UNIKC Semiconductor

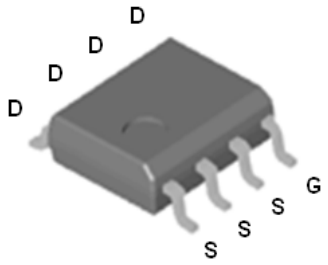
RoHS Compliant

P2003BVG

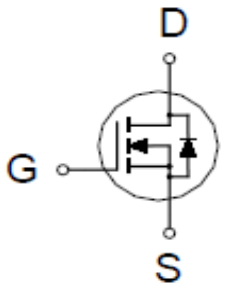
N-Channel Enhancement Mode MOSFET

PRODUCT SUMMARY

$V_{(BR)DSS}$	$R_{DS(ON)}$	I_D
30V	20mΩ @V_{GS} = 10V	9A



SOP-8



ABSOLUTE MAXIMUM RATINGS (T_A = 25 °C Unless Otherwise Noted)

PARAMETERS/TEST CONDITIONS		SYMBOL	LIMITS	UNITS
Drain-Source Voltage		V_{DS}	30	V
Gate-Source Voltage		V_{GS}	±25	
Continuous Drain Current	T_A = 25 °C	I_D	9	A
	T_A = 70 °C		7	
Pulsed Drain Current[1]		I_{DM}	32	
Avalanche Current		I_{AS}	18.5	
Avalanche Energy	L =0.1mH	E_{AS}	17	mJ
Power Dissipation	T_A= 25 °C	P_D	2.5	W
	T_A =70 °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

[1]Pulse width limited by maximum junction temperature.

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ELECTRICAL CHARACTERISTICS (T_J = 25 °C, Unless Otherwise Noted)

PARAMETER	SYMBOL	TEST CONDITIONS	LIMITS			UNITS
			MIN	TYP	MAX	
STATIC						
Drain-Source Breakdown Voltage	$V_{(BR)DSS}$	V_{GS} = 0V, I_D = 250μA	30			V
Gate Threshold Voltage	$V_{GS(th)}$	V_{DS} = V_{GS}, I_D = 250μA	1	1.7	2.5	
Gate-Body Leakage	I_{GSS}	V_{DS} = 0V, V_{GS} = ±25V			±100	nA
Zero Gate Voltage Drain Current	I_{DSS}	V_{DS} = 24V, V_{GS} = 0V			1	μA
		V_{DS} = 20V, V_{GS} = 0V, T_J = 55 °C			10	
On-State Drain Current[1]	$I_{D(ON)}$	V_{DS} = 5V, V_{GS} = 10V	32			A
Drain-Source On-State Resistance[1]	$R_{DS(ON)}$	V_{GS} = 4.5V, I_D = 6A		26	31	mΩ
		V_{GS} = 10V, I_D = 8A		18.4	20	
Forward Transconductance[1]	g_{fs}	V_{DS} = 15V, I_D = 8A		16		S
DYNAMIC						
Input Capacitance	C_{iss}	V_{GS} = 0V, V_{DS} = 15V, f = 1MHz		524		pF
Output Capacitance	C_{oss}			132		
Reverse Transfer Capacitance	C_{rss}			62		
Gate Resistance	R_g	V_{GS} = 0V, V_{DS} = 0V, f = 1MHz		2.2		Ω
Total Gate Charge[2]	Q_g(V_{GS}=10V)	V_{DS} = 15V , I_D =8A		9.7		nC
	Q_g(V_{GS}=4.5V)			4.5		
Gate-Source Charge[2]	Q_{gs}			1.5		
Gate-Drain Charge[2]	Q_{gd}			2.3		
Turn-On Delay Time[2]	$t_{d(on)}$	V_{DD} = 15V,I_D ≅ 1A, V_{GEN} = 10V, R_G = 0.2Ω		11		nS
Rise Time[2]	t_r			17		
Turn-Off Delay Time[2]	$t_{d(off)}$			37		
Fall Time[2]	t_f			20		
SOURCE-DRAIN DIODE RATINGS AND CHARACTERISTICS (T_J = 25 °C)						
Continuous Current	I_S				2.5	A
Forward Voltage[1]	V_{SD}	I_F = 8A, V_{GS} = 0V			1	V

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

[2]Independent of operating temperature.

