Elektronische Bauelemente

SPR162N06SV-C

162A, 60V, $R_{DS(ON)}$ 2.7mΩ

N-Channel Shielded Gate Trench Power MOSFET

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

DESCRIPTION

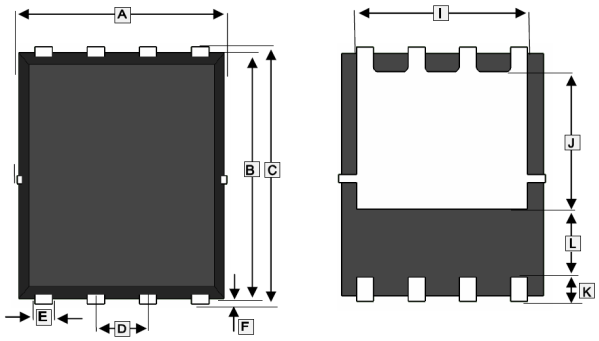
The SPR162N06SV-C is the Shielded Gate Technology N-ch MOSFETs with extreme high cell density, which provide excellent $R_{DS(ON)}$ and gate charge for most of the synchronous rectification applications.

The SPR162N06SV-C meet the RoHS and Green Product requirement with full function reliability approved.

FEATURES

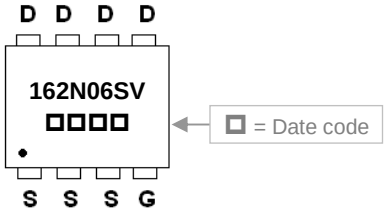
- Shielded Gate Trench Technology
- Green Device Available
- Super Low Gate Charge

PR-8PP



REF.	Millimeter		REF.	Millimeter	
	Min.	Max.		Min.	Max.
A	4.90	5.10	G	0.80	1.00
B	5.70	5.90	H	0.254 REF.	
C	5.95	6.20	I	4.00 REF.	
D	1.27 BSC.		J	3.40 REF.	
E	0.35	0.49	K	0.60 REF.	
F	0.10	0.20	L	1.40 REF.	

MARKING

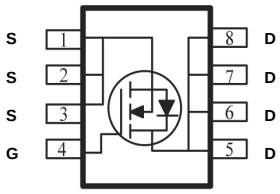


PACKAGE INFORMATION

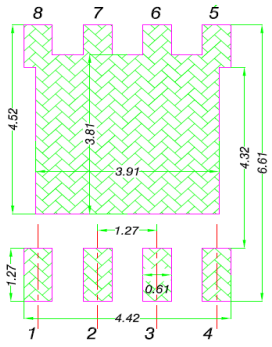
Package	MPQ	Leader Size
PR-8PP	3K	13 inch

ORDER INFORMATION

Part Number	Type
SPR162N06SV-C	Lead (Pb)-free and Halogen-free



Mounting Pad Layout



*Dimensions in millimeters

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

Parameter		Symbol	Rating	Unit
Drain-Source Voltage		V_{DS}	60	V
Gate-Source Voltage		V_{GS}	±20	V
Continuous Drain Current [1] @V_{GS}=10V	T_C=25℃	I_D	162	A
	T_C=100℃		102	
Pulsed Drain Current [2]		I_{DM}	650	A
Total Power Dissipation	T_C=25℃	P_D	119	W
Operating Junction & Storage Temperature Range		T_J, T_{STG}	-55~150	℃
Thermal Data				
Thermal Resistance Junction-Ambient [1]		$R_{\theta JA}$	50	℃/W
Thermal Resistance Junction-Case [1]		$R_{\theta JC}$	1.05	

ELECTRICAL CHARACTERISTICS (T_J=25℃ unless otherwise specified)

