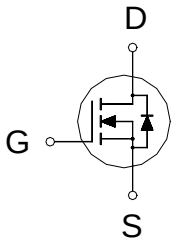
NIKO-SEM

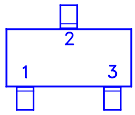
N-Channel Logic Level Enhancement Mode Field Effect Transistor

P3203CMG
SOT-23
Lead-Free

PRODUCT SUMMARY

$V_{(BR)DSS}$	$R_{DS(ON)}$	I_D
30	32mΩ	6A





1. GATE
2. DRAIN
3. SOURCE

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

PARAMETERS/TEST CONDITIONS		SYMBOL	LIMITS	UNITS
Gate-Source Voltage		V_{GS}	±12	V
Continuous Drain Current	T_C = 25 °C	I_D	6	A
	T_C = 70 °C		5	
Pulsed Drain Current[1]		I_{DM}	30	
Power Dissipation	T_C = 25 °C	P_D	1.25	W
	T_C = 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.
[2]Duty cycle ≤ 1%

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

PARAMETER	SYMBOL	TEST CONDITIONS	LIMITS MIN	LIMITS TYP	LIMITS MAX	UNIT
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	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} = 24V, V_{GS} = 0V			1	μA
		V_{DS} = 20V, V_{GS} = 0V, T_J = 70 °C			10	
On-State Drain Current[1]	$I_{D(ON)}$	V_{DS} = 5V, V_{GS} = 4.5V	30			A
Drain-Source On-State Resistance[1]	$R_{DS(ON)}$	V_{GS} = 2.5V, I_D = 4A		43	52	mΩ
		V_{GS} = 4.5V, I_D = 5A		27	32	
		V_{GS} = 10V, I_D = 6A		23	28	

Forward Transconductance[1]	g_{fs}	V_{DS} = 5V, I_D = 5A		15		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, $I_D \cong$ 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 CHARACTERISTICS (T_C = 25 °C)						
Continuous Current	I_S				1.3	A
Pulsed Current[3]	I_{SM}				30	
Forward Voltage[1]	V_{SD}	I_F = I_S, V_{GS} = 0V			1.3	V

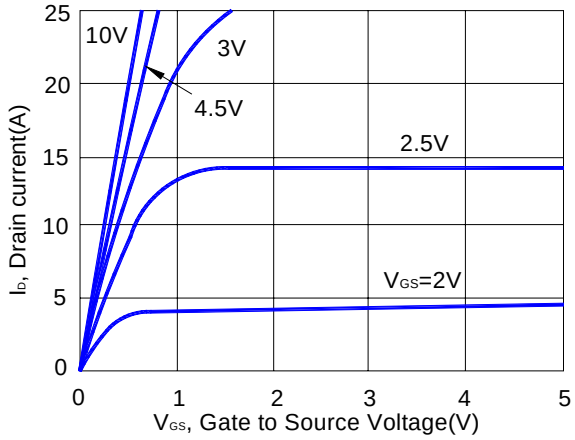
[1]Pulse test : Pulse Width ≤ 300 μsec, Duty Cycle ≤ 2%.
[2]Independent of operating temperature.
[3]Pulse width limited by maximum junction temperature.

REMARK: THE PRODUCT MARKED WITH "1BYWW", DATE CODE or LOT #

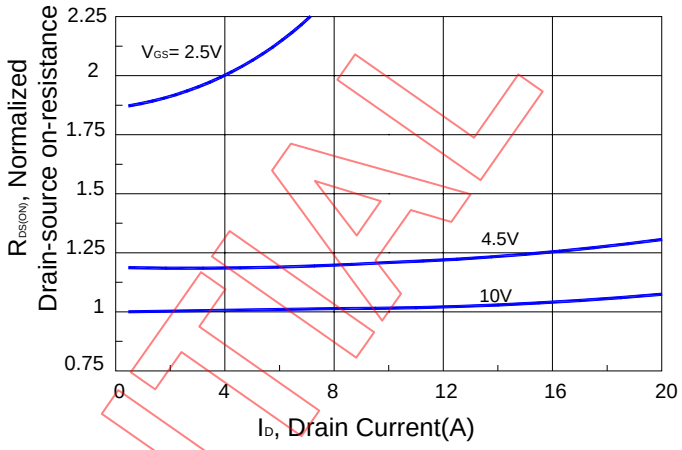
Orders for parts with Lead-Free plating can be placed using the PXXXXXXG parts name.

