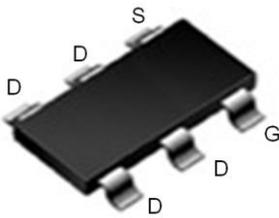


# P2202CM6

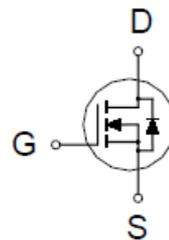
## N-Channel Enhancement Mode MOSFET

### PRODUCT SUMMARY

$V_{(BR)DSS}$	$R_{DS(ON)}$	$I_D$
20V	22m $\Omega$ @ $V_{GS} = 4.5V$	5.6A



SOT-23-6



### ABSOLUTE MAXIMUM RATINGS ( $T_A = 25\text{ }^\circ\text{C}$ Unless Otherwise Noted)

PARAMETERS/TEST CONDITIONS		SYMBOL	LIMITS	UNITS
Gate-Source Voltage		$V_{GS}$	$\pm 8$	V
Continuous Drain Current	$T_A = 25\text{ }^\circ\text{C}$	$I_D$	5.6	A
	$T_A = 70\text{ }^\circ\text{C}$		4.5	
Pulsed Drain Current <sup>1</sup>		$I_{DM}$	50	
Avalanche Current		$I_{AS}$	21	
Avalanche Energy	L=0.1mH	$E_{AS}$	22	mJ
Power Dissipation	$T_A = 25\text{ }^\circ\text{C}$	$P_D$	1.1	W
	$T_A = 70\text{ }^\circ\text{C}$		0.7	
Operating Junction & Storage Temperature Range		$T_J, T_{STG}$	-55 to 150	$^\circ\text{C}$

### THERMAL RESISTANCE RATINGS

THERMAL RESISTANCE	SYMBOL	TYPICAL	MAXIMUM	UNITS
Junction-to-Ambient	$R_{\theta JA}$		110	$^\circ\text{C} / \text{W}$

<sup>1</sup>Pulse width limited by maximum junction temperature.

# P2202CM6

## N-Channel Enhancement Mode MOSFET

### ELECTRICAL CHARACTERISTICS (T<sub>J</sub> = 25 °C, Unless Otherwise Noted)

PARAMETER	SYMBOL	TEST CONDITIONS	LIMITS			UNIT
			MIN	TYP	MAX	
<b>STATIC</b>						
Drain-Source Breakdown Voltage	V <sub>(BR)DSS</sub>	V <sub>GS</sub> = 0V, I <sub>D</sub> = 250μA	20			V
Gate Threshold Voltage	V <sub>GS(th)</sub>	V <sub>DS</sub> = V <sub>GS</sub> , I <sub>D</sub> = 250μA	0.5	0.7	1	V
Gate-Body Leakage	I <sub>GSS</sub>	V <sub>DS</sub> = 0V, V <sub>GS</sub> = ±8V			±100	nA
Zero Gate Voltage Drain Current	I <sub>DSS</sub>	V <sub>DS</sub> = 16V, V <sub>GS</sub> = 0V			1	μA
		V <sub>DS</sub> = 10V, V <sub>GS</sub> = 0V, T <sub>J</sub> = 70 °C			10	
On-State Drain Current <sup>1</sup>	I <sub>D(ON)</sub>	V <sub>DS</sub> = 10V, V <sub>GS</sub> = 4.5V	50			A
Drain-Source On-State Resistance <sup>1</sup>	R <sub>DS(ON)</sub>	V <sub>GS</sub> = 1.8V, I <sub>D</sub> = 4A		29	34	mΩ
		V <sub>GS</sub> = 2.5V, I <sub>D</sub> = 5A		21	26	
		V <sub>GS</sub> = 4.5V, I <sub>D</sub> = 6A		18	22	
Forward Transconductance <sup>1</sup>	g <sub>fs</sub>	V <sub>DS</sub> = 5V, I <sub>D</sub> = 6A		33		S
<b>DYNAMIC</b>						
Input Capacitance	C <sub>iss</sub>	V <sub>GS</sub> = 0V, V <sub>DS</sub> = 10V, f = 1MHz		963		pF
Output Capacitance	C <sub>oss</sub>			127		
Reverse Transfer Capacitance	C <sub>rss</sub>			121		
Total Gate Charge <sup>2</sup>	Q <sub>g</sub>	V <sub>DS</sub> = 0.5V <sub>(BR)DSS</sub> , V <sub>GS</sub> = 4.5V, I <sub>D</sub> = 6A		13.5		nC
Gate-Source Charge <sup>2</sup>	Q <sub>gs</sub>			4		
Gate-Drain Charge <sup>2</sup>	Q <sub>gd</sub>			1.8		
Turn-On Delay Time <sup>2</sup>	t <sub>d(on)</sub>	V <sub>DS</sub> = 10V I <sub>D</sub> ≅ 6A, V <sub>GS</sub> = 4.5V, R <sub>G</sub> = 6Ω		30		nS
Rise Time <sup>2</sup>	t <sub>r</sub>			120		
Turn-Off Delay Time <sup>2</sup>	t <sub>d(off)</sub>			70		
Fall Time <sup>2</sup>	t <sub>f</sub>			70		
<b>SOURCE-DRAIN DIODE RATINGS AND CHARACTERISTIC ( T<sub>J</sub> = 25 °C )</b>						
Continuous Current	I <sub>S</sub>				5.6	A
Forward Voltage <sup>1</sup>	V <sub>SD</sub>	I <sub>F</sub> = 6A, V <sub>GS</sub> = 0V			1	V
Reverse Recovery Time	t <sub>rr</sub>	I <sub>F</sub> = 6A, dI <sub>F</sub> /dt=100A/μS		12.4		nS
Reverse Recovery Charge	Q <sub>rr</sub>				3.3	

