Elektronische Bauelemente

SPR63N12SV-C

63A, 120V, $R_{DS(ON)}$ 12.5mΩ

N-Channel Shielded Gate Trench Power MOSFET

RoHS Compliant Product

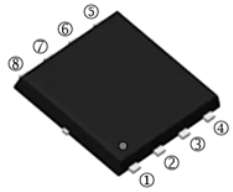
A suffix of "-C" specifies halogen & lead-free

DESCRIPTION

The SPR63N12SV-C is the Shielded Gate Technology N-Ch MOSFETs with extreme high cell density, which provide excellent $R_{DS(ON)}$ and gate charge for most of the synchronous buck converter applications.

The SPR63N12SV-C meet the RoHS and Green Product requirement with full function reliability approved.

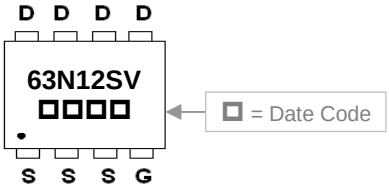
PR-8PP



FEATURES

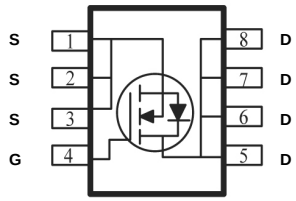
- Shielded Gate Trench Technology
- Super Low Gate Charge
- Green Device Available

MARKING



PACKAGE INFORMATION

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



ORDER INFORMATION

Part Number	Type
SPR63N12SV-C	Lead (Pb)-free and Halogen-free

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

Parameter		Symbol	Ratings	Unit
Drain-Source Voltage		V_{DS}	120	V
Gate-Source Voltage		V_{GS}	±20	V
Continuous Drain Current [1] @V_{GS}=10V	T_C=25℃	I_D	63	A
	T_C=100℃		40	
Pulsed Drain Current [2]		I_{DM}	180	A
Power Dissipation [3]	T_C=25℃	P_D	96	W
Operating Junction & Storage Temperature		T_J, T_{STG}	-55~150	℃
Thermal Resistance Ratings				
Thermal Resistance Junction-Ambient [1]		$R_{\theta JA}$	50	℃/W
Thermal Resistance Junction-Case [1]		$R_{\theta JC}$	1.3	

ELECTRICAL CHARACTERISTICS (T_J=25℃ unless otherwise specified)

Parameter		Symbol	Min.	Typ.	Max.	Unit	Test Conditions
Drain-Source Breakdown Voltage		$V_{(BR)DSS}$	120	-	-	V	V_{GS}=0V, I_D=250μA
Gate-Threshold Voltage		$V_{GS(th)}$	2	3	4	V	V_{DS}=V_{GS}, I_D=250μA
Forward Transfer conductance		g_{fs}	-	55	-	S	V_{DS}=5V, I_D=20A
Gate-Source Leakage Current		I_{GSS}	-	-	±100	nA	V_{GS}= ±20V
Drain-Source Leakage Current	T_J=25℃	I_{DSS}	-	-	1	μA	V_{DS}=96V, V_{GS}=0
	T_J=100℃		-	-	100		
Static Drain-Source On-Resistance [2]		$R_{DS(ON)}$	-	10.5	12.5	mΩ	V_{GS}=10V, I_D=20A
Total Gate Charge		Q_g	-	26	-	nC	V_{DD}=60V I_D=20A V_{GS}=10V
Gate-Source Charge		Q_{gs}	-	9	-		
Gate-Drain (“Miller”) Change		Q_{gd}	-	3.5	-		
Turn-on Delay Time		$T_{d(on)}$	-	9	-	nS	V_{DD}=60V I_D=20A V_{GS}=10V R_G=10Ω
Rise Time		T_r	-	9	-		
Turn-off Delay Time		$T_{d(off)}$	-	15	-		
Fall Time		T_f	-	10	-		
Input Capacitance		C_{iss}	-	1986	-	pF	V_{GS}=0 V_{DS}=60V f=1MHz
Output Capacitance		C_{oss}	-	230	-		
Reverse Transfer Capacitance		C_{rss}	-	8.6	-		
Source-Drain Diode							
Diode Forward Voltage [2]		V_{SD}	-	-	1.2	V	I_S=20A, V_{GS}=0
Continuous Source Current [1]		I_S	-	-	63	A	V_G=V_D=0, Force Current
Reverse Recovery Time		T_{rr}	-	50	-	nS	V_R=60V, I_F=20A,dI/dt=100A/μs
Reverse Recovery Charge		Q_{rr}	-	100	-	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℃, junct ion temperature.

