Elektronische Bauelemente

SSPR23N10-C

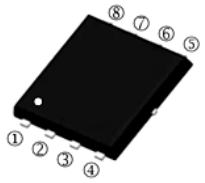
30A, 100V, $R_{DS(ON)}$ 40mΩ
N-Channel Enhancement Mode Power MOSFET

RoHS Compliant Product
A suffix of "-C" specifies halogen & lead-free

DESCRIPTION

The SSPR23N10-C uses advanced trench technology to provide excellent $R_{DS(ON)}$, low gate charge and operation with gate voltages as low as 4.5V. This device is suitable for use as a Battery protection or in other Switching application.

SPR-8PP

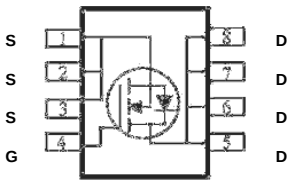


APPLICATION

- Automotive lighting
- Load switch
- Uninterruptible power supply

PACKAGE INFORMATION

Package	MPQ	Leader Size
SPR-8PP	3K	13 inch



ORDER INFORMATION

Part Number	Type
SSPR23N10-C	Lead (Pb)-free and Halogen-free

ABSOLUTE MAXIMUM RATINGS (T_C=25℃ unless otherwise specified)

Parameter		Symbol	Ratings	Unit
Drain-Source Voltage		V_{DS}	100	V
Gate-Source Voltage		V_{GS}	±20	V
Continuous Drain Current @V_{GS}=10V	T_C=25℃	I_D	23	A
	T_C=100℃		14	
Pulsed Drain Current [1]		I_{DM}	90	A
Power Dissipation	T_C=25℃	P_D	34.7	W
Operating Junction & Storage Temperature Range		T_J, T_{STG}	-55~150	℃
Thermal Resistance Ratings				
Maximum Thermal Resistance Junction-Ambient		$R_{\theta JA}$	85	℃/W
Maximum Thermal Resistance Junction-Case		$R_{\theta JC}$	3.6	

ELECTRICAL CHARACTERISTICS (T_J=25℃ unless otherwise specified)

Parameter	Symbol	Min.	Typ.	Max.	Unit	Test Conditions
Drain-Source Breakdown Voltage	BV_{DSS}	100	-	-	V	V_{GS}=0V, I_D=250μA
Gate-Threshold Voltage	$V_{GS(th)}$	1	1.5	2.2	V	V_{DS}=V_{GS}, I_D=250μA
Gate to Body Leakage Current	I_{GSS}	-	-	±100	nA	V_{GS}=±20V, V_{DS}=0V
Zero Gate Voltage Drain Current	I_{DSS}	-	-	1	μA	V_{DS}=100V, V_{GS}=0V
Static Drain-Source On-Resistance	$R_{DS(ON)}$	-	33	40	mΩ	V_{GS}=10V, I_D=10A
		-	37	55		V_{GS}=4.5V, I_D=6A
Total Gate Charge	Q_g	-	20	-	nC	V_{DS}=80V V_{GS}=4.5V I_D=20A
Gate-Source Charge	Q_{gs}	-	3.1	-		
Gate-Drain Change	Q_{gd}	-	14	-		
Turn-on Delay Time	$T_{d(on)}$	-	11	-	nS	V_{DS}=80V V_{GS}=4.5V I_D=20A R_G=3.1Ω
Rise Time	T_r	-	91	-		
Turn-off Delay Time	$T_{d(off)}$	-	40	-		
Fall Time	T_f	-	71	-		
Input Capacitance	C_{iss}	-	1964	-	pF	V_{DS}=25V V_{GS}=0V f=1MHz
Output Capacitance	C_{oss}	-	90	-		
Reverse Transfer Capacitance	C_{rss}	-	74	-		
Source-Drain Diode						
Continuous Source Current	I_S	-	-	30	A	
Pulsed Source Current	I_{SM}	-	-	80		
Diode Forward Voltage	V_{SD}	-	-	1.2	V	I_S=20A, V_{GS}=0V
Body Diode Reverse Recovery Time	t_{rr}	-	64	-	nS	I_F=20A, dI/dt=100A/μs
Body Diode Reverse Recovery Charge	Q_{rr}	-	152	-	nC	

Notes:

1. The data tested by surface mounted on a 1 inch^2 FR-4 board with 2oz copper.
2. The data tested by pulsed , pulse width≦300μs , duty cycle≦2%
3. The power dissipation is limited by 150℃ juncti on temperature.
4. The data is theoretically the same as I_D and I_{DM}, in real applications, should be limited by total power dissipation.