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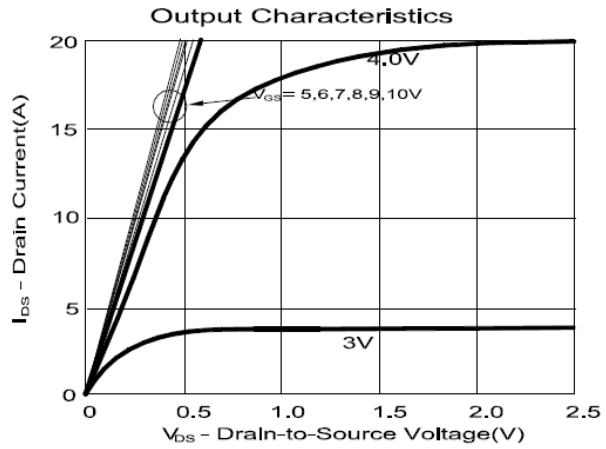

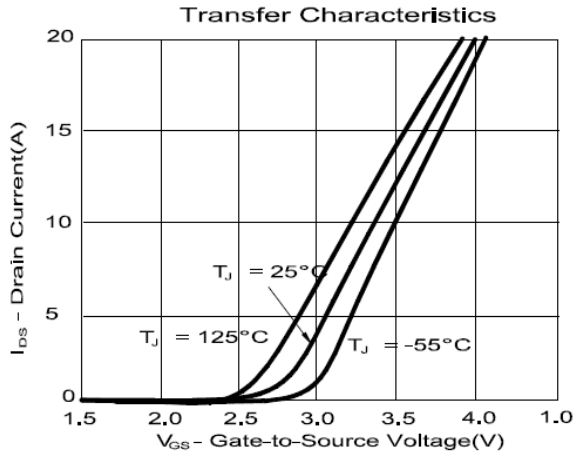

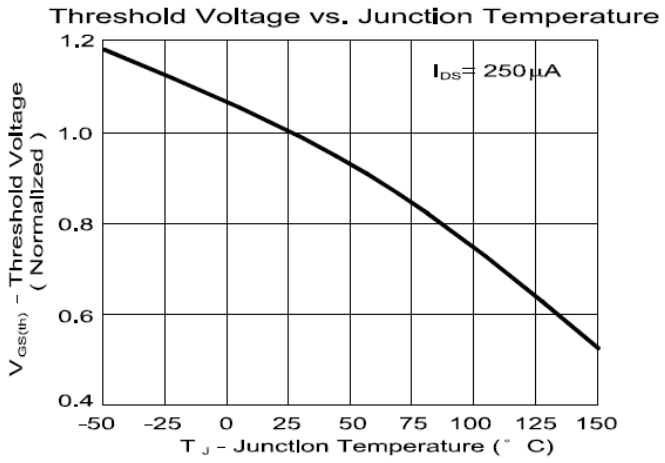

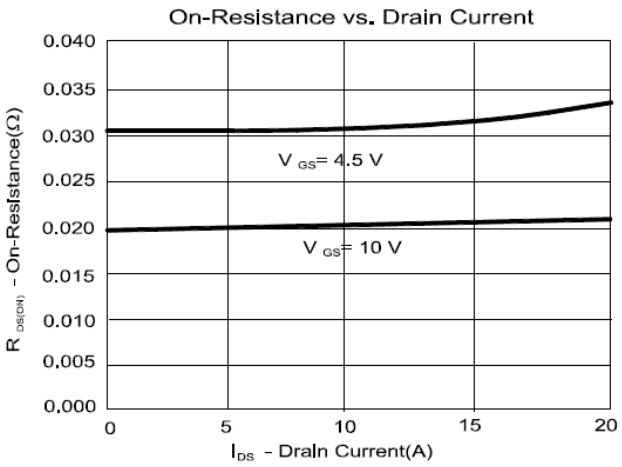

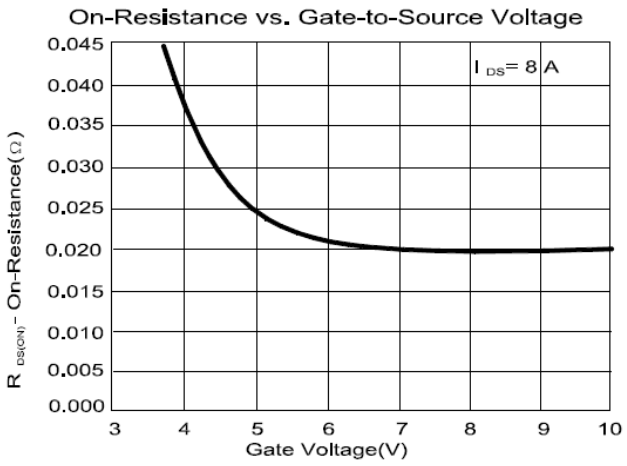