Parameter		Symbol	Min.	Typ.	Max.	Unit	Test Conditions
Drain-Source Breakdown Voltage		BV_{DSS}	60	-	-	V	V_{GS}=0V, I_D=250μA
Gate-Threshold Voltage		$V_{GS(th)}$	2	-	4	V	V_{DS}=V_{GS}, I_D=250μA
Forward Transfer conductance		g_{fs}	-	70	-	S	V_{DS}=5V, I_D=20A
Gate-Source Leakage Current		I_{GSS}	-	-	±100	nA	V_{GS}= ±20V, V_{DS}=0V
Drain-Source Leakage Current	T_J=25℃	I_{DSS}	-	-	1	μA	V_{DS}=48V, V_{GS}=0V
	T_J=55℃		-	-	100		
Static Drain-Source On-Resistance [3]		$R_{DS(ON)}$	-	2.2	2.7	mΩ	V_{GS}=10V, I_D=20A
Gate Resistance		R_g	-	0.5	-	Ω	f=1MHz
Total Gate Charge		Q_g	-	92	-	nC	I_D=20A V_{DD}=30V V_{GS}=10V
Gate-Source Charge		Q_{gs}	-	22	-		
Gate-Drain Change		Q_{gd}	-	22	-		
Turn-on Delay Time		$T_{d(on)}$	-	21	-	nS	V_{DD}=30V I_D=20A V_{GS}=10V R_G=10Ω
Rise Time		T_r	-	13	-		
Turn-off Delay Time		$T_{d(off)}$	-	34	-		
Fall Time		T_f	-	8	-		
Input Capacitance		C_{iss}	-	5297	-	pF	V_{GS}=0V V_{DS}=30V f=1MHz
Output Capacitance		C_{oss}	-	1849	-		
Reverse Transfer Capacitance		C_{rss}	-	125	-		
Source-Drain Diode							
Diode Forward Voltage [3]		V_{SD}	-	0.9	1.2	V	I_F=20A, V_{GS}=0V
Reverse Recovery Time		T_{rr}	-	56	-	nS	I_F=20A, V_R=30V, dI_F/dt=100A/μs
Reverse Recovery Charge		Q_{rr}	-	67	-	nC	

Notes:
1. Surface mounted on a 1 inch^2 FR-4 board with 2oz copper.
2. The Pulse width limited by maximum junction temperature, Pulse Width≤300μs, Duty Cycle≤2%.
3. The Pulse Test: Pulse Width≤300μs, Duty Cycle≤2%.