CHARACTERISTIC CURVES

Fig 1. Typical Output Characteristics

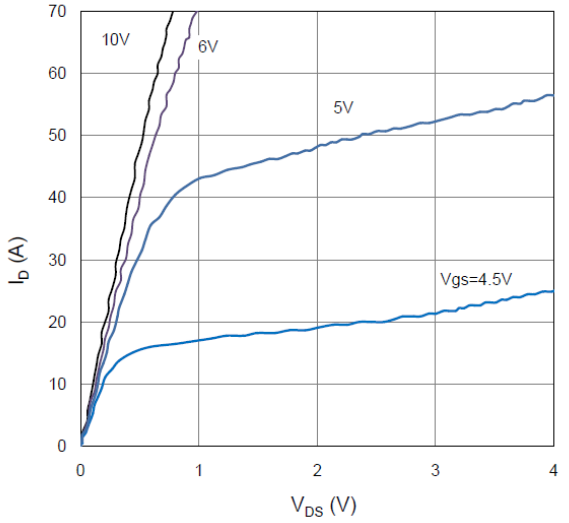


Figure 2. On-Resistance vs. Gate-Source Voltage

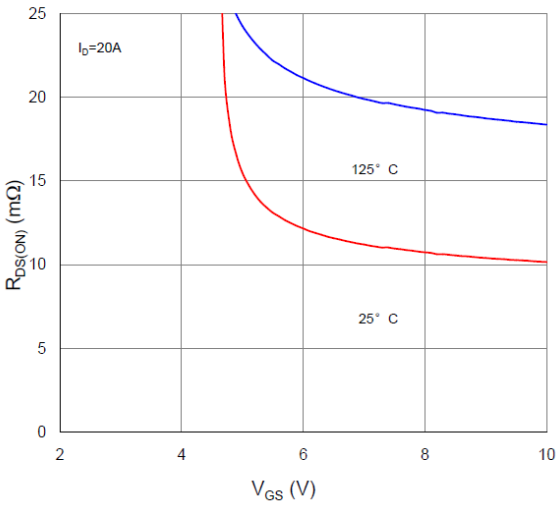


Figure 3. On-Resistance vs. Drain Current and Gate Voltage

