Elektronische Bauelemente

SPR60N15SV-C

60A, 150V, $R_{DS(ON)}$ 19.5mΩ

N-Channel Shielded Gate Trench Power MOSFET

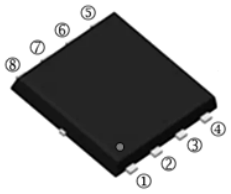
RoHS Compliant Product
A suffix of "-C" specifies halogen & lead-free

DESCRIPTION

The SPR60N15SV-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 SPR60N15SV-C meet the RoHS and Green Product requirement with full function reliability approved.

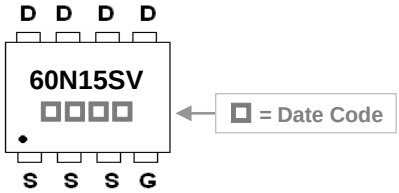
PR-8PP



FEATURES

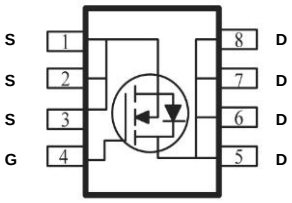
- Shielded Gate Trench Technology
- Super Low Gate Charge
- Green Device Available

MARKING



PACKAGE INFORMATION

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



ORDER INFORMATION

Part Number	Type
SPR60N15SV-C	Lead (Pb)-free and Halogen-free

ABSOLUTE MAXIMUM RATINGS (T_J=25°C unless otherwise specified)

Parameter		Symbol	Ratings	Unit
Drain-Source Voltage		V_{DS}	150	V
Gate-Source Voltage		V_{GS}	±20	V
Continuous Drain Current [1] @V_{GS}=10V	T_C=25°C	I_D	60	A
	T_C=100°C		38	
Pulsed Drain Current [2]		I_{DM}	120	A
Power Dissipation	T_C=25°C	P_D	96	W
Operating Junction & Storage Temperature Range		T_J, T_{STG}	-55~150	°C
Thermal Resistance Ratings				
Thermal Resistance Junction-Ambient [1]		$R_{\theta JA}$	55	°C/W
Thermal Resistance Junction-Case [1]		$R_{\theta JC}$	1.3	

ELECTRICAL CHARACTERISTICS (T_J=25°C unless otherwise specified)

Parameter		Symbol	Min.	Typ.	Max.	Unit	Test Conditions
Drain-Source Breakdown Voltage		$V_{(BR)DSS}$	150	-	-	V	V_{GS}=0V, I_D=250μA
Gate-Threshold Voltage		$V_{GS(th)}$	2	-	4	V	V_{DS}=V_{GS}, I_D=250μA
Gate-Source Leakage Current		I_{GSS}	-	-	±100	nA	V_{GS}=±20V
Drain-Source Leakage Current	T_J=25°C	I_{DSS}	-	-	1	μA	V_{DS}=120V, V_{GS}=0V
	T_J=55°C		-	-	100		
Static Drain-Source On-Resistance [3]		$R_{DS(ON)}$	-	17	19.5	mΩ	V_{GS}=10V, I_D=20A
Total Gate Charge		Q_g	-	25	-	nC	I_D=20A V_{DD}=75V V_{GS}=10V
Gate-Source Charge		Q_{gs}	-	9	-		
Gate-Drain Change		Q_{gd}	-	3	-		
Turn-on Delay Time		$T_{d(on)}$	-	9	-	nS	V_{DD}=75V I_D=20A V_{GS}=10V R_G=10Ω
Rise Time		T_r	-	8	-		
Turn-off Delay Time		$T_{d(off)}$	-	15	-		
Fall Time		T_f	-	9	-		
Input Capacitance		C_{iss}	-	1960	-	pF	V_{GS}=0V V_{DS}=75V f=1MHz
Output Capacitance		C_{oss}	-	130	-		
Reverse Transfer Capacitance		C_{rss}	-	8	-		
Source-Drain Diode							
Diode Forward Voltage [3]		V_{SD}	-	-	1.2	V	I_F=15A, V_{GS}=0V
Continuous Source Current [1]		I_S	-	-	60	A	
Pulsed Source Current [2]		I_{SM}	-	-	120		
Reverse Recovery Time		T_{rr}	-	60	-	nS	I_F=15A, V_R=75V, dI/dt=100A/μs
Reverse Recovery Charge		Q_{rr}	-	120	-	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

