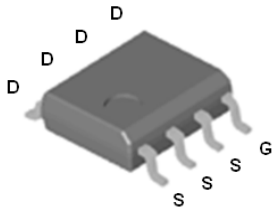
UNIKC Semiconductor

P2003EVG

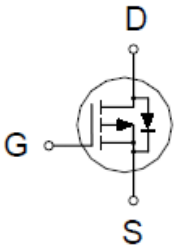
P-Channel Logic Level Enhancement Mode MOSFET

PRODUCT SUMMARY

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



SOP- 08



100% UIS tested

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}	-50	
Avalanche Current		I_{AS}	-27	
Avalanche Energy	L = 0.1mH	E_{AS}	36	mJ
Power Dissipation	T_A = 25 °C	P_D	2.5	W
	T_A = 70 °C		1.6	
Operating Junction & Storage Temperature Range		T_J, T_{STG}	-55 to 150	°C

THERMAL RESISTANCE RATINGS

THERMAL RESISTANCE	SYMBOL	TYPICAL	MAXIMUM	UNITS
Junction-to-Case	$R_{\theta JC}$		25	°C / W
Junction-to-Ambient	$R_{\theta JA}$		50	

[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	-1.5	-3	
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 = 125 °C			-10	
On-State Drain Current[1]	$I_{D(ON)}$	V_{DS} = -5V, V_{GS} = -10V	50			A
Drain-Source On-State Resistance[1]	$R_{DS(ON)}$	V_{GS} = -4.5V, I_D = -7A		25	35	mΩ
		V_{GS} = -10V, I_D = -9A		15	20	
Forward Transconductance[1]	g_{fs}	V_{DS} = -10V, I_D = -9A		24		S
DYNAMIC						
Input Capacitance	C_{iss}	V_{GS} = 0V, V_{DS} = -15V, f = 1MHz		1610		pF
Output Capacitance	C_{oss}			410		
Reverse Transfer Capacitance	C_{rss}			200		
Gate Resistance	R_g	V_{GS} = 0V, V_{DS} = 0V, f = 1MHz		3.7		Ω
Total Gate Charge[2]	Q_g	V_{DS} = 0.5$V_{(BR)DSS}$, I_D = -9A, V_{GS} = -10V		31.4		nC
Gate-Source Charge[2]	Q_{gs}			4.5		
Gate-Drain Charge[2]	Q_{gd}			8.2		
Turn-On Delay Time[2]	$t_{d(on)}$	V_{DS} = -15V, I_D ≅ -1A, V_{GS} = -10V,R_L = 1Ω,R_{GS} = 6Ω		5.7		nS
Rise Time[2]	t_r			10		
Turn-Off Delay Time[2]	$t_{d(off)}$			18		
Fall Time[2]	t_f			5		
SOURCE-DRAIN DIODE RATINGS AND CHARACTERISTICS (T_J = 25 °C)						
Continuous Current	I_S				-2.1	A
Forward Voltage[1]	V_{SD}	I_F = -1A, V_{GS} = 0V			-1.2	V
Diode Reverse Recovery Time	t_{rr}	I_F= 2A, dI/dt=100A/μs		16		nS
Diode Reverse Recovery Charge	Q_{rr}			7		nC

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

[2]Independent of operating temperature.

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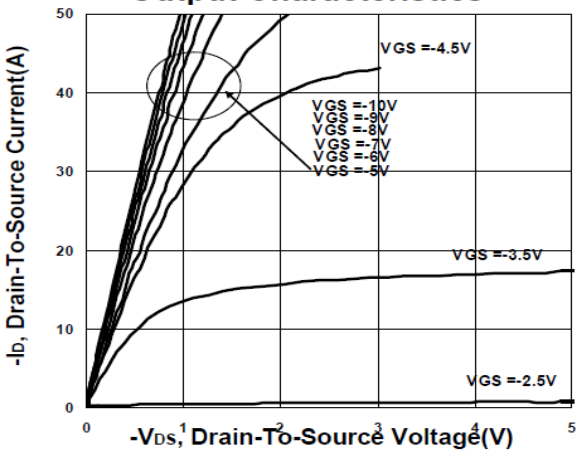
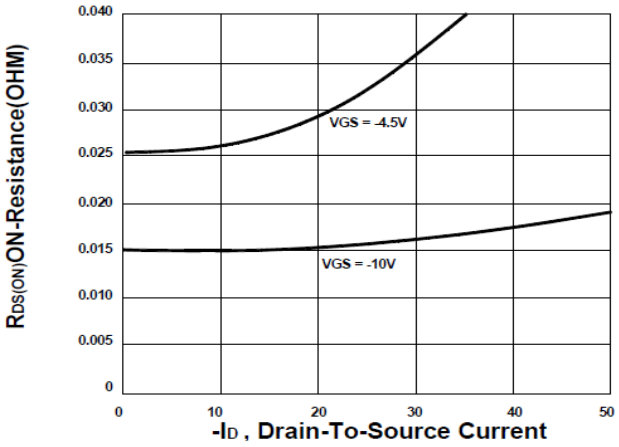
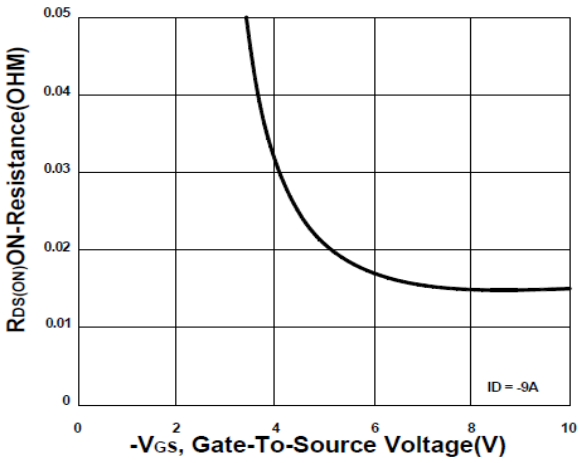
Output Characteristics