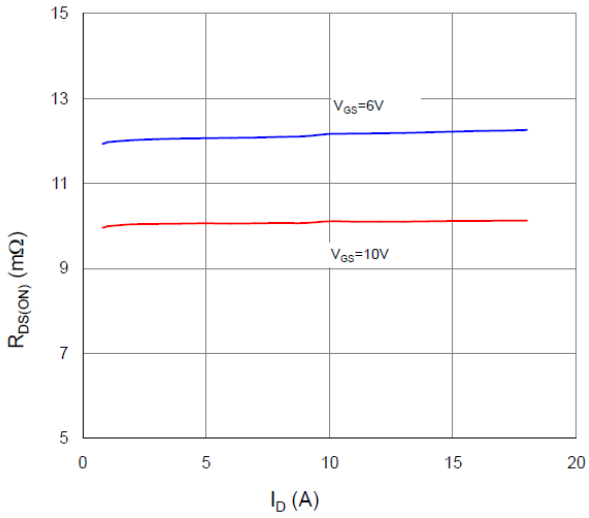


Figure 4. Normalized On-Resistance vs. Junction Temperature

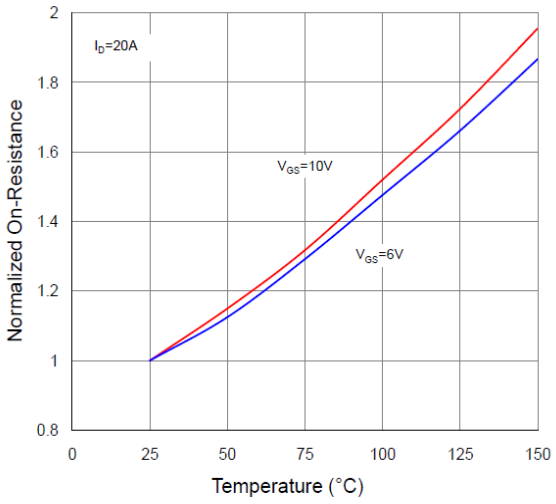


Figure 5. Typical Transfer Characteristics

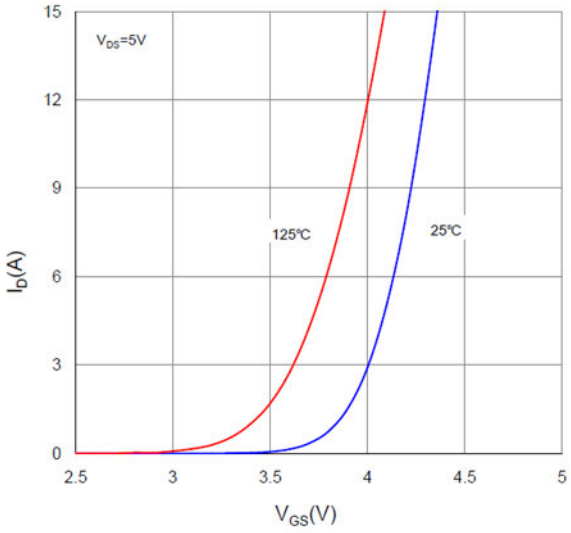
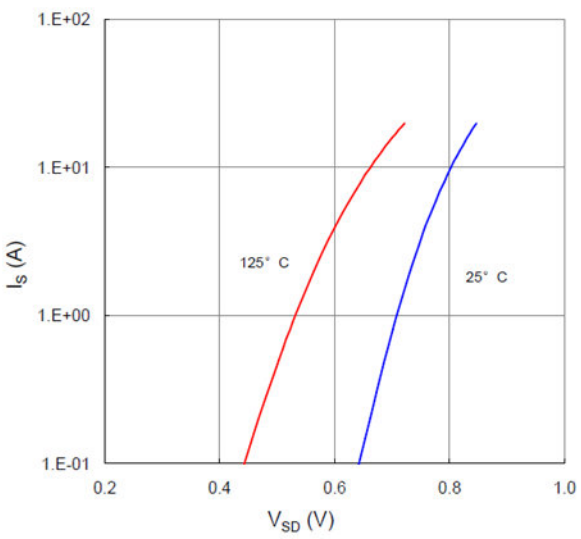


