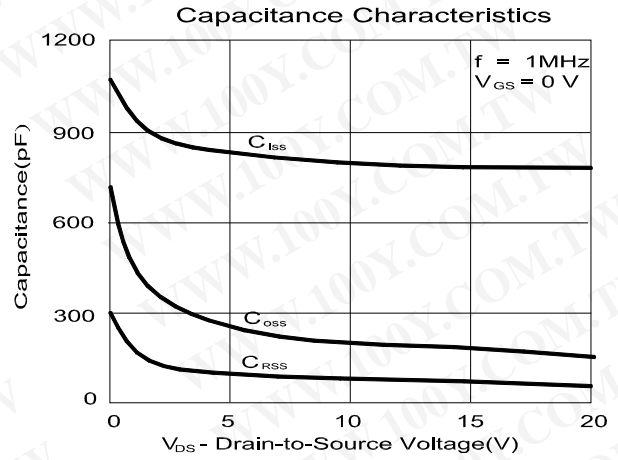
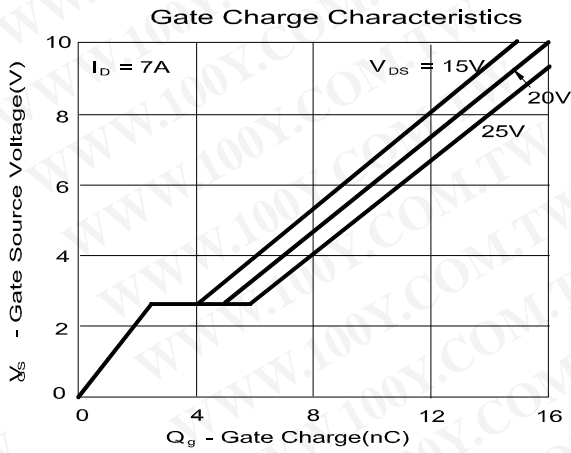
²Independent of operating temperature.

³Pulse width limited by maximum junction temperature.

REMARK: THE PRODUCT MARKED WITH "P2804NVG", DATE CODE or LOT #

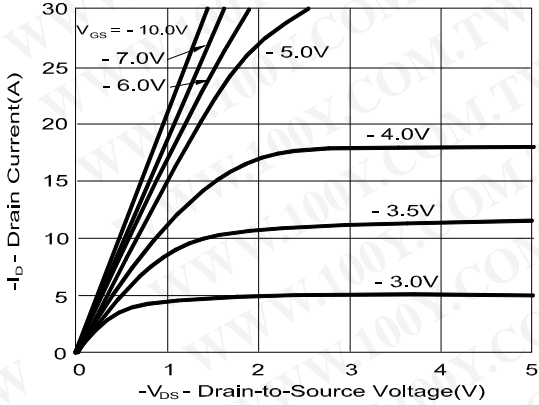
**TYPICAL PERFORMANCE CHARACTERISTICS
N-CHANNEL**



