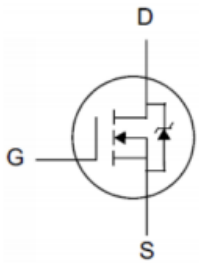
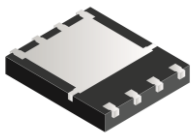
XTMT10N122L

100V N-Channel MOSFET

封装 **Package**





PDFN 5×6

Product Description

BV_{DSS}	100	V
I_D	120	A
$R_{DS(ON),Typ.}$	3.6	mΩ

General Features

- Advanced technology and cellular structure
- $R_{DS(ON),typ.}$=3.6mΩ@V_{GS}=10V
- Low Gate Charge Minimize Switching Loss
- Fast Recovery Body Diode

Applications

- Power management of uninterruptible power supply and inverter system

Device	Package	Marking
XTMT10N122L	PDFN5*6	XTMT10N122L

Absolute Maximum Ratings T_j=25℃

Symbol	Parameter	Value	Unit
V_{DSS}	Drain-to-Source Voltage	100	V
V_{GSS}	Gate-to-Source Voltage	±20	
I_D	Continuous Drain Current	120	A
I_{DM}	Pulsed Drain Current at V_{GS}=10V	480	
E_{AS}	Single Pulse Avalanche Energy	780	mJ
P_D	Power Dissipation	208	W
T_J& T_{STG}	Operating and Storage Temperature Range	-55 to 150	℃

Caution: Stresses greater than those listed in the “Absolute Maximum Ratings” may cause permanent damage to the device.

Thermal Characteristics

Symbol	Parameter	Value	Unit
$R_{\theta JC}$	Thermal Resistance, Junction-to-Case	0.6	℃/W
$R_{\theta JA}$	Thermal Resistance, Junction-to-Ambient	62.5	

Electrical Characteristics T_j=25℃

OFF Characteristics

Symbol	Parameter	Min	Typ	Max	Unit	Test Condition
BV_{DSS}	Drain-to-Source Breakdown Voltage	100	-	-	V	V_{GS}=0V, I_D=250uA
I_{DSS}	Drain-to-Source Leakage Current	-	-	1	uA	V_{DS}=100V, V_{GS}=0V,TJ=25℃
I_{GSS}	Gate-to-Source Leakage Current	-	-	±100	nA	V_{GS}=±20V, V_{DS}=0V

ON Characteristics

Symbol	Parameter	Min	Typ	Max	Unit	Test Condition
$R_{DS(ON)}$	Static Drain-to-Source On-Resistance	-	3.6	4.5	mΩ	V_{GS}=10V, I_D=50A
$V_{GS(TH)}$	Gate Threshold Voltage	2.0	-	4.0	V	V_{DS}=V_{GS}, I_D=250uA

Dynamic Characteristics

Symbol	Parameter	Min	Typ	Max	Unit	Test Condition
C_{iss}	Input Capacitance	-	7266	-	pF	V_{GS}=0V, V_{DS}=50V, f=1.0MHz
C_{rss}	Reverse Transfer Capacitance	-	24	-		
C_{oss}	Output Capacitance	-	864	-		
Q_g	Total Gate Charge	-	114	-	nC	V_{DD}=50V,I_D=20A, V_{GS}=10V
Q_{gs}	Gate-to-Source Charge	-	37	-		
Q_{gd}	Gate-to-Drain (Miller) Charge	-	26	-		

Resistive Switching Characteristics

Symbol	Parameter	Min	Typ	Max	Unit	Test Condition
$td_{(ON)}$	Turn-on Delay Time	-	32	-	nS	V_{DD}=50V,I_D=50A V_{GS}=10V,R_G=3.0Ω
t_{rise}	Rise Time	-	50	-		
$td_{(OFF)}$	Turn-Off Delay Time	-	83	-		
t_{fall}	Fall Time	-	31	-		

Source-Drain Body Diode Characteristics

Symbol	Parameter	Min	Typ	Max	Unit	Test Condition
I_{SD}	Continuous Source Current	-	-	120	A	Integral PN-diode in MOSFET
I_{SM}	Pulsed Source Current	-	-	480		
V_{SD}	Diode Forward Voltage	-	-	1.4	V	I_S=50A, V_{GS}=0V
t_{rr}	Reverse Recovery Time	-	77	-	ns	IF=50A, diF/dt=100A/μs
Q_{rr}	Reverse Recovery Charge	-	0.18	-	uC	

[1] Pulse width≤380μs; duty cycle≤2%

Typical Characteristics(Cont.)