Typical Electrical Characteristics

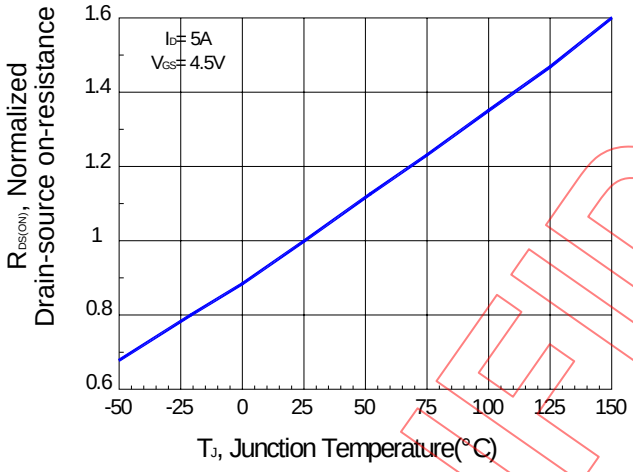
On-Region Characteristics.



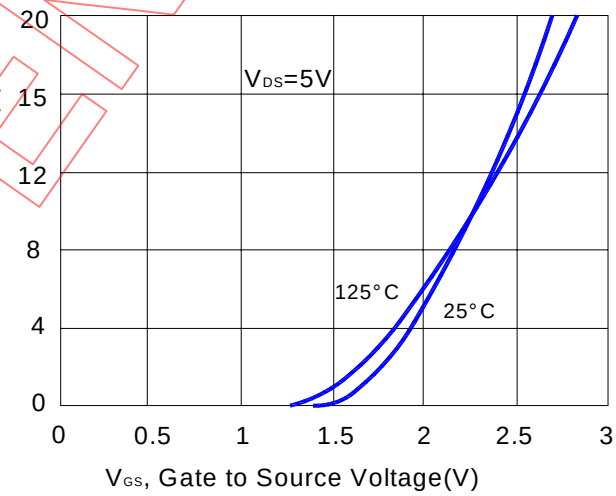
On-Resistance Variation with Drain Current and Gate Voltage.



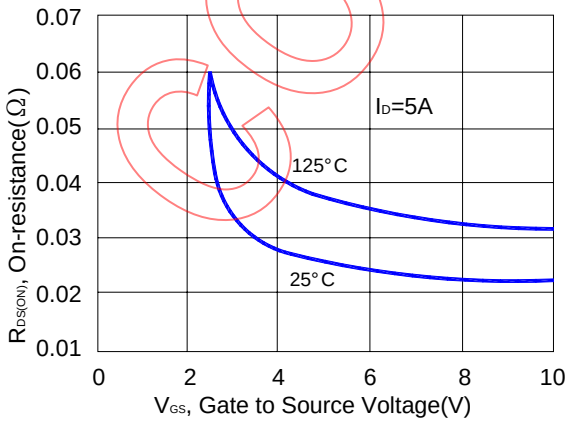
On-Resistance Variation with Temperature.



