UNIKC Semiconductor

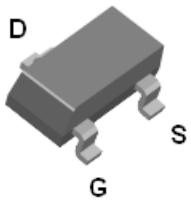
RoHS Compliant

P3202CMG

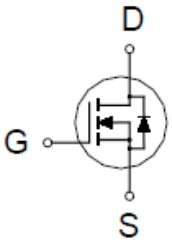
N-Channel Enhancement Mode MOSFET

PRODUCT SUMMARY

$V_{(BR)DSS}$	$R_{DS(ON)}$	I_D
20V	32mΩ @V_{GS} = 4.5V	5A



SOT-23



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

PARAMETERS/TEST CONDITIONS		SYMBOL	LIMITS	UNITS
Gate-Source Voltage		V_{GS}	±12	V
Continuous Drain Current	T_A = 25 °C	I_D	5	A
	T_A = 70 °C		4	
Pulsed Drain Current[1]		I_{DM}	30	
Power Dissipation	T_A = 25 °C	P_D	1.25	W
	T_A = 70 °C		0.8	
Operating Junction & Storage Temperature Range		T_J, T_{STG}	-55 to 150	°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	$R_{\theta JA}$	75	100	°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			UNIT
			MIN	TYP	MAX	
STATIC						
Drain-Source Breakdown Voltage	$V_{(BR)DSS}$	V_{GS} = 0V, I_D = 250μA	20			V
Gate Threshold Voltage	$V_{GS(th)}$	V_{DS} = V_{GS}, I_D = 250μA	0.45	0.75	1.2	
Gate-Body Leakage	I_{GSS}	V_{DS} = 0V, V_{GS} = ±12V			±100	nA
Zero Gate Voltage Drain Current	I_{DSS}	V_{DS} = 16V, V_{GS} = 0V			1	μA
		V_{DS} = 16V, V_{GS} = 0V , T_J = 70 °C			10	
On-State Drain Current[1]	$I_{D(ON)}$	V_{DS} = 10V, V_{GS} = 10V	5			A
Drain-Source On-State Resistance[1]	$R_{DS(ON)}$	V_{GS} = 1.8V, I_D = 2A		57	80	mΩ
		V_{GS} = 2.5V, I_D = 4A		38	50	
		V_{GS} = 4.5V, I_D = 5A		27	32	
Forward Transconductance[1]	g_{fs}	V_{DS} = 5V, I_D = 5A		12		S
DYNAMIC						
Input Capacitance	C_{iss}	V_{GS} = 0V, V_{DS} = 10V, f = 1MHz		740		pF
Output Capacitance	C_{oss}			90		
Reverse Transfer Capacitance	C_{rss}			66		
Total Gate Charge[2]	Q_g	V_{DS} = 0.5$V_{(BR)DSS}$, V_{GS} = 4.5V, I_D = 5A		8	12	nC
Gate-Source Charge[2]	Q_{gs}			3.6		
Gate-Drain Charge[2]	Q_{gd}			2		
Turn-On Delay Time[2]	$t_{d(on)}$	V_{DD} = 10V, I_D ≅ 1A, V_{GEN} = 4.5V, R_G = 0.2Ω		8	14	nS
Rise Time[2]	t_r			6	12	
Turn-Off Delay Time[2]	$t_{d(off)}$			19	45	
Fall Time[2]	t_f			7	23	
SOURCE-DRAIN DIODE RATINGS AND CHARACTERISTICE (T_J = 25 ˚C)						
Continuous Current	I_S				1	A
Forward Voltage[1]	V_{SD}	I_F = I_S, V_{GS} = 0V			1.3	V

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

[2]Independent of operating temperature.