图 1. 输出特性

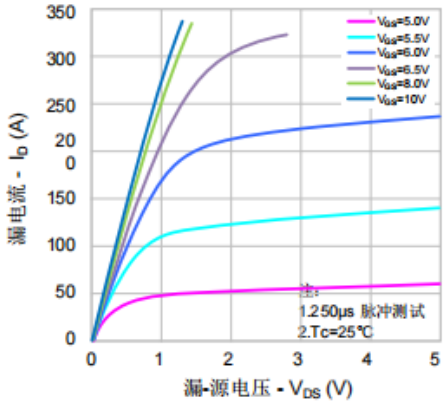


图 2. 传输特性

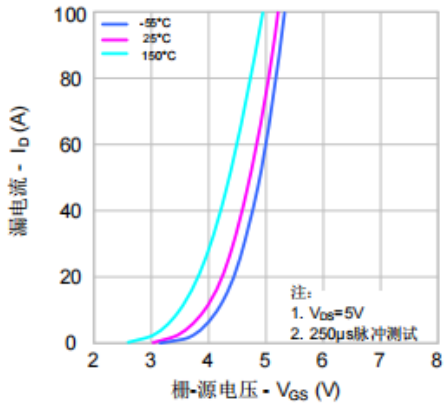


图 3. 导通电阻 vs. 漏电流

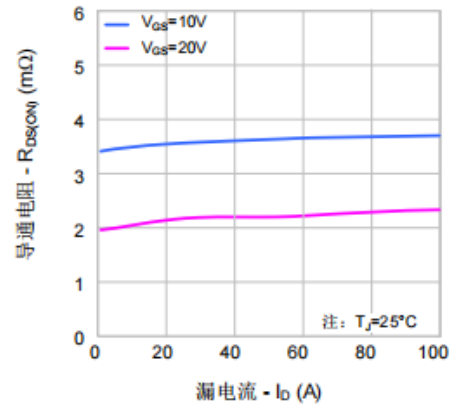


图 4. 体二极管正向压降 vs. 源电流和温度

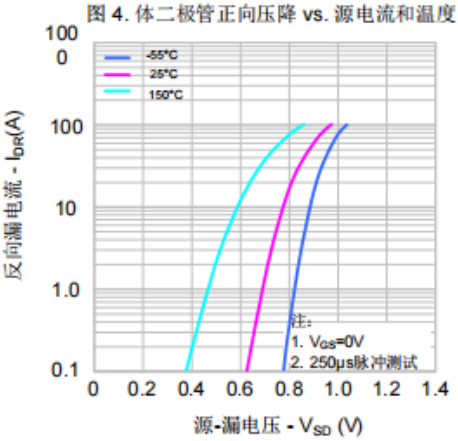


图 5. 电容特性

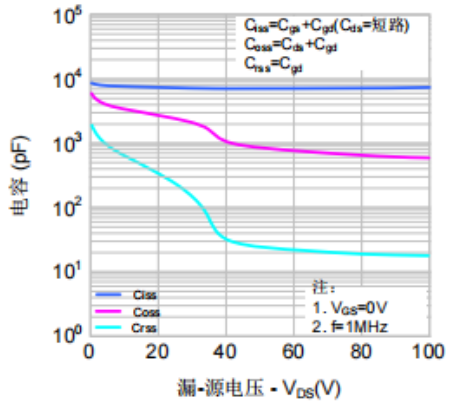
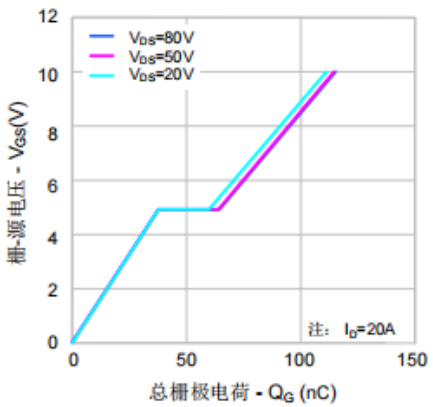
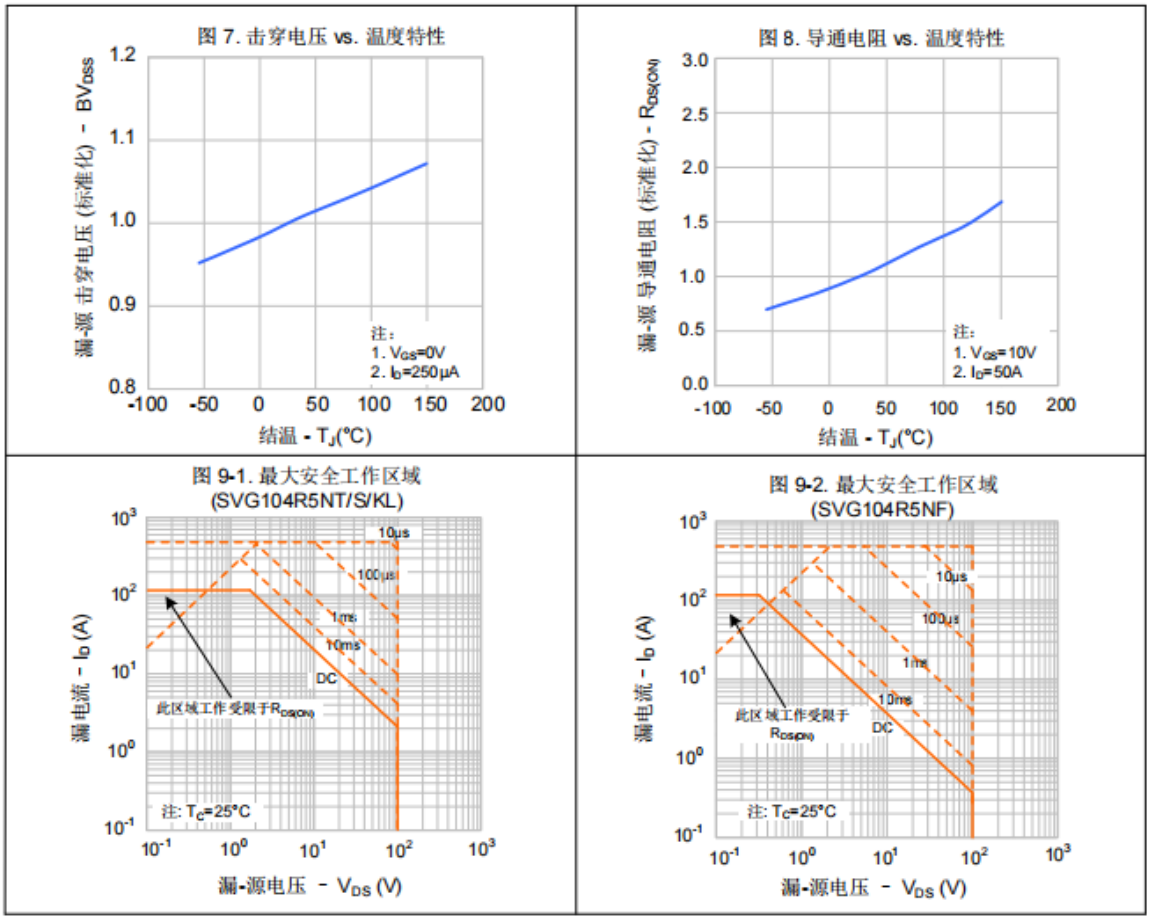