CHARACTERISTIC CURVES

Fig 1. Typical Output Characteristics

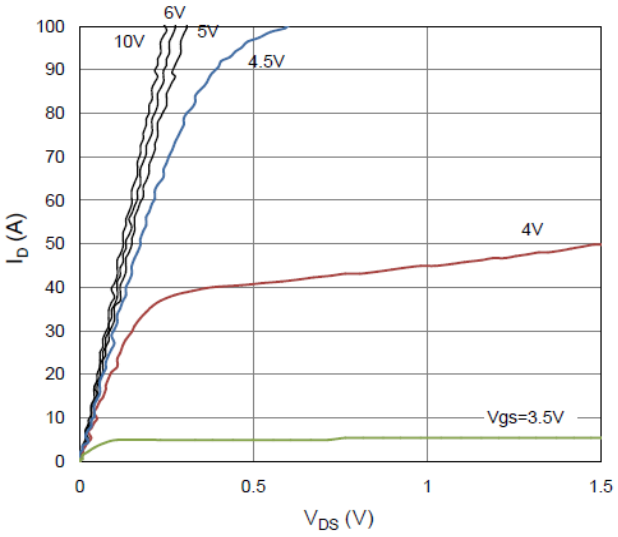


Figure 2. On-Resistance vs. Gate-Source Voltage

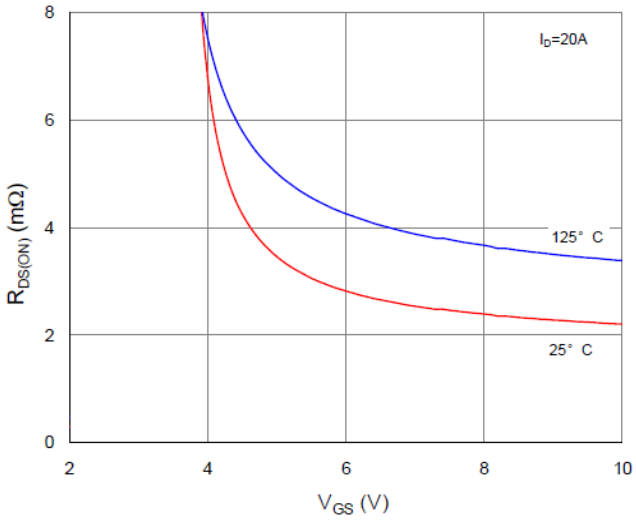


Figure 3. On-Resistance vs. Drain Current and Gate Voltage

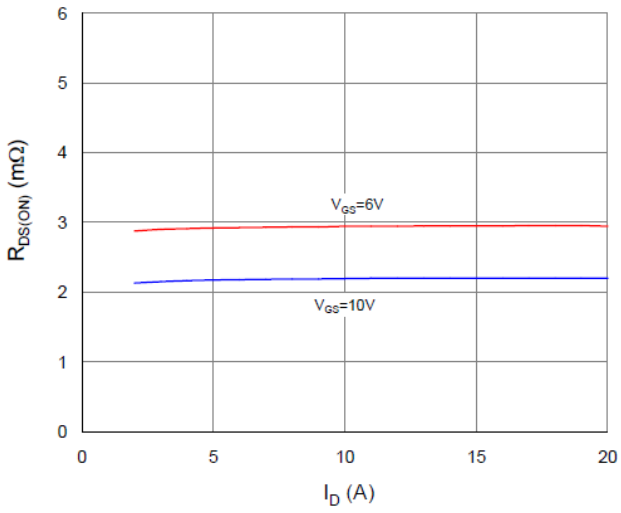


Figure 4. Normalized On-Resistance vs. Junction Temperature

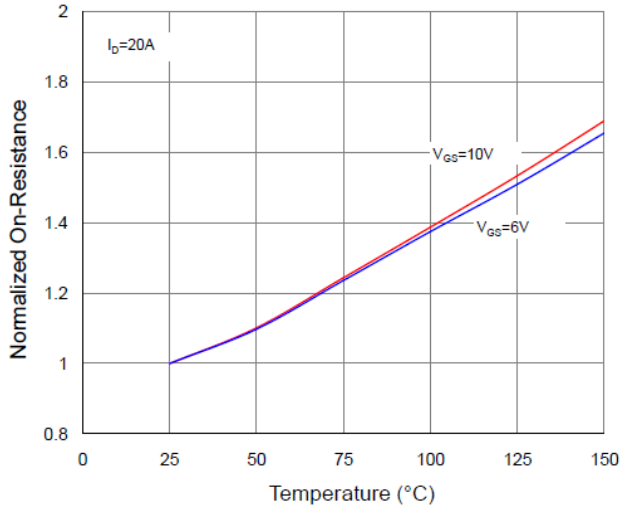


Figure 5. Typical Transfer Characteristics

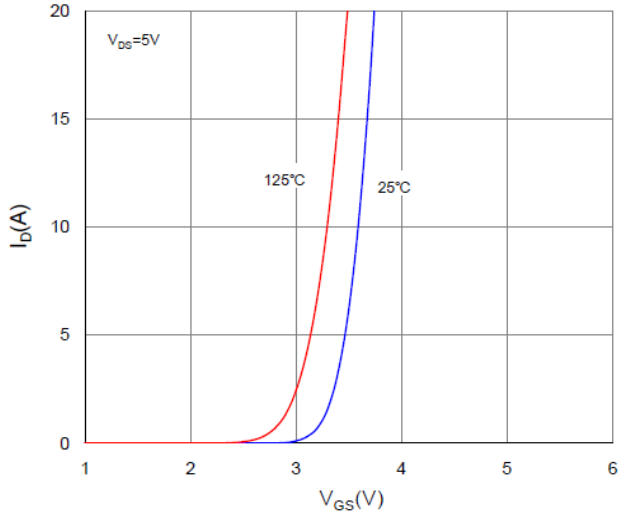
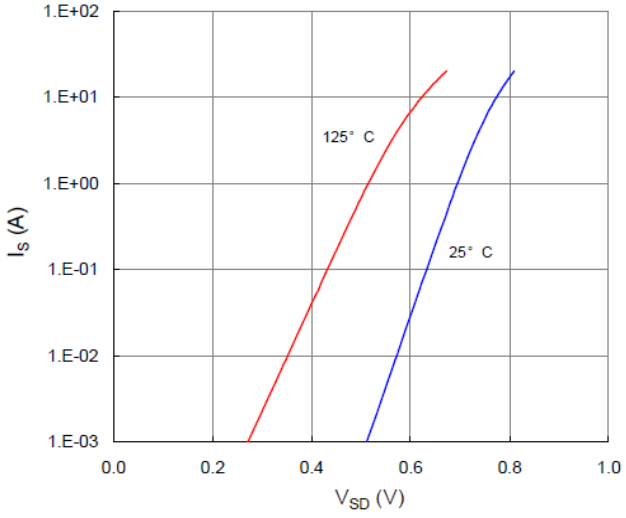