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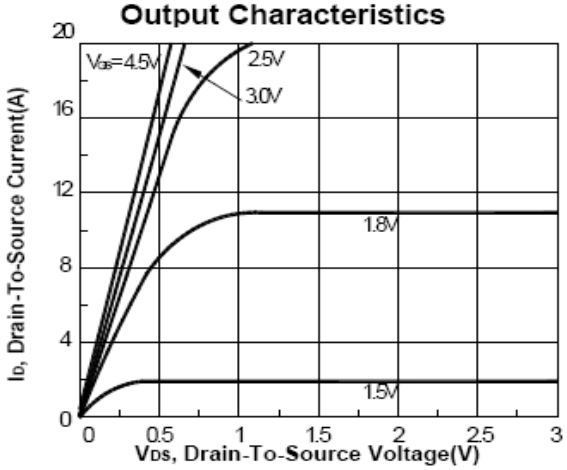
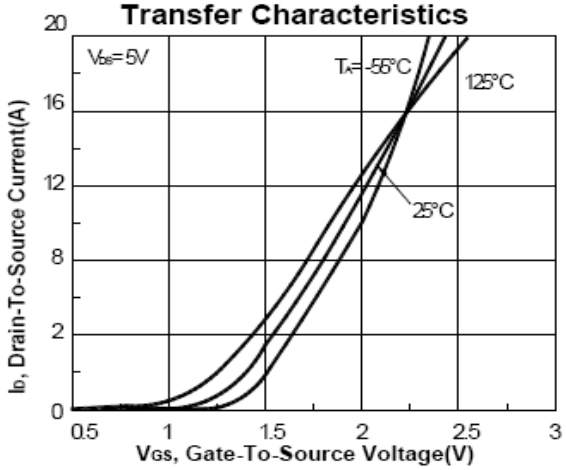
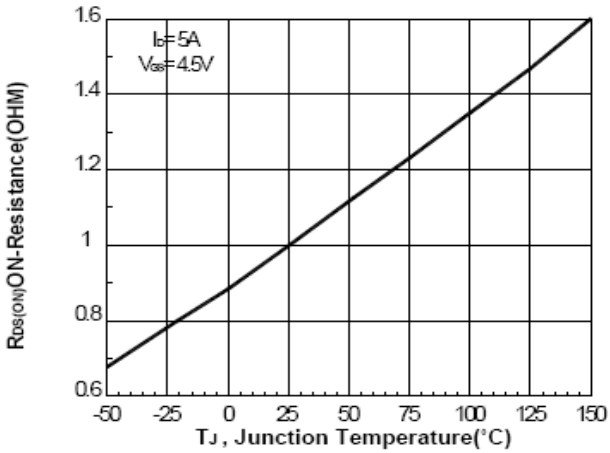
Output Characteristics