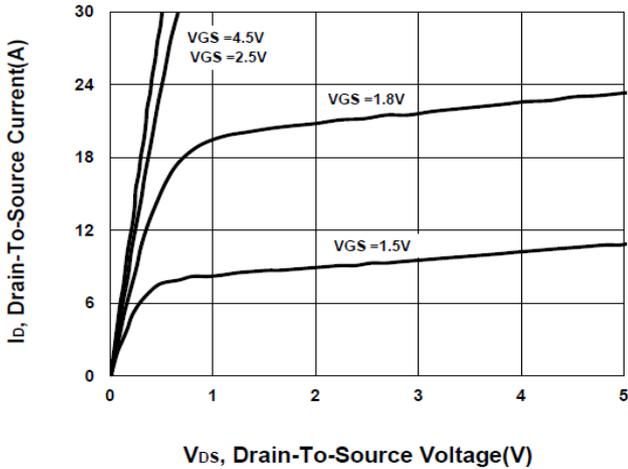
<sup>1</sup>Pulse test : Pulse Width ≤ 300 μsec, Duty Cycle ≤ 2%.

<sup>2</sup>Independent of operating temperature.

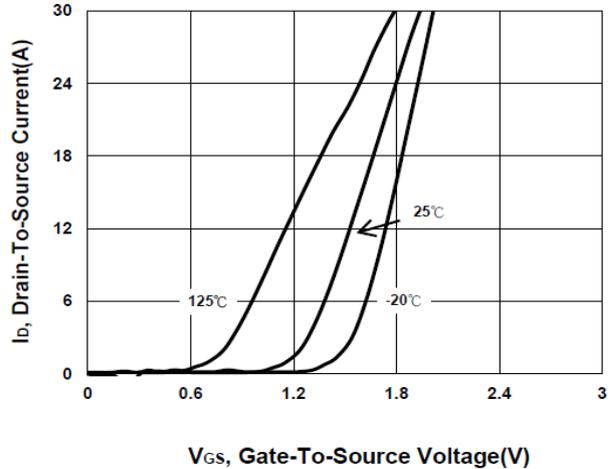
# P2202CM6

## N-Channel Enhancement Mode MOSFET

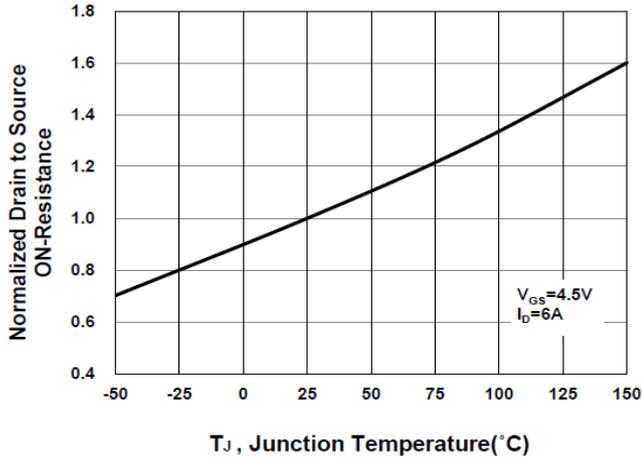
**Output Characteristics**



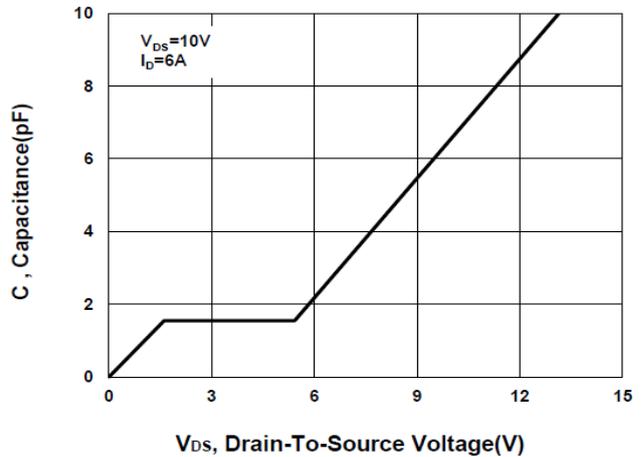
**Transfer Characteristics**



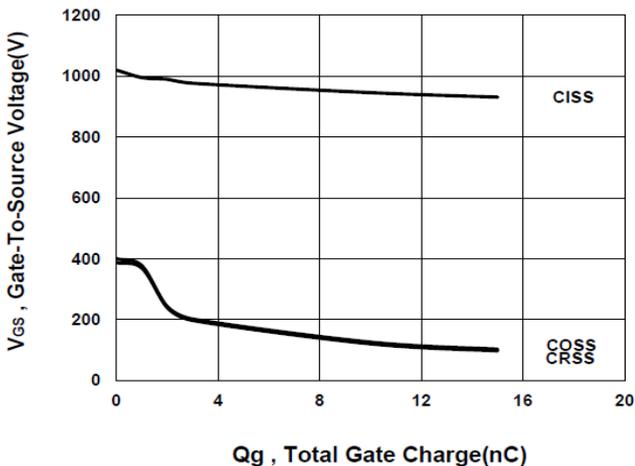