TYPICAL CHARACTERISTICS

Fig.1 Output Characteristics

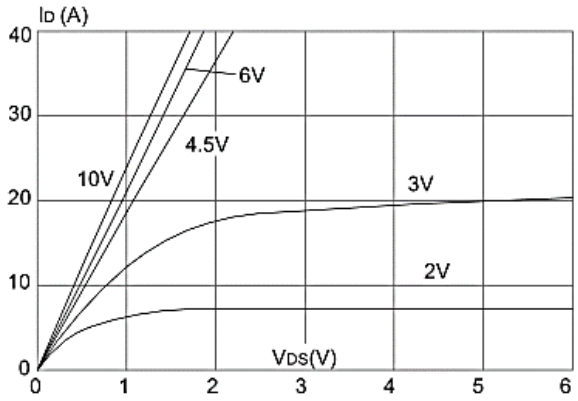


Fig.2 Typical Transfer Characteristics

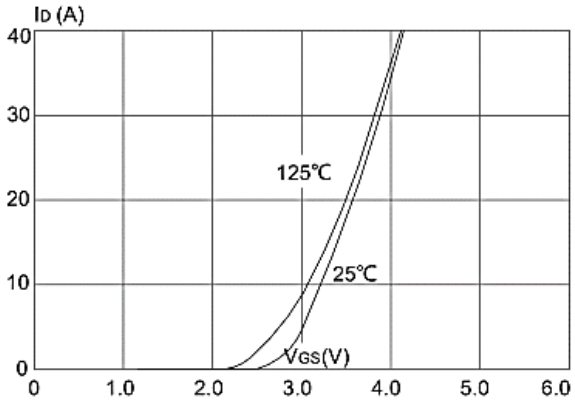


Fig.3 On-resistance vs. Drain Current

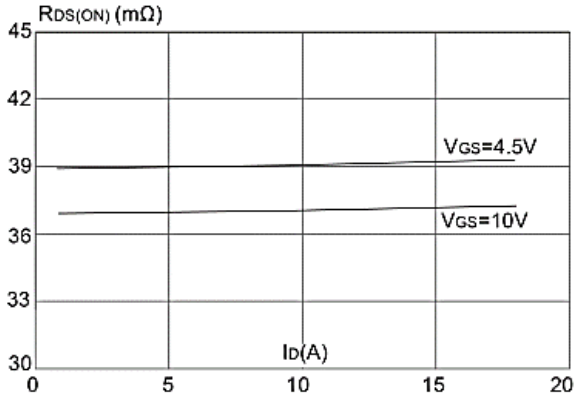


Fig.4 Body Diode Characteristics

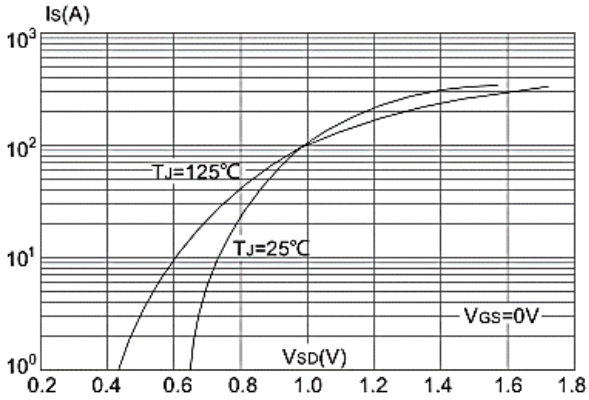


Fig.5 Gate Charge Characteristics

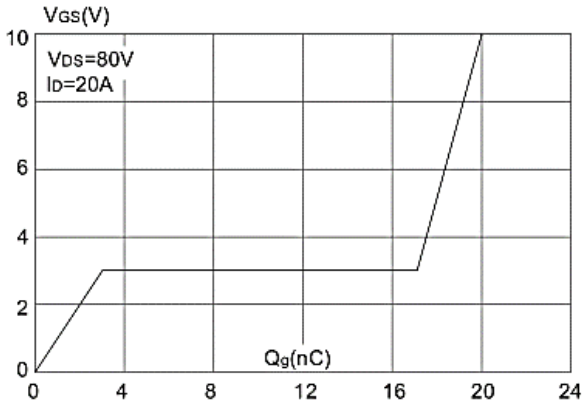
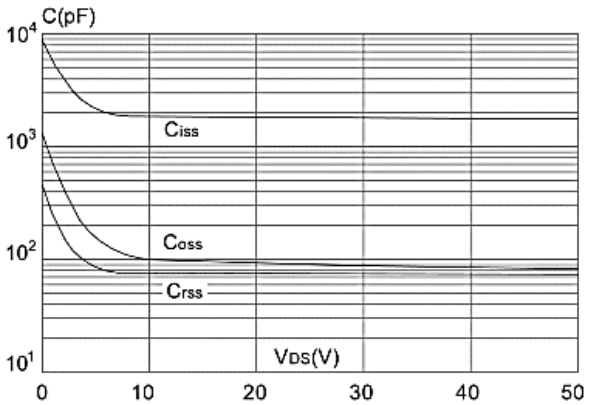