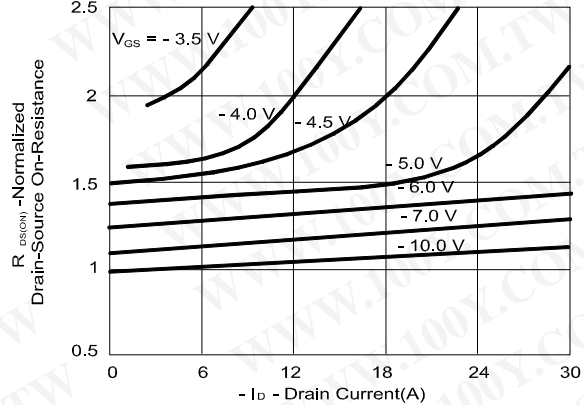


P-CHANNEL

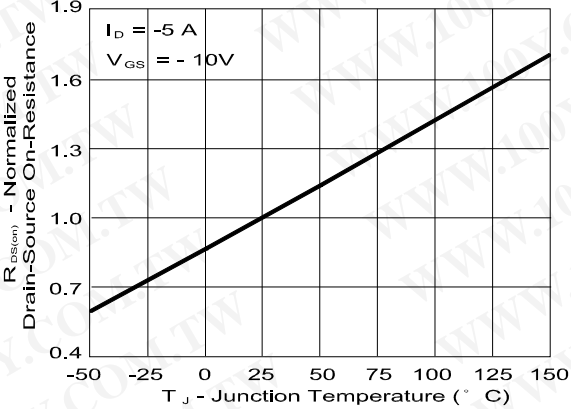
On-Region Characteristics



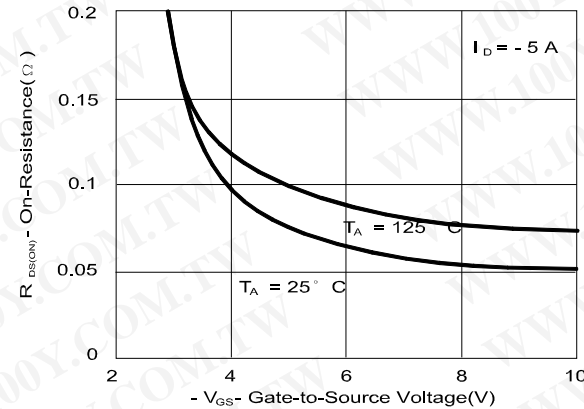
On-Resistance Variation with Drain Current and Gate Voltage



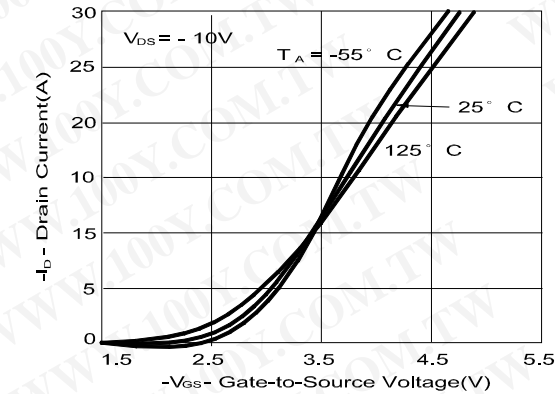
On-Resistance Variation with Temperature



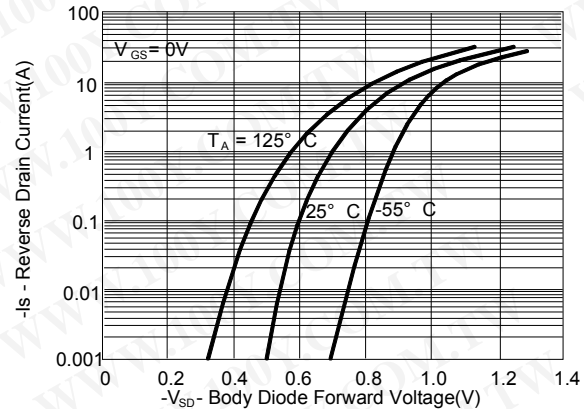
On-Resistance Variation with Gate-to-Source Voltage