Figure 6. Typical Source-Drain Diode Forward Voltage



CHARACTERISTIC CURVES

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

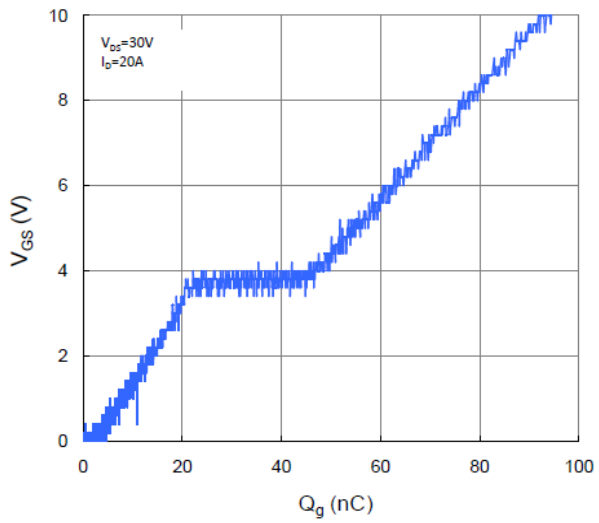


Figure 8. Typical Capacitance vs. Drain-to-Source Voltage

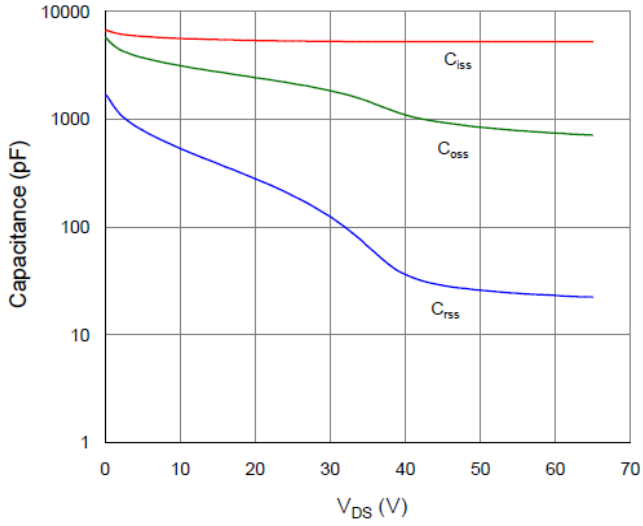


Figure 9. Maximum Safe Operating Area

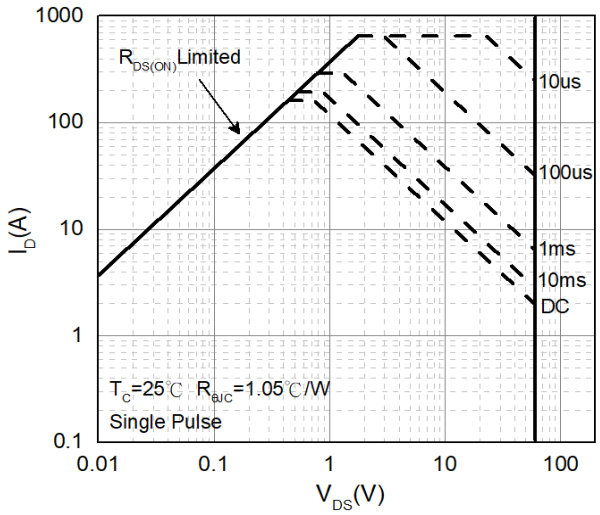


Figure 10. Maximun Drain Current vs. Case Temperature

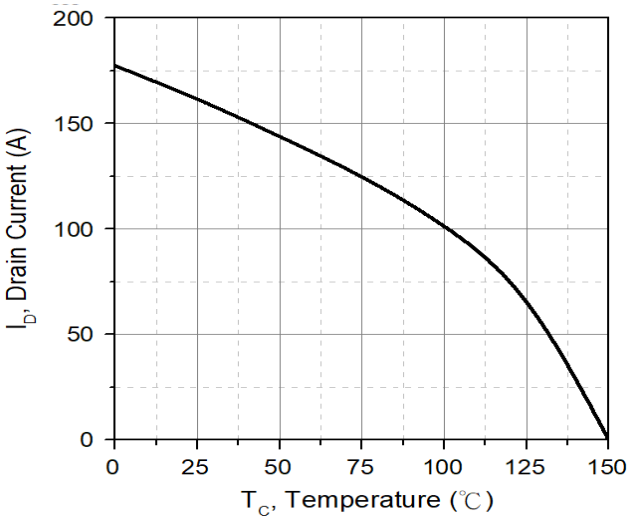


Figure 11. Normalized Maximum Transient Thermal Impedance, Junction-to-Case