Fig.6 Capacitance Characteristics



TYPICAL CHARACTERISTICS

Fig.7 Normalized Breakdown Voltage vs. Junction Temperature

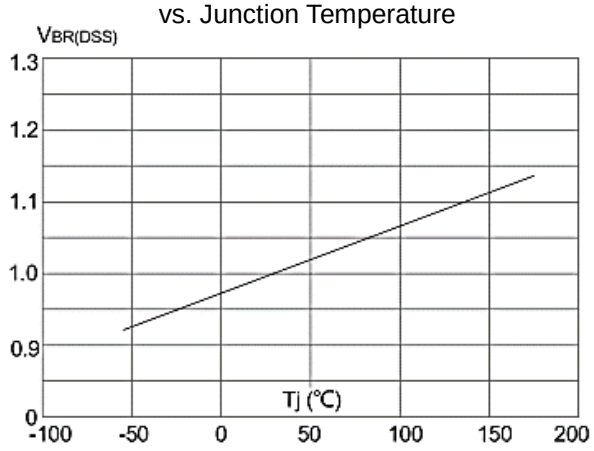


Fig.8 Normalized on Resistance vs. Junction Temperature

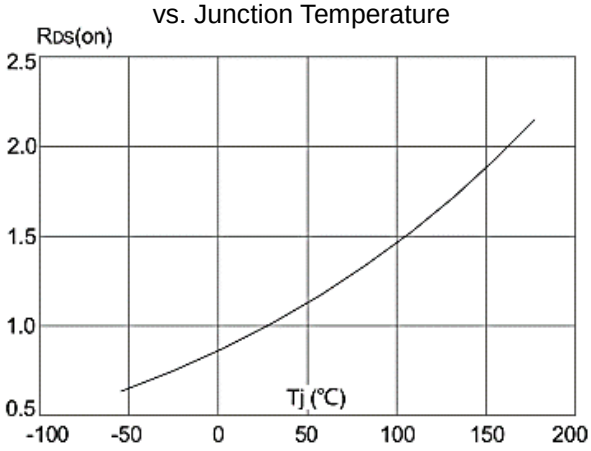


Fig.9 Maximum Safe Operating Area vs. Case Temperature

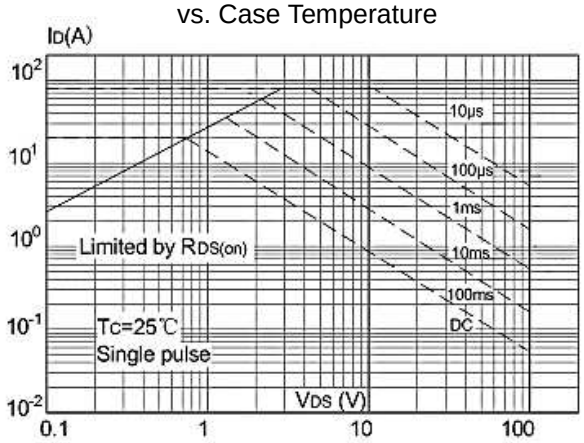


Fig.10 Maximum Continuous Drain Current

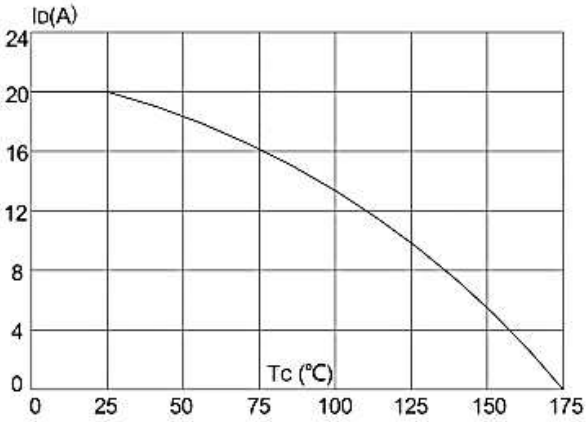