Figure 6. Typical Source-Drain Diode Forward Voltage



CHARACTERISTIC CURVES

Figure 7. Typical Gate-Charge vs. Gate-to-Source Voltage

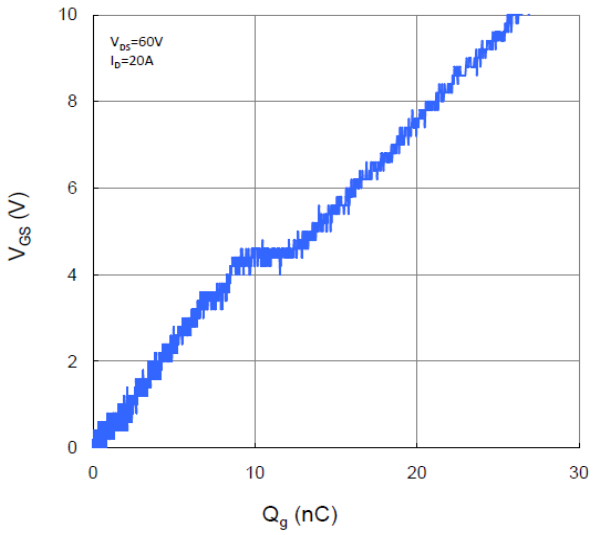


Figure 8. Typical Capacitance vs. Drain-to-Source Voltage

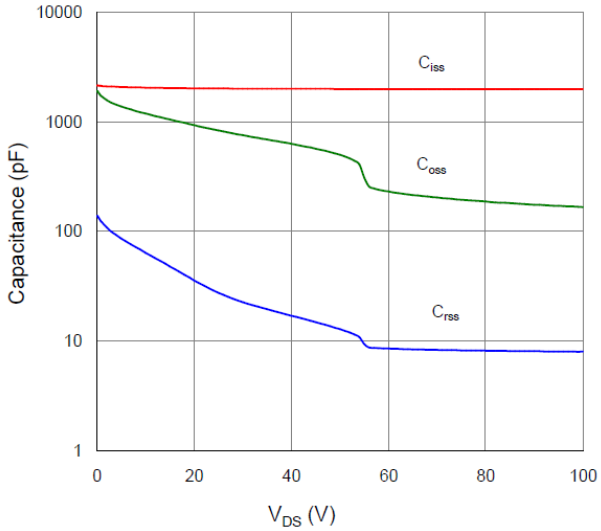


Figure 9. Maximum Safe Operating Area

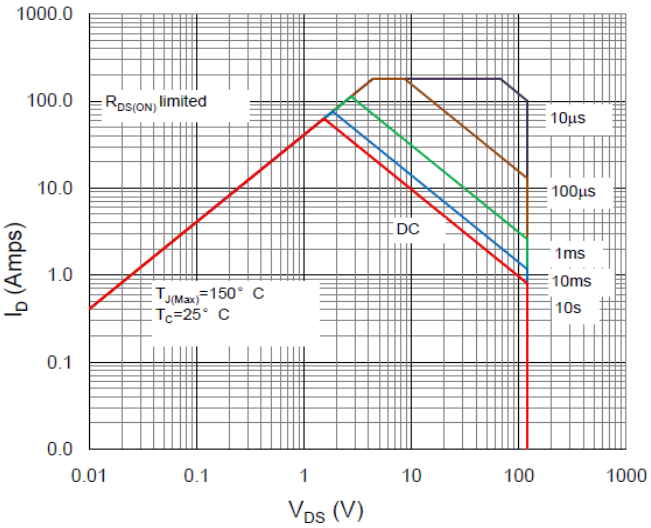


Figure 10. Maximun Drain Current vs. Case Temperature

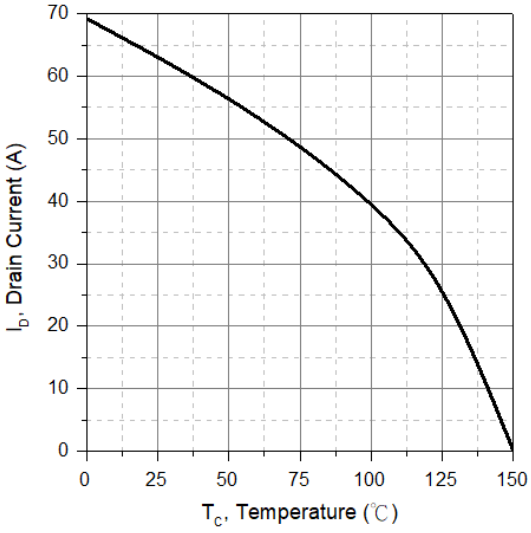