图 6. 栅极电荷特性

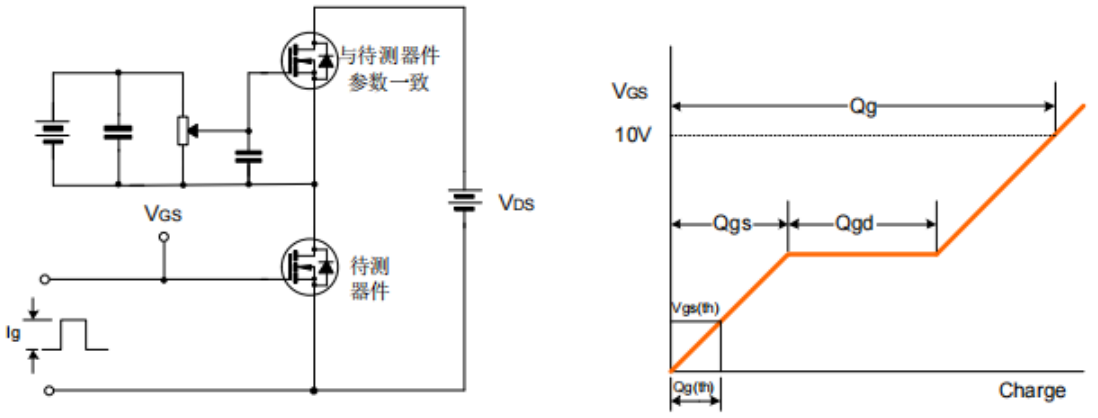


Typical Characteristics(Cont.)

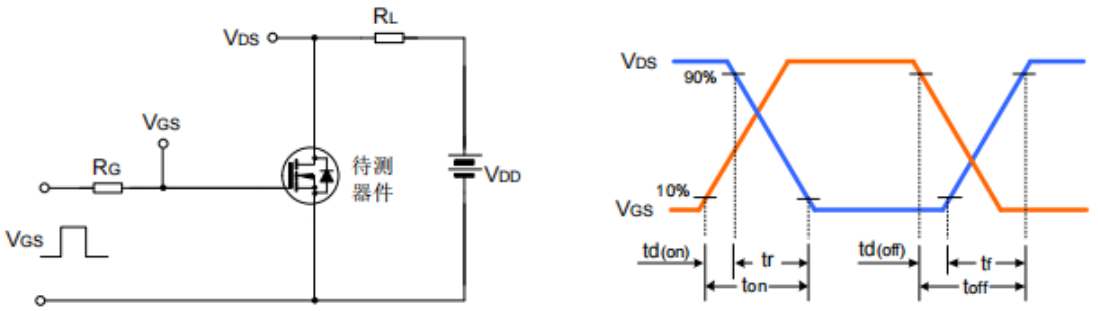


Test Circuits and Waveforms

栅极电荷量测试电路及波形图



开关时间测试电路及波形图



EAS测试电路及波形图