**On-Resistance VS Temperature**



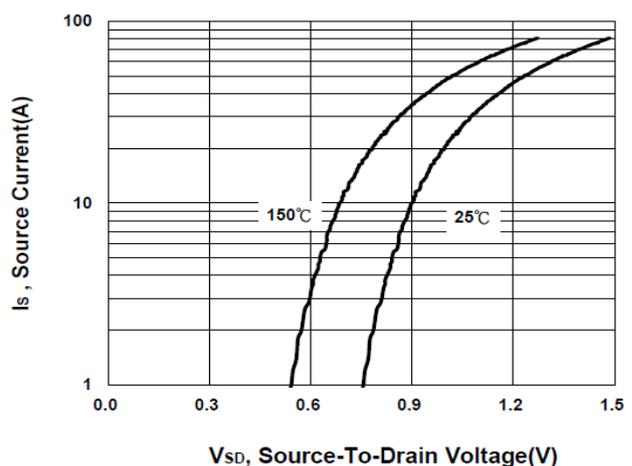
**Capacitance Characteristic**



**Gate charge Characteristics**



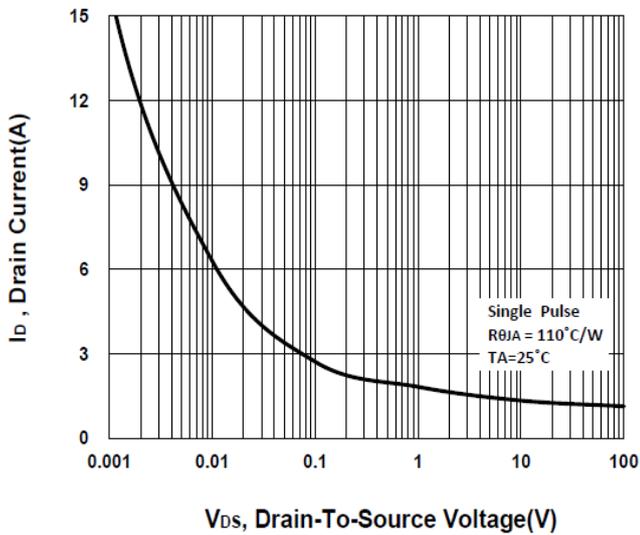
**Source-Drain Diode Forward Voltage**



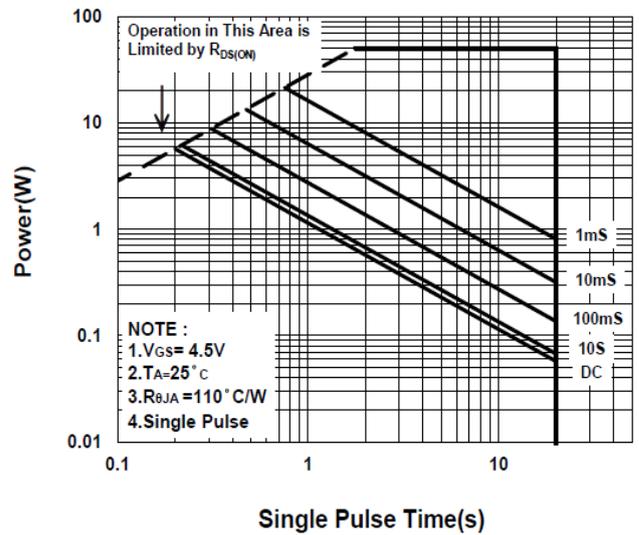
# P2202CM6

## N-Channel Enhancement Mode MOSFET

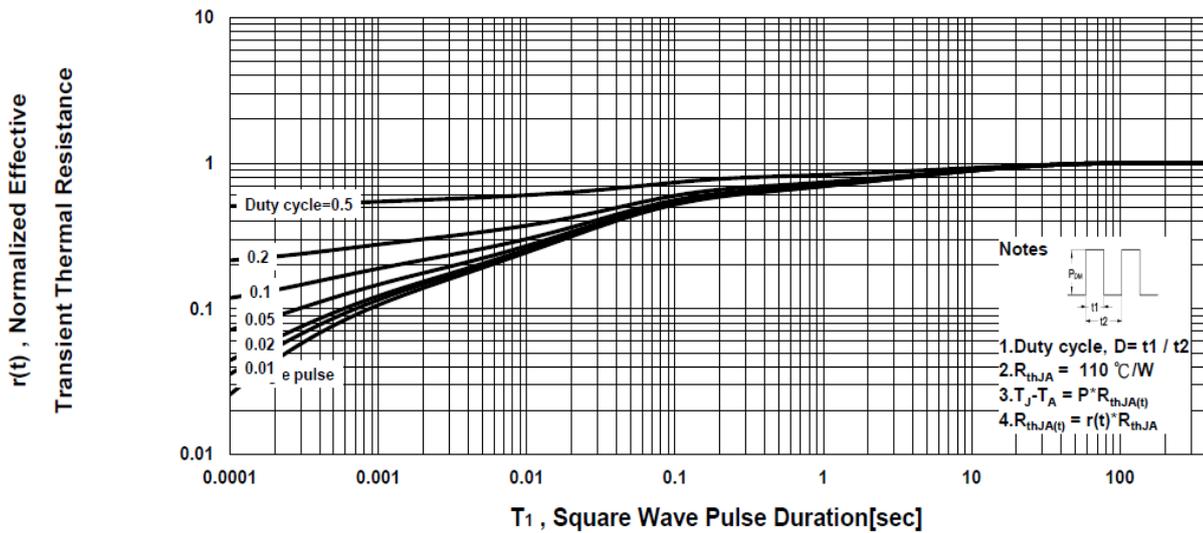
**Safe Operating Area**



**Single Pulse Maximum Power Dissipation**



**Transient Thermal Response Curve**



# P2202CM6

## N-Channel Enhancement Mode MOSFET

### Package Dimension

### SOT-23-6 MECHANICAL DATA

Dimension	mm			Dimension	mm		
	Min.	Typ.	Max.		Min.	Typ.	Max.
A	0.9	1.07	1.15	H	2.6	2.8	3.0
B	0.3	0.4	0.5	I	0		0.1
C	0.1	0.15	0.25				
D	2.8	2.9	3.1				
E	1.4	1.6	1.7				
F	1.8		2.0				
G	0.3	0.45	0.6				