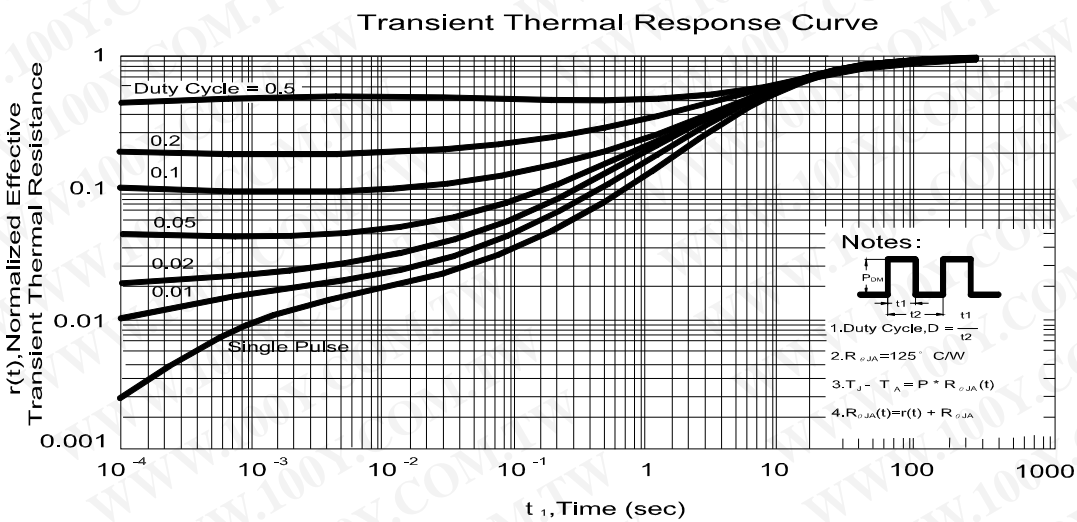
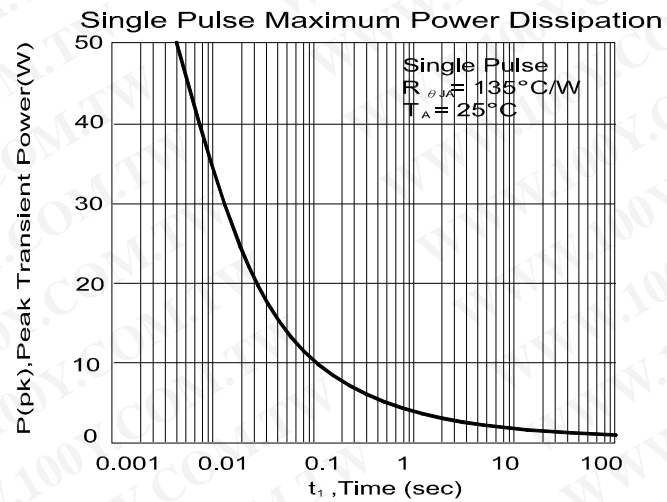
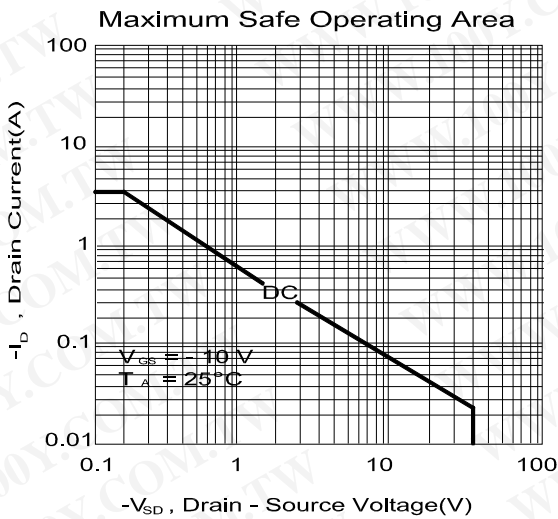
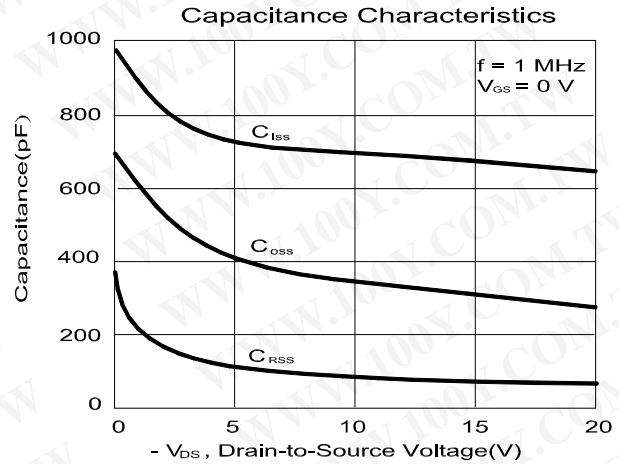
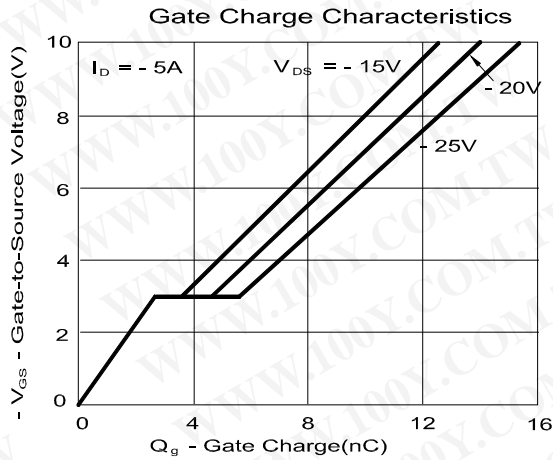


Transfer Characteristics



Body Diode Forward Voltage Variation with Source Current and Temperature





SOP-8 MECHANICAL DATA

Dimension	mm			Dimension	mm		
	Min.	Typ.	Max.		Min.	Typ.	Max.
A	4.70	4.90	5.10	H	0.40	0.715	0.83
B	3.70	3.90	4.10	I	0.19	0.22	0.26
C	5.80	6.00	6.20	J	0.25	0.375	0.5
D	0.33	0.445	0.51	K	0°	4°	8°
E		1.27		L			
F	1.20	1.375	1.62	M			
G	0.08	0.175	0.28	N			

