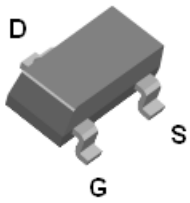
UNIKC Semiconductor

P7502CMG

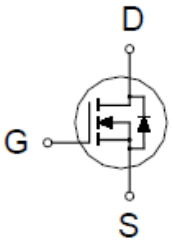
N-Channel Enhancement Mode MOSFET

PRODUCT SUMMARY

$V_{(BR)DSS}$	$R_{DS(ON)}$	I_D
20V	75mΩ @V_{GS} = 4.5V	3A



SOT-23



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

PARAMETERS/TEST CONDITIONS		SYMBOL	LIMITS	UNITS
Drain-Source Voltage		V_{DS}	20	V
Gate-Source Voltage		V_{GS}	±16	
Continuous Drain Current	T_A = 25 °C	I_D	3	A
	T_A = 70 °C		2.5	
Pulsed Drain Current[1]		I_{DM}	12	
Avalanche Current		I_{AS}	6	
Avalanche Energy	L = 0.1mH	E_{AS}	1.8	mJ
Power Dissipation	T_A = 25 °C	P_D	1	W
	T_A = 70 °C		0.7	
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	$R_{\theta JA}$		115	°C / W

[1]Pulse width limited by maximum junction temperature.

UNIKC Semiconductor

RoHS Compliant

P7502CMG

N-Channel Enhancement Mode MOSFET

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	0.8	1.2	
Gate-Body Leakage	I_{GSS}	V_{DS} = 0V, V_{GS} = ±16V			±100	nA
Zero Gate Voltage Drain Current	I_{DSS}	V_{DS} = 16V, V_{GS} = 0V			1	μA
		V_{DS} = 10V, V_{GS} = 0V , T_J = 70 °C			10	
On-State Drain Current[1]	$I_{D(ON)}$	V_{DS} = 5V, V_{GS} = 4.5V	12			A
Drain-Source On-State Resistance[1]	$R_{DS(ON)}$	V_{GS} = 2.5V, I_D = 1.5A			105	mΩ
		V_{GS} = 4.5V, I_D = 3A			75	
Forward Transconductance[1]	g_{fs}	V_{DS} = 5V, I_D = 3A		9		S
DYNAMIC						
Input Capacitance	C_{iss}	V_{GS} = 0V, V_{DS} = 10V, f = 1MHz		269		pF
Output Capacitance	C_{oss}			106		
Reverse Transfer Capacitance	C_{rss}			76		
Total Gate Charge[2]	Q_g	V_{DS} = 0.5$V_{(BR)DSS}$, V_{GS} = 4.5V, I_D = 3A		5.2		nC
Gate-Source Charge[2]	Q_{gs}			0.6		
Gate-Drain Charge[2]	Q_{gd}			2.5		
Turn-On Delay Time[2]	$t_{d(on)}$	V_{DD} = 10V, I_D ≅ 3A, V_{GEN} = 4.5V, R_G = 6Ω		5.9		nS
Rise Time[2]	t_r			13		
Turn-Off Delay Time[2]	$t_{d(off)}$			23		
Fall Time[2]	t_f			19		
SOURCE-DRAIN DIODE RATINGS AND CHARACTERISTICE (T_J = 25 °C)						
Continuous Current	I_S				0.7	A
Forward Voltage[1]	V_{SD}	I_F = 2.3A, V_{GS} = 0V			1.3	V
Reverse Recovery Time	t_{rr}	I_F = 3A, dI_F/dt = 100 A/μs		10.2		nS
Reverse Recovery Charge	Q_{rr}			2		nC

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

[2]Independent of operating temperature.