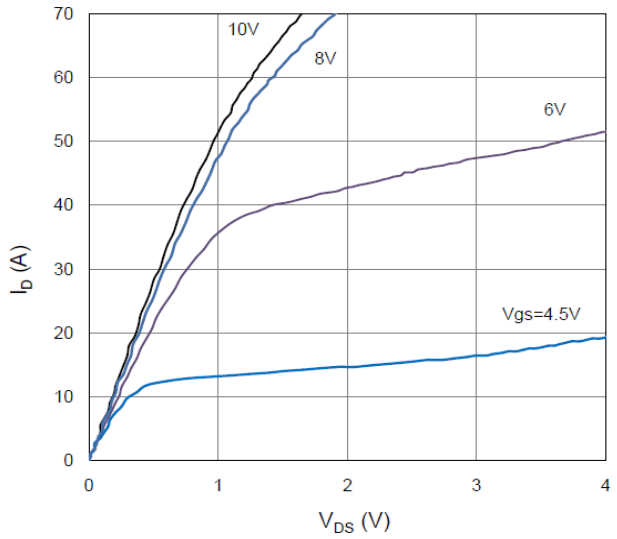


Figure 2. On-Resistance vs. Gate-Source Voltage

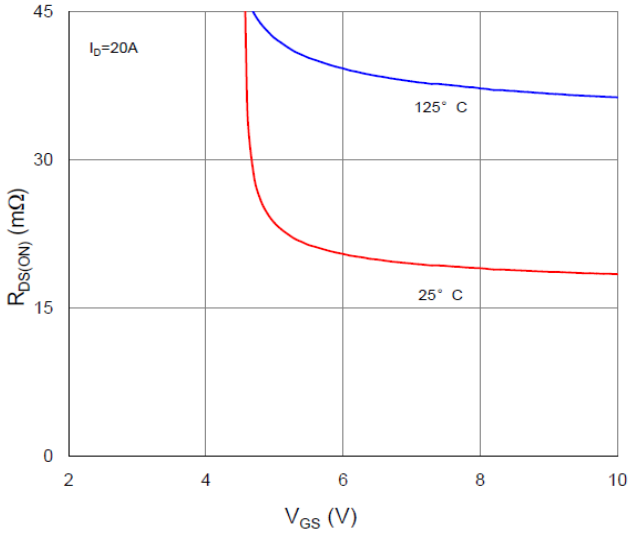


Figure 3. On-Resistance vs. Drain Current and Gate Voltage

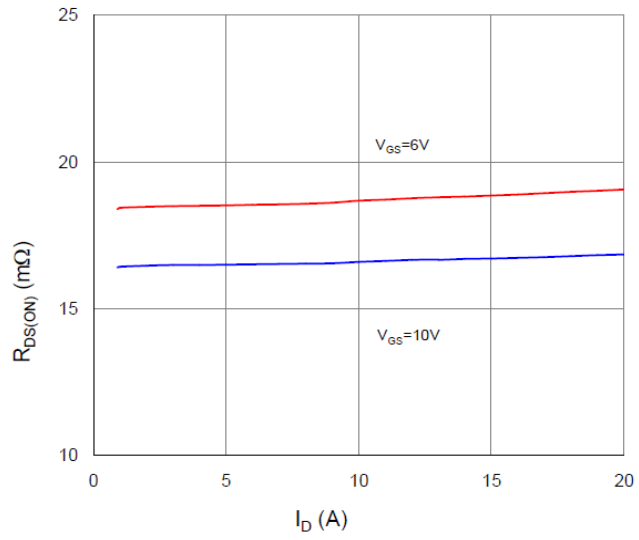


Figure 4. Normalized On-Resistance vs. Junction Temperature

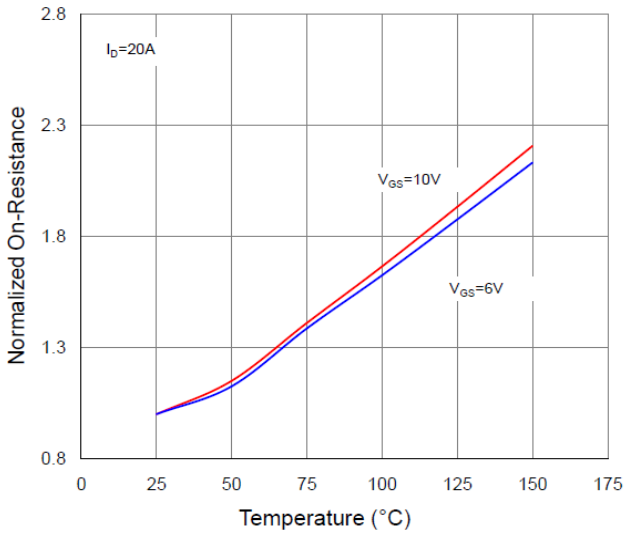


Figure 5. Typical Transfer Characteristics

