UNIKC Semiconductor

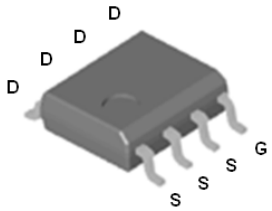
RoHS Compliant

P3304EV

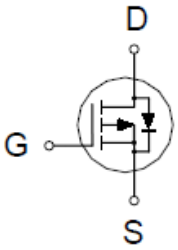
P-Channel Enhancement Mode MOSFET

PRODUCT SUMMARY

$V_{(BR)DSS}$	$R_{DS(ON)}$	I_D
-40V	33mΩ @V_{GS} = -10V	-7A



SOP- 08



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

PARAMETERS/TEST CONDITIONS		SYMBOL	LIMITS	UNITS
Drain-Source Voltage		V_{DS}	-40	V
Gate-Source Voltage		V_{GS}	±20	
Continuous Drain Current	T_A = 25 °C	I_D	-7	A
	T_A = 70 °C		-6	
Pulsed Drain Current[1]		I_{DM}	-30	
Power Dissipation	T_A = 25 °C	P_D	2.5	W
	T_A = 70 °C		1.3	
Operating 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.

[2]Duty cycle ≤ 1%

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ELECTRICAL CHARACTERISTICS (T_J = 25 °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 = -250μA	-40			V
Gate Threshold Voltage	$V_{GS(th)}$	V_{DS} = V_{GS}, I_D = -250μA	-1.0	-2.0	-3.0	
Gate-Body Leakage	I_{GSS}	V_{DS} = 0V, V_{GS} = ±20V			±100	nA
Zero Gate Voltage Drain Current	I_{DSS}	V_{DS} = -32V, V_{GS} = 0V			-1	μA
		V_{DS} = -30V, V_{GS} = 0V , T_J = 125 °C			-10	
On-State Drain Current[1]	$I_{D(ON)}$	V_{DS} = -5V, V_{GS} = -10V	-30			A
Drain-Source On-State Resistance[1]	$R_{DS(ON)}$	V_{GS} = -5V, I_D = -5A		40	60	mΩ
		V_{GS} = -10V, I_D = -7A		25	33	
Forward Transconductance[1]	g_{fs}	V_{DS} = -10V, I_D = -7A		18		S
DYNAMIC						
Input Capacitance	C_{iss}	V_{GS} = 0V, V_{DS} = -10V, f = 1MHz		1000		pF
Output Capacitance	C_{oss}			450		
Reverse Transfer Capacitance	C_{rss}			108		
Total Gate Charge[2]	Q_g	V_{DS} = 0.5$V_{(BR)DSS}$, I_D = -7A, V_{GS} = -10V		20		nC
Gate-Source Charge[2]	Q_{gs}			3.2		
Gate-Drain Charge[2]	Q_{gd}			2.7		
Turn-On Delay Time[2]	$t_{d(on)}$	V_{DS} = -20V, I_D ≅ -1A, V_{GS} = -10V, R_{GS} = 6Ω		9.7	19.4	nS
Rise Time[2]	t_r			14.0	28.1	
Turn-Off Delay Time[2]	$t_{d(off)}$			28.7	51.6	
Fall Time[2]	t_f			17.8	32.2	
SOURCE-DRAIN DIODE RATINGS AND CHARACTERISTICS (T_J = 25 °C)						
Continuous Current	I_S				-1.3	A
Pulsed Current[3]	I_{SM}				-2.6	
Forward Voltage[1]	V_{SD}	I_F = I_S, V_{GS} = 0V			-1	V
Reverse Recovery Time	t_{rr}	I_F = I_S, dI_F/dt = 100A /μS		80		nS
Reverse Recovery Charge	Q_{rr}			75		nC

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

[2]Independent of operating temperature.

[3]Pulse width limited by maximum junction temperature.

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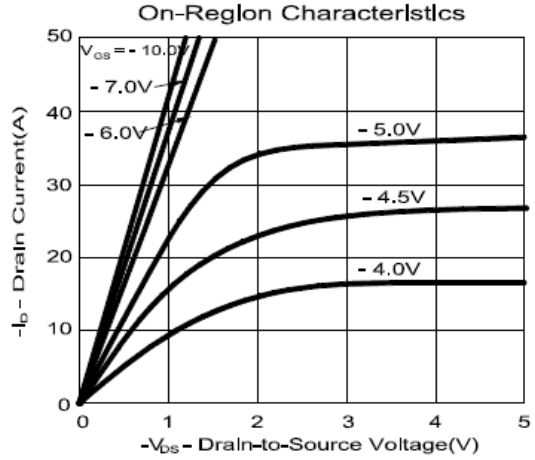
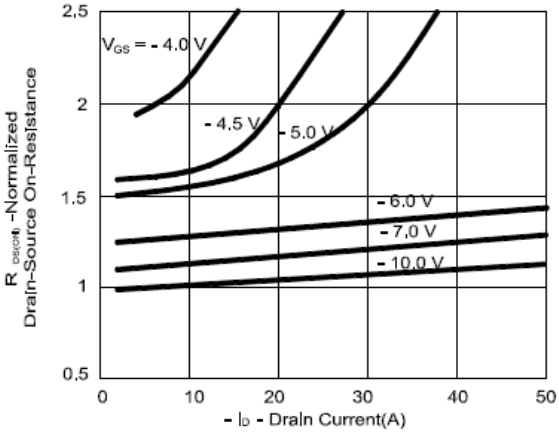
TYPICAL PERFORMANCE CHARACTERISTICS