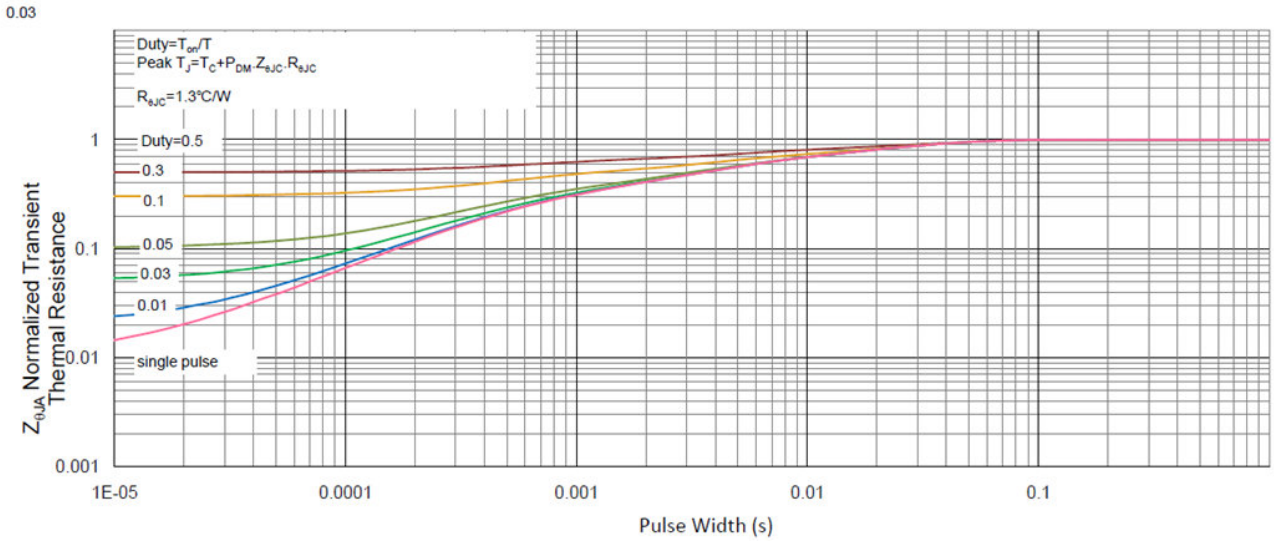
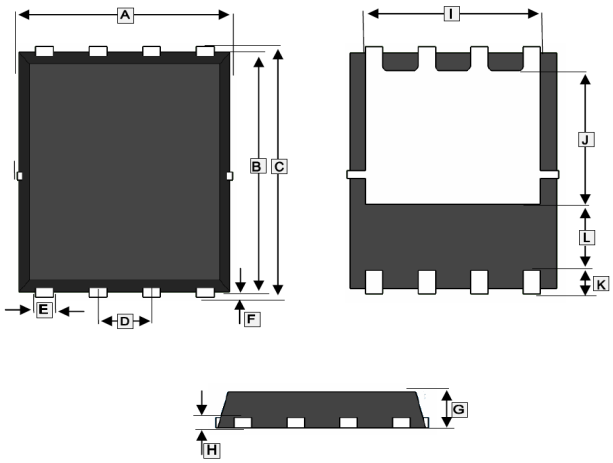


Figure 11. Normalized Maximum Transient Thermal Impedance, Junction-to-Ambient



PACKAGE OUTLINE DIMENSIONS

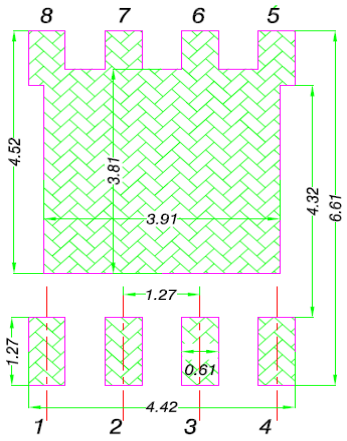
PR-8PP



REF.	Millimeter	
	Min.	Max.
A	4.90	5.10
B	5.70	5.90
C	5.90	6.20
D	1.27 BSC.	
E	0.33	0.51
F	0.06	0.20
G	0.80	1.10
H	0.254 REF.	
I	4.00 REF.	
J	3.40 REF.	
K	0.60 REF.	
L	1.40 REF.	

MOUNTING PAD LAYOUT

PR-8PP



*Dimensions in millimeters