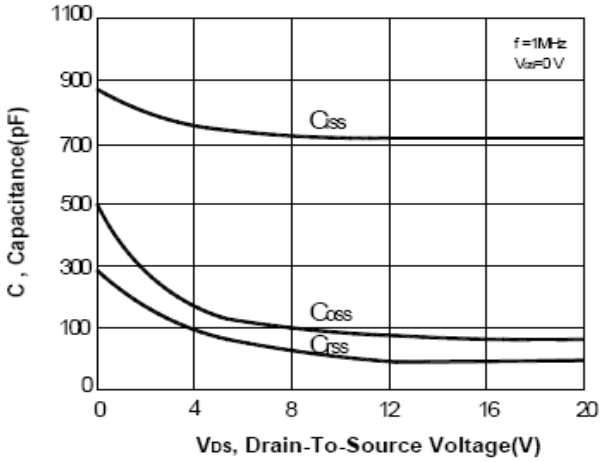
Transfer Characteristics



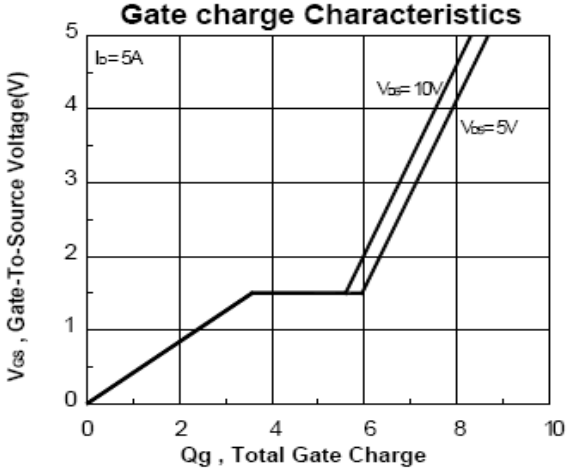
On-Resistance VS Temperature



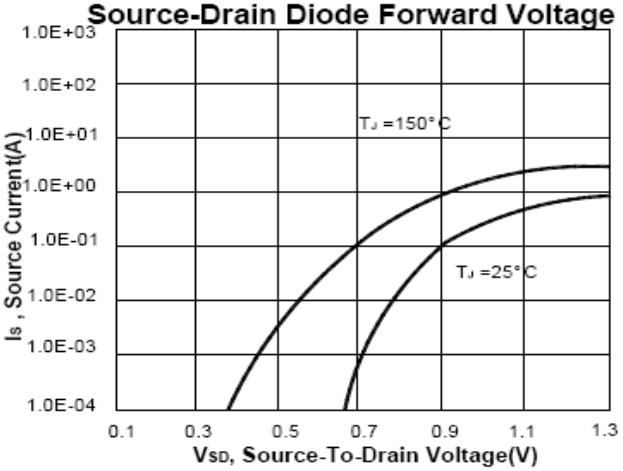
Capacitance Characteristic



Gate charge Characteristics



Source-Drain Diode Forward Voltage



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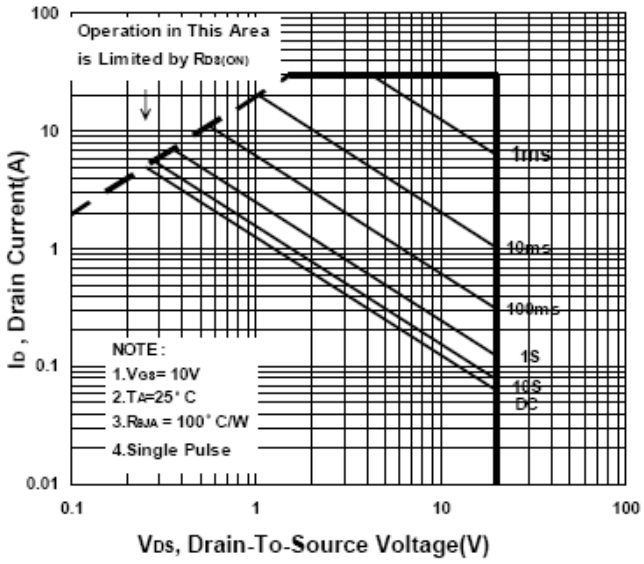
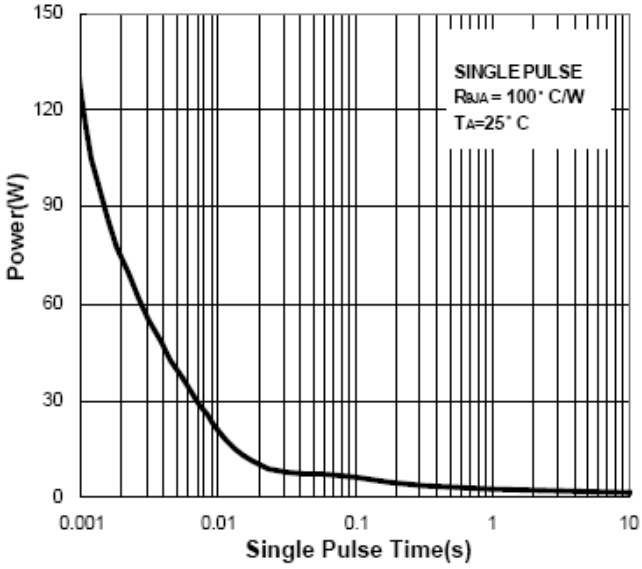
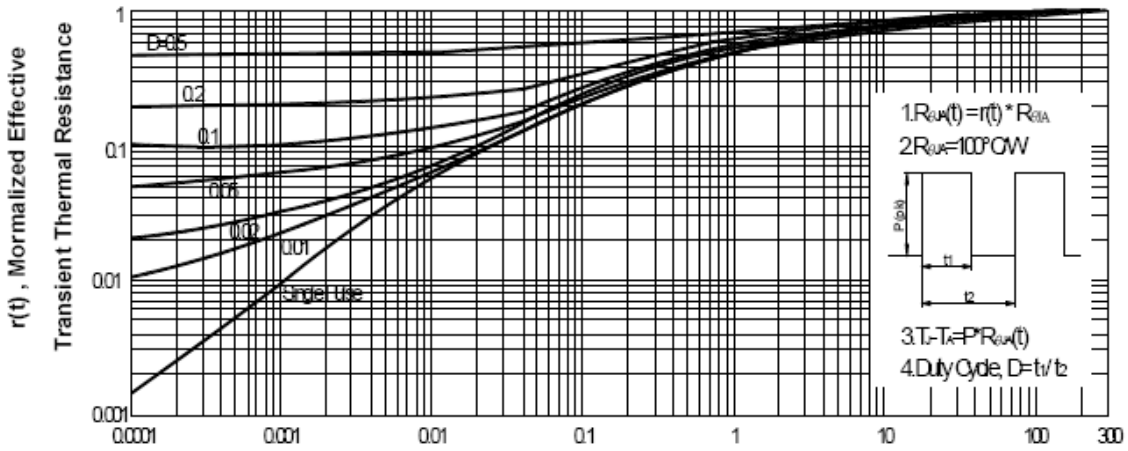
Safe Operating Area



Single Pulse Maximum Power Dissipation



Transient Thermal Response Curve



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Package Dimension

SOT-23-3 MECHANICAL DATA

Dimension	mm			Dimension	mm		
	Min.	Typ.	Max.		Min.	Typ.	Max.
A		1.05		H	0.1		0.2
B	2.4		3	I	0.3		0.6
C	1.4		1.73				
D	2.7		3.1				
E	1		1.31				
F	0		0.15				
G	0.3		0.5