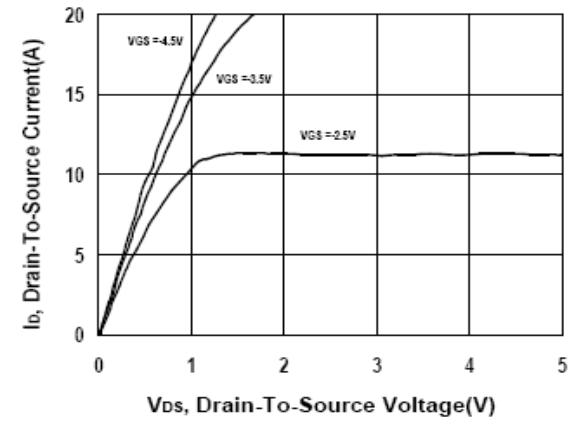
UNIKC Semiconductor

RoHS Compliant

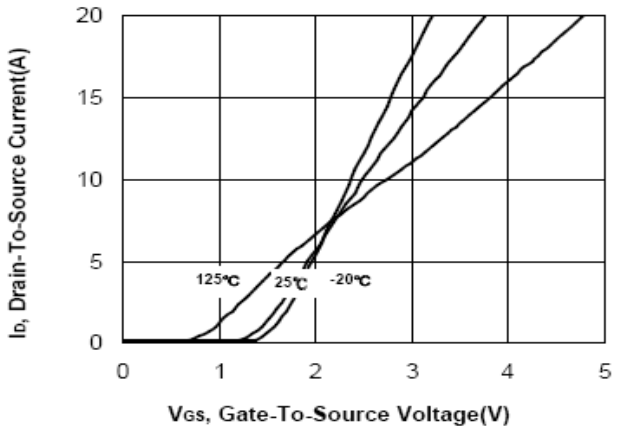
P7502CMG

N-Channel Enhancement Mode MOSFET

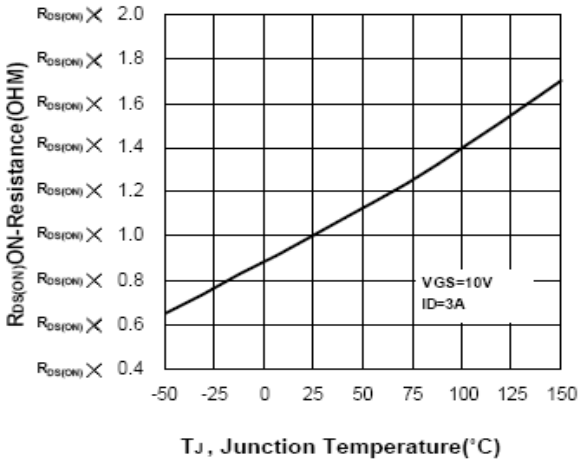
Output Characteristics



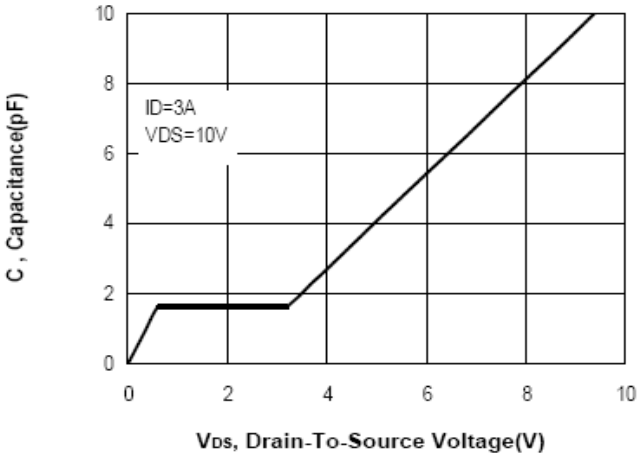
Transfer Characteristics



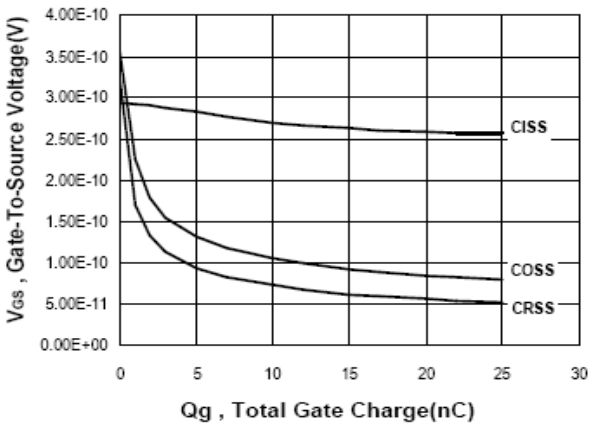
On-Resistance VS Temperature



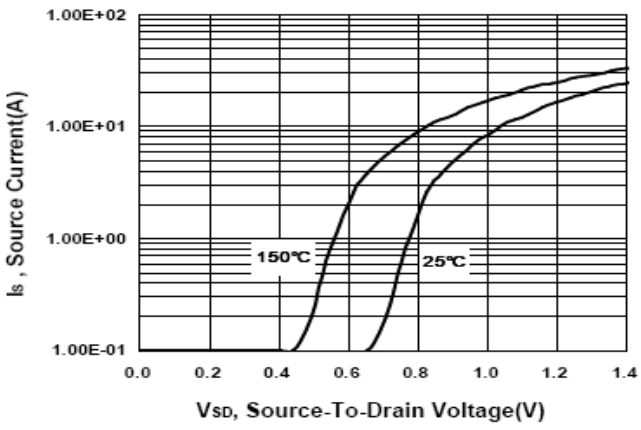
Capacitance Characteristic



Gate charge Characteristics