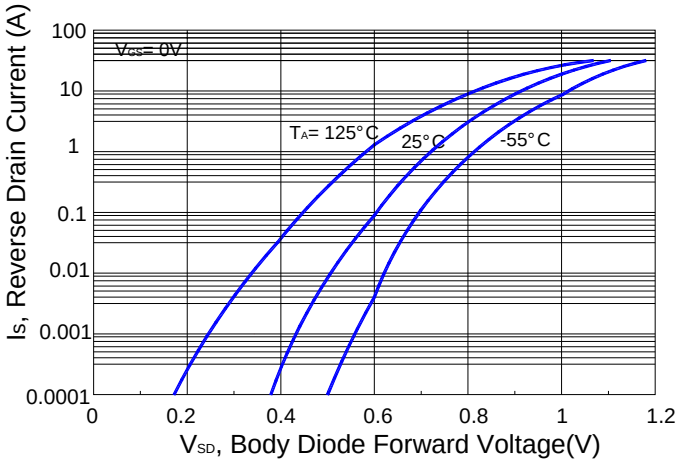
Transfer Characteristics.



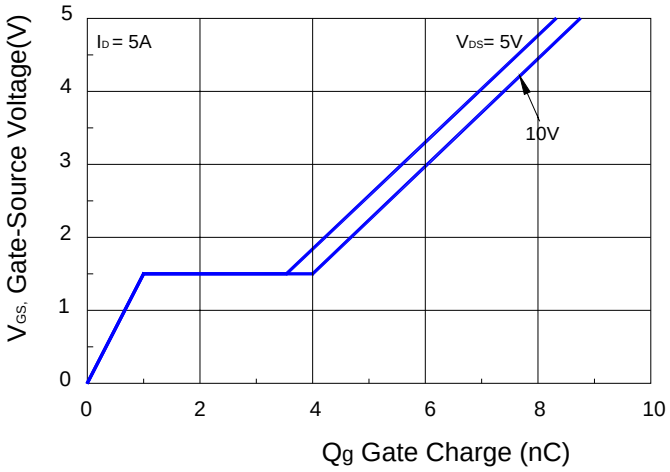
On-Resistance Variation with Gate-to-Source Voltage.



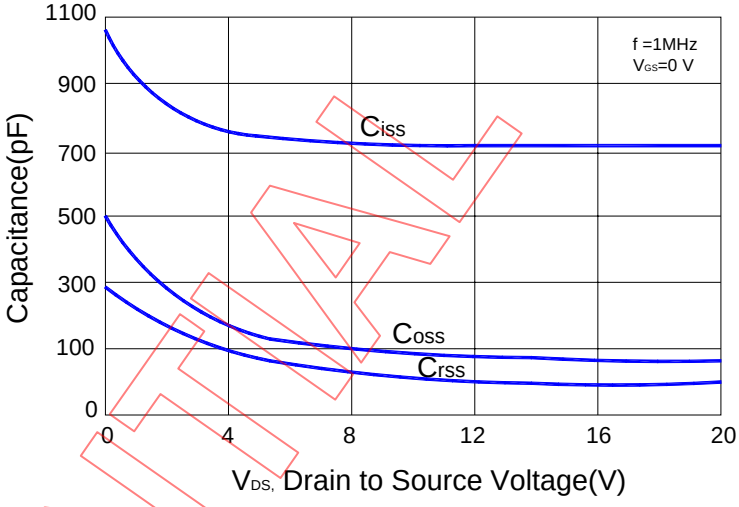
Body Diode Forword Voltage Variation with Source Current and Temperature.