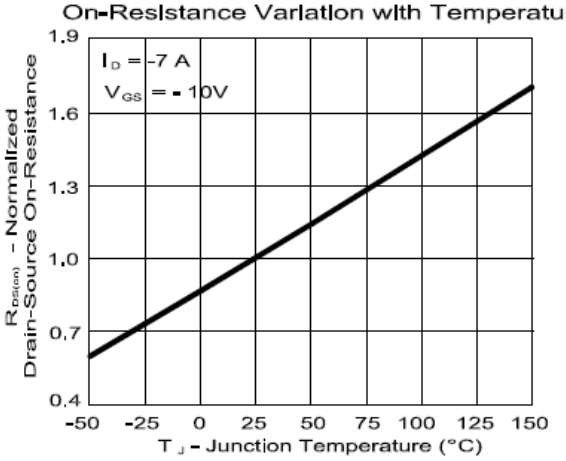
On-Region Characteristics



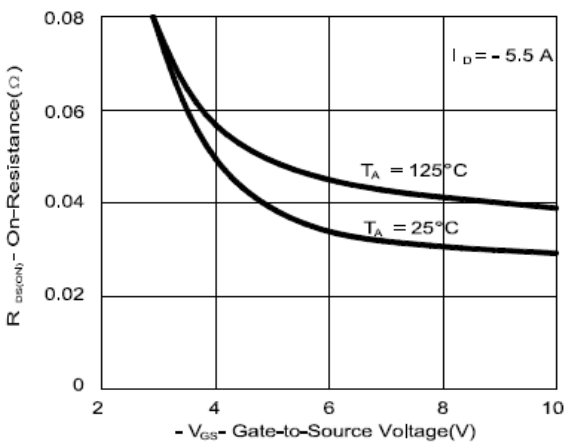
On-Resistance Variation with Drain Current and Gate Voltage



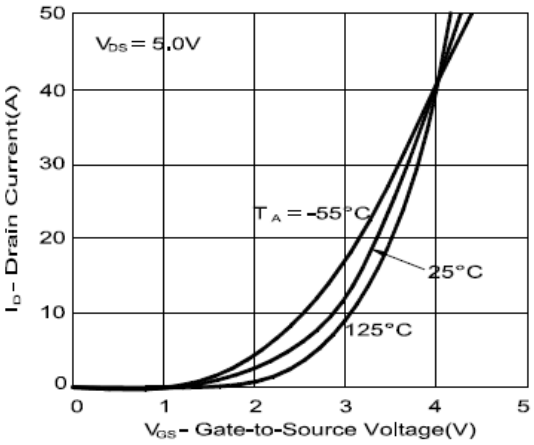
On-Resistance Variation with Temperature



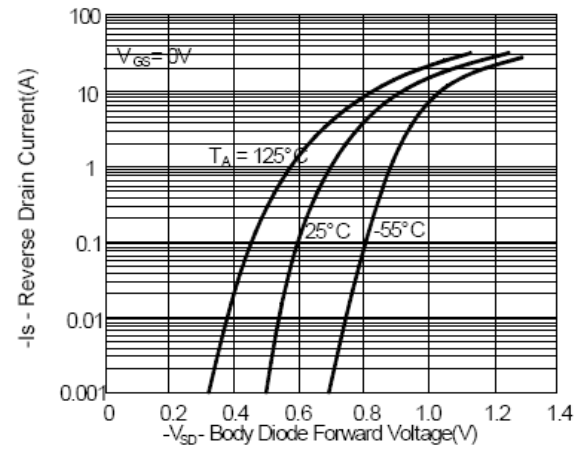
On-Resistance Variation with Gate-to-Source Voltage