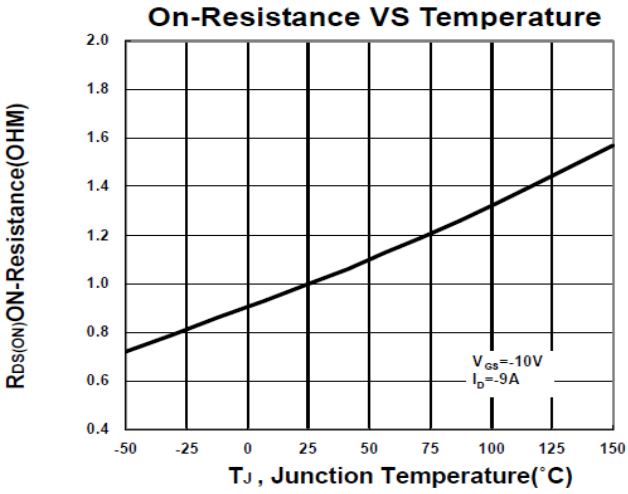
On-Resistance VS Drain Current



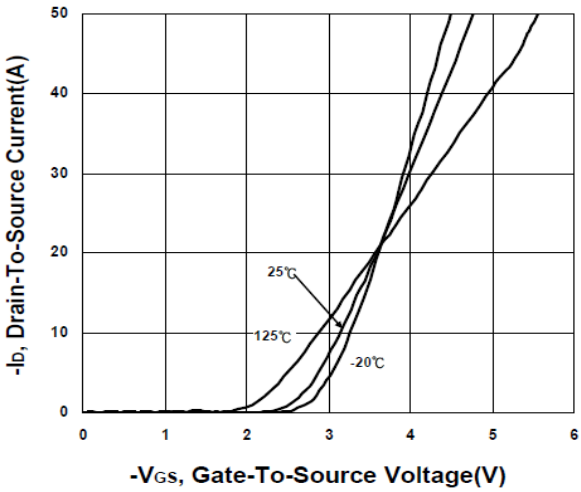
On-Resistance VS Gate-To-Source



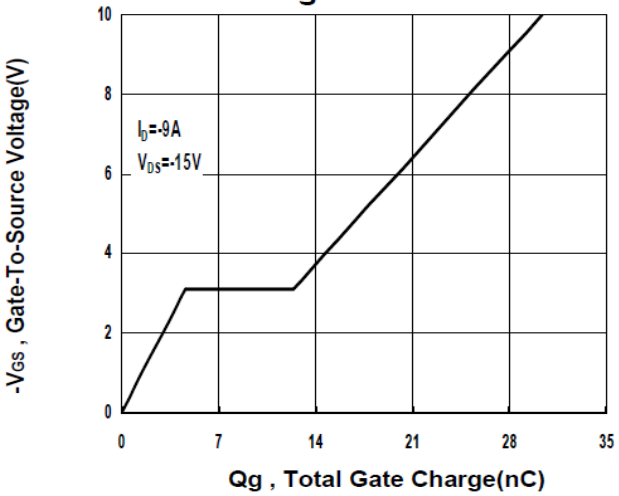
On-Resistance VS Temperature



Transfer Characteristics



Gate charge Characteristics



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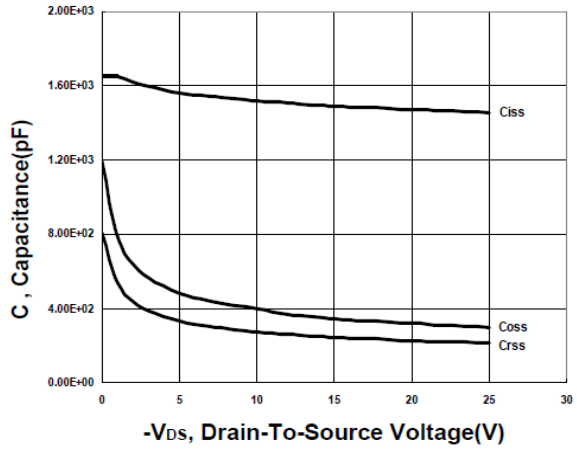
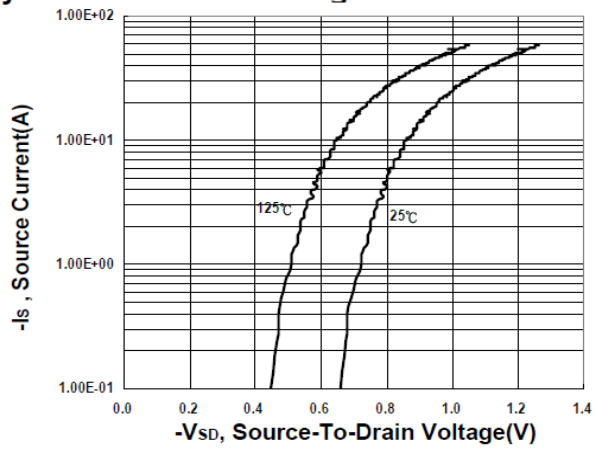