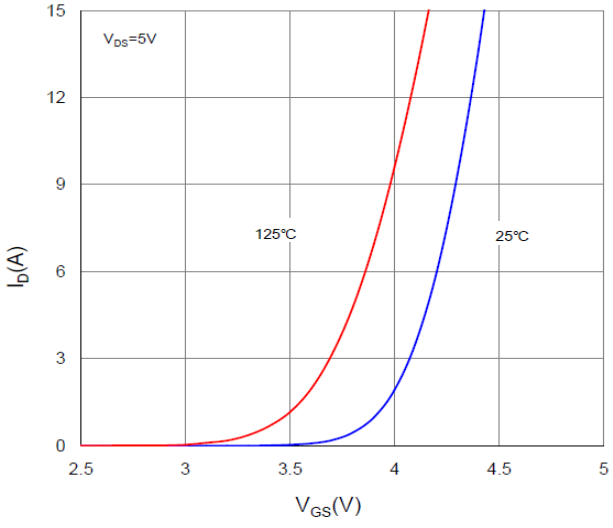
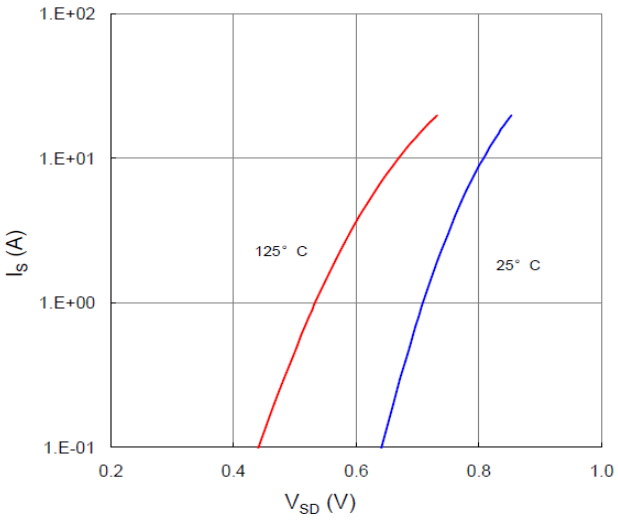


Figure 6. Typical Source-Drain Diode Forward Voltage



CHARACTERISTIC CURVES

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

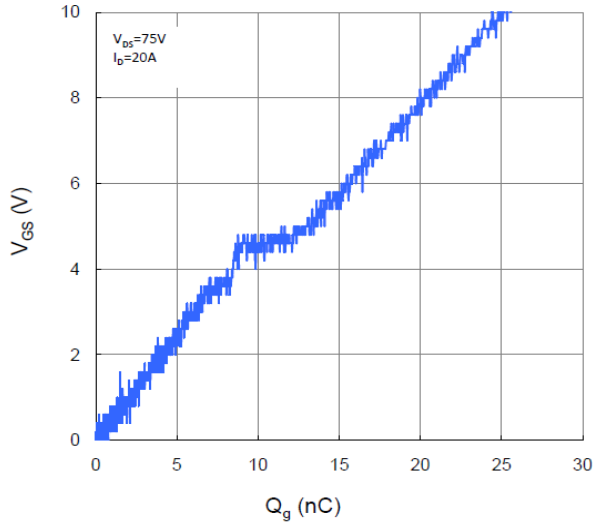


Figure 8. Typical Capacitance vs. Drain-to-Source Voltage

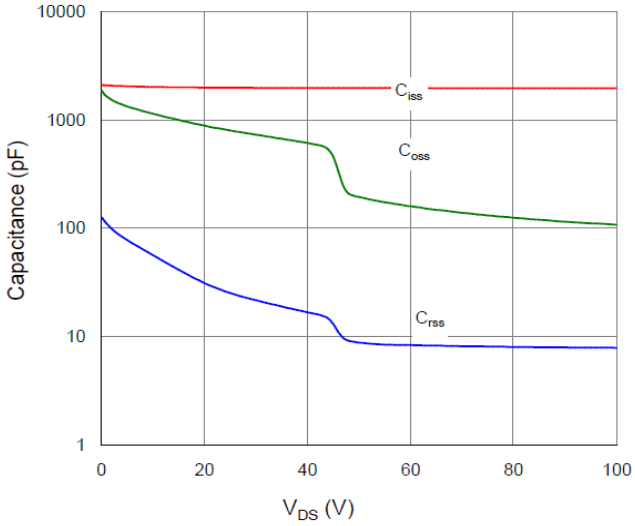


Figure 9. Maximum Safe Operating Area