Transfer Characteristics



Body Diode Forward Voltage Variation with Source Current and Temperature



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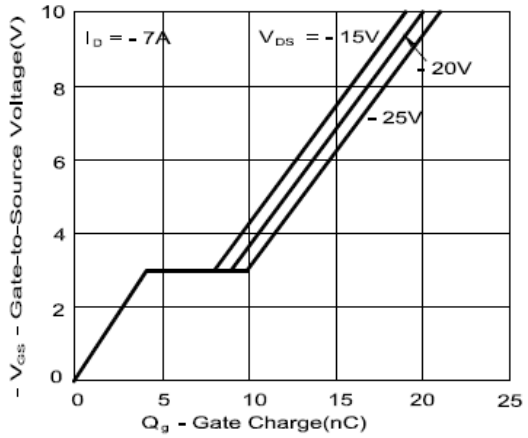
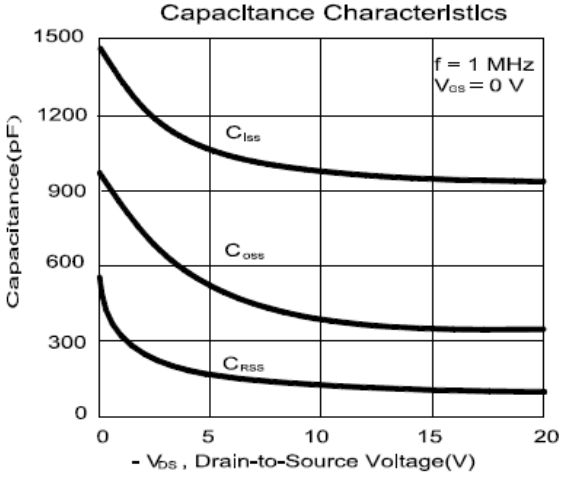
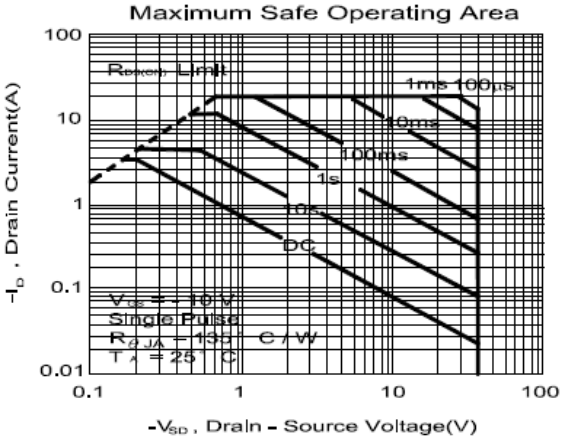
Gate Charge Characteristics



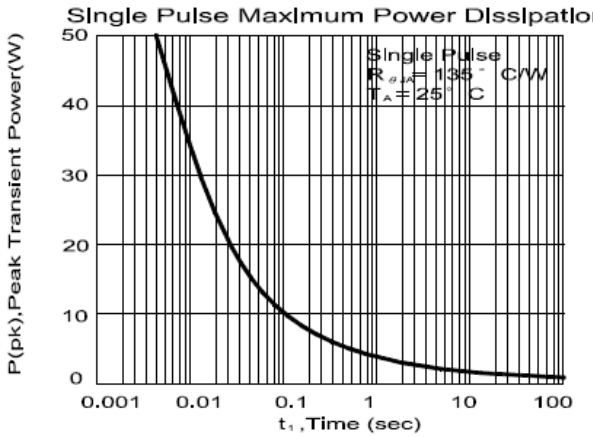
Capacitance Characteristics



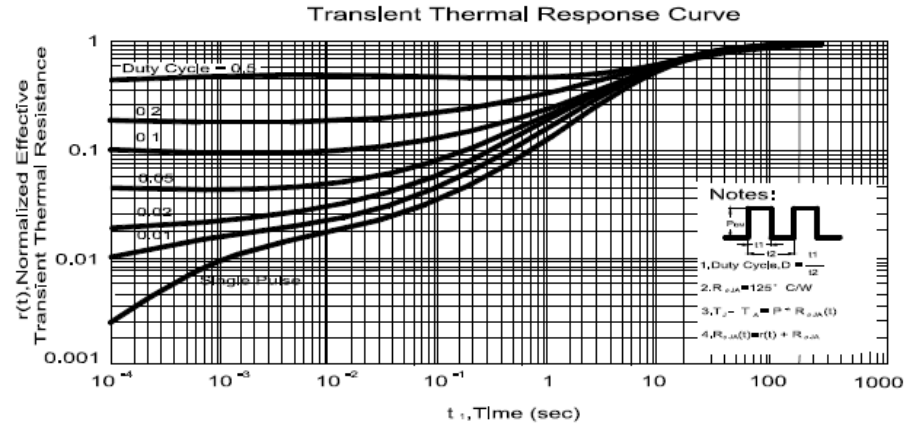
Maximum Safe Operating Area



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