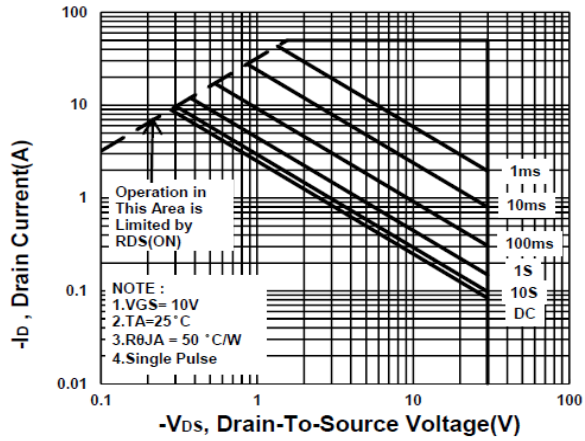
Capacitance Characteristic



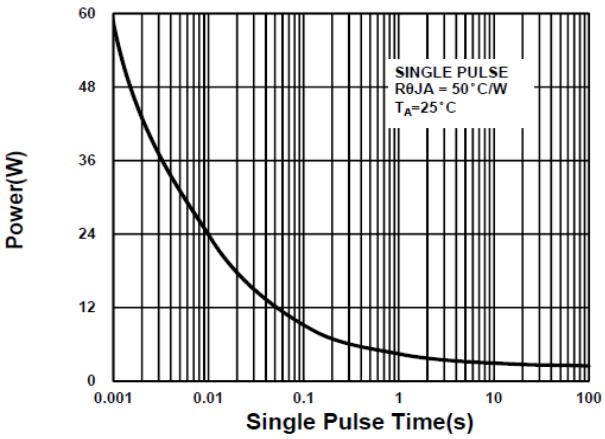
Body Diode Forward Voltage VS Source current



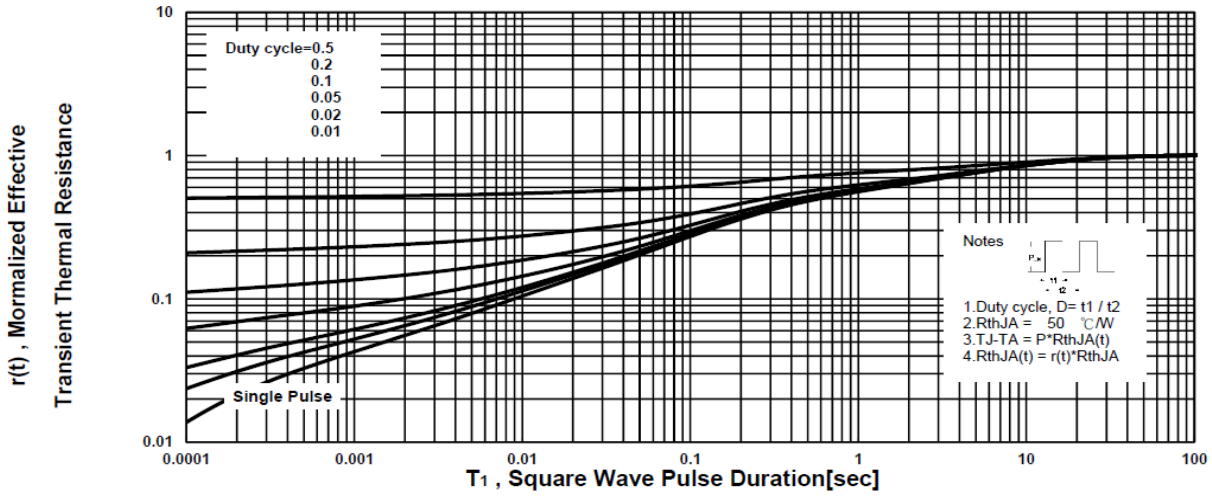
Safe Operating Area



Single Pulse Maximum Power Dissipation



Transient Thermal Response Curve



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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