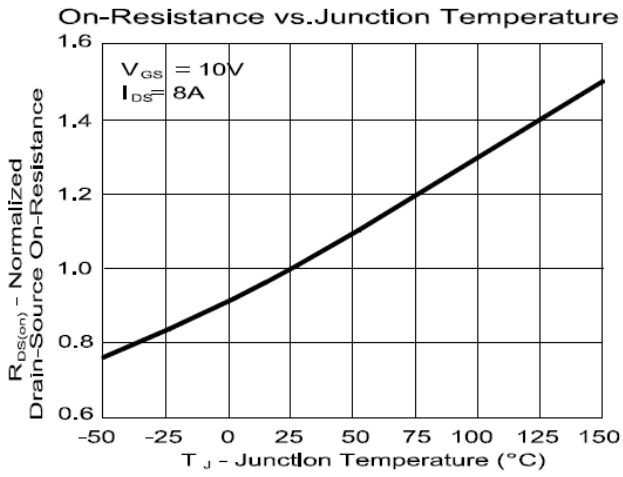

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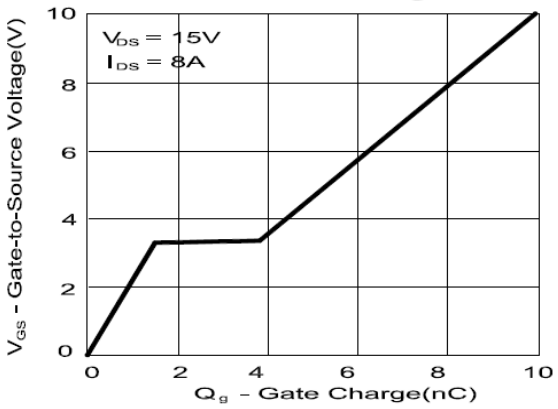
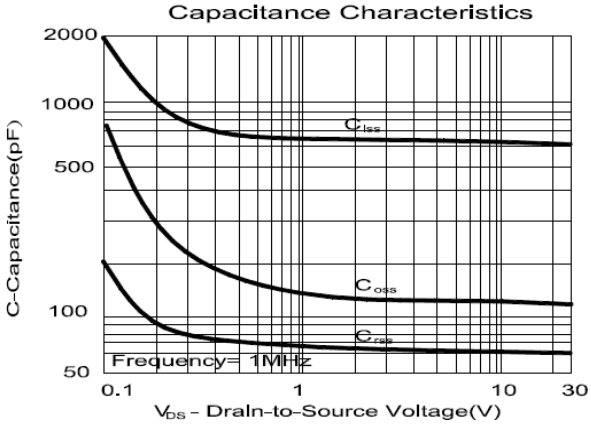
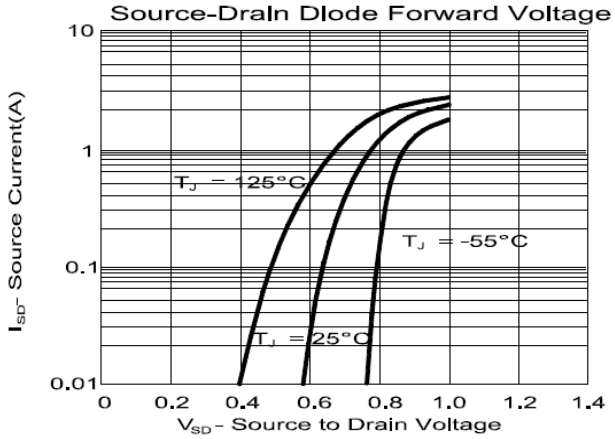
Gate Charge