Source-Drain Diode Forward Voltage



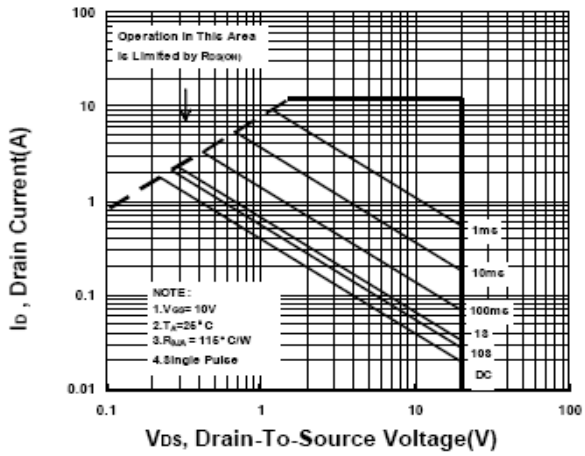
UNIKC Semiconductor

RoHS Compliant

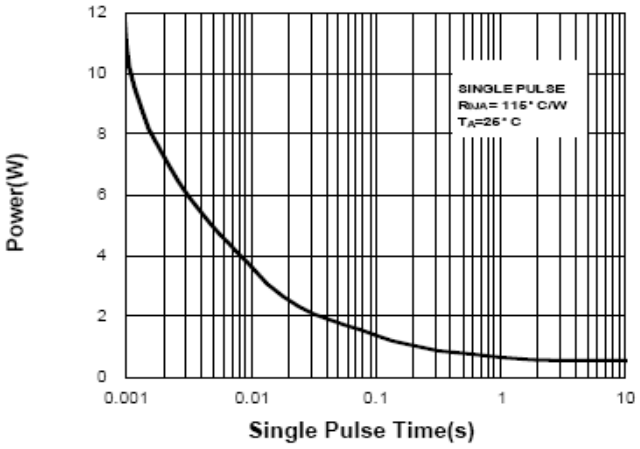
P7502CMG

N-Channel Enhancement Mode MOSFET

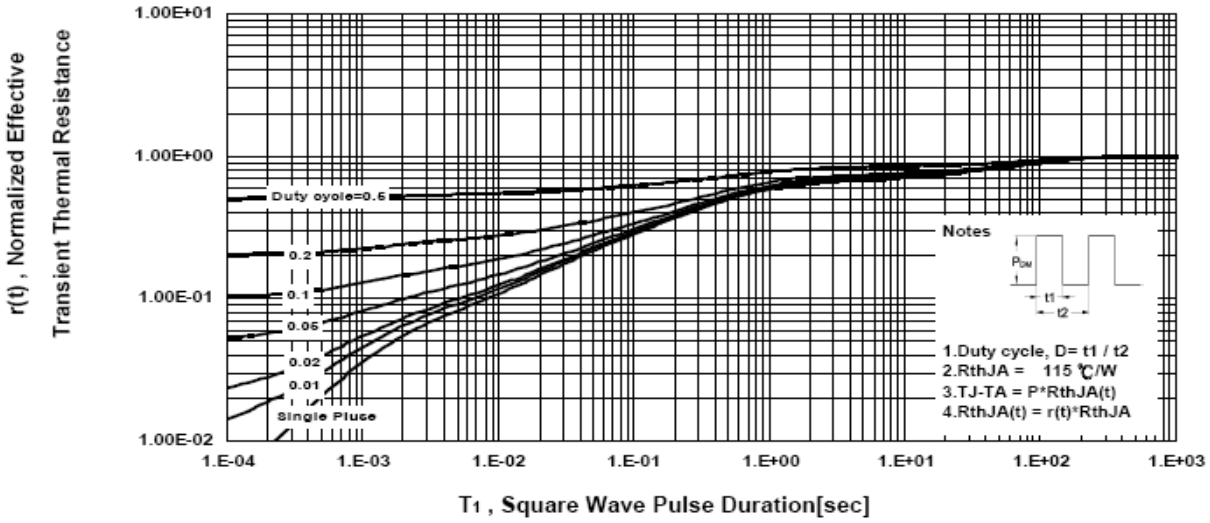
Safe Operating Area



Single Pulse Maximum Power Dissipation



Transient Thermal Response Curve



UNIKC Semiconductor

RoHS Compliant

P7502CMG

N-Channel Enhancement Mode MOSFET

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