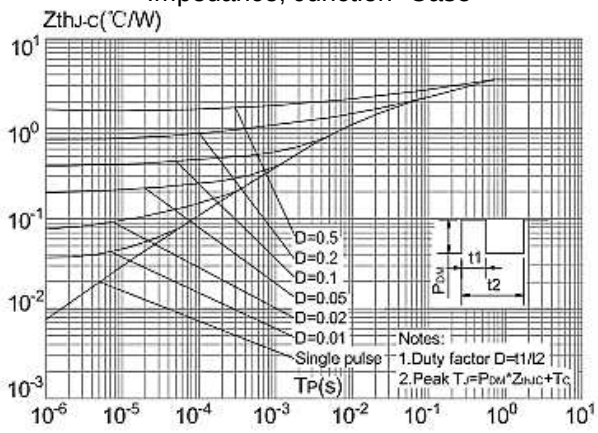
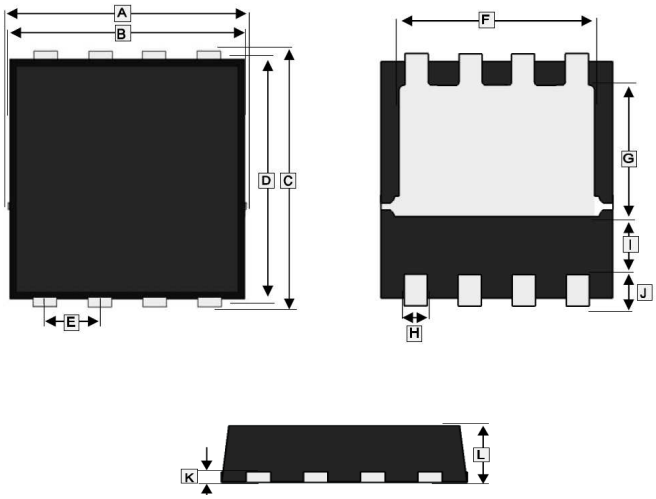


Fig.11 Maximum Effective Transient Thermal Impedance, Junction -Case



PACKAGE OUTLINE DIMENSIONS

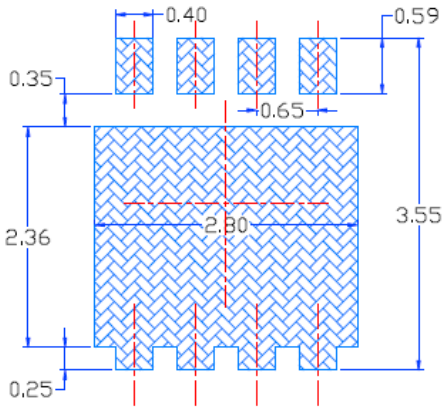
SPR-8PP



REF.	Millimeter	
	Min.	Max.
A	3.00	3.40
B	3.00	3.25
C	3.15	3.45
D	2.90	3.20
E	0.65 BSC.	
F	2.30	2.60
G	1.35	1.98
H	0.20	0.40
I	0.57	0.87
J	0.30	0.50
K	0.10	0.25
L	0.60	0.90

MOUNTING PAD LAYOUT

SPR-8PP



*Dimensions in millimeters