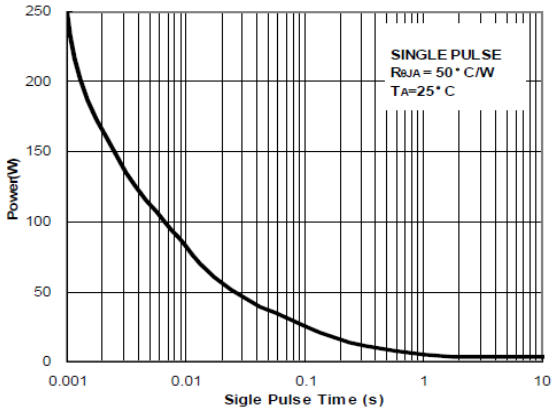
Capacitance Characteristics



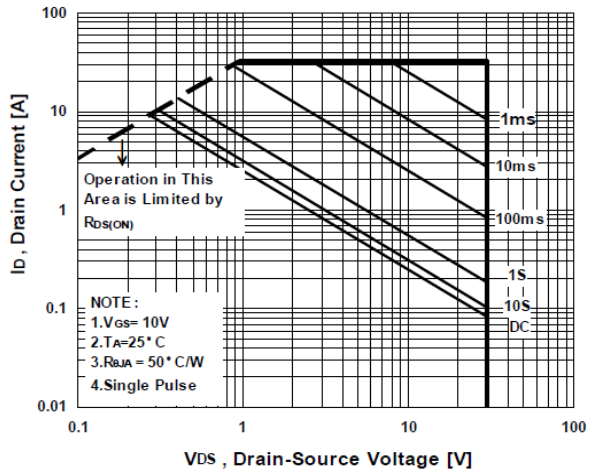
Source-Drain Diode Forward Voltage



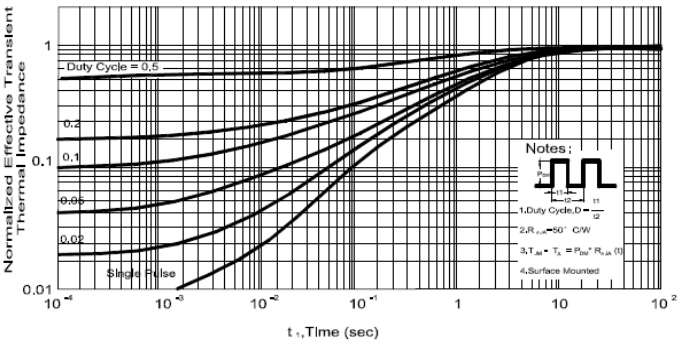
Single Pulse Maximun Power dissipation



Safe Operating Area



Normalized Transient Thermal Transient Impedence,Junction to Ambient



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Package Dimension

SOP-8 MECHANICAL DATA

Dimension	mm			Dimension	mm		
	Min.	Typ.	Max.		Min.	Typ.	Max.
A	4.8	4.9	5.0	H	0.4	0.6	0.93
B	3.8	3.9	4.0	I	0.19	0.21	0.25
C	5.79	6.0	6.2	J	0.25	0.375	0.5
D	0.33	0.4	0.51	K	0°	3°	18°
E	1.25	1.27	1.29				
F	1.1	1.3	1.65				
G	0.05	0.15	0.25