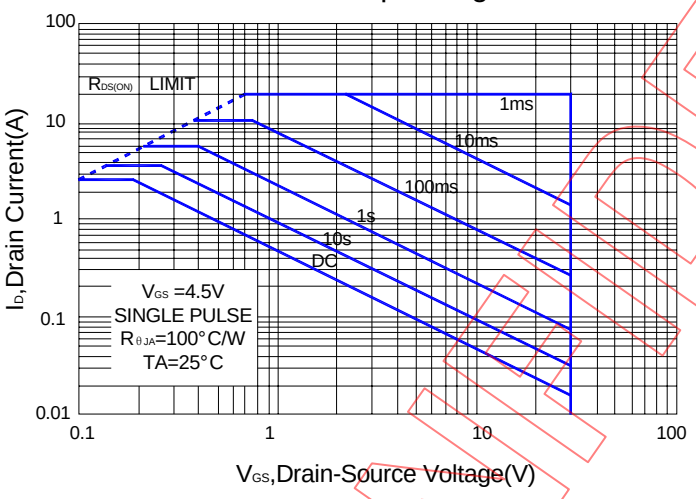
Gate-Charge Characteristics



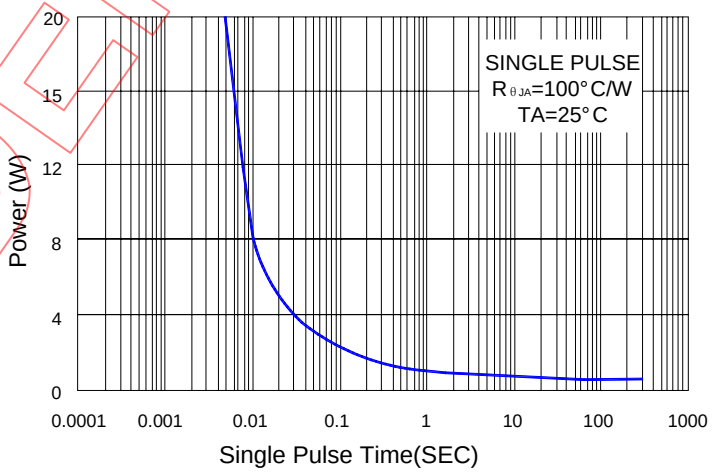
Capacitance Characteristics



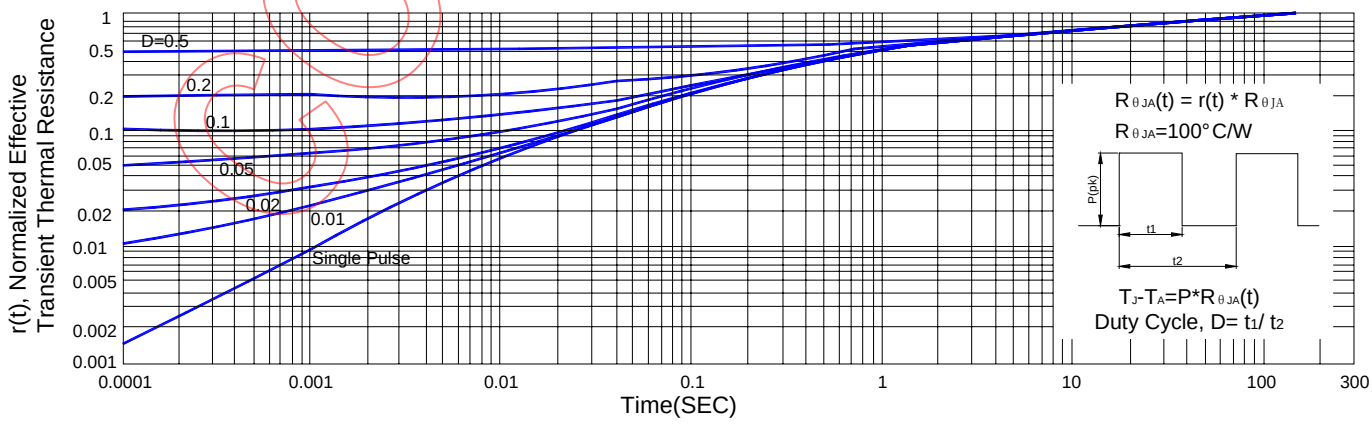
Maxmum Safe Operating Area.



Single Puise Maximum Power Dissipation.



Transisent Thermal Response Curve.



SOT-23 (M3) MECHANICAL DATA

Dimension	mm			Dimension	mm		
	Min.	Typ.	Max.		Min.	Typ.	Max.
A	0.85	0.95	1.15	H	0.1	0.15	0.35
B	2.4		3	I	0.2		0.6
C	1.4	1.6	1.8	J			
D	2.7	2.9	3.1	K			
E	0.9	1.1	1.4	L			
F	0		0.1	M			
G	0.3	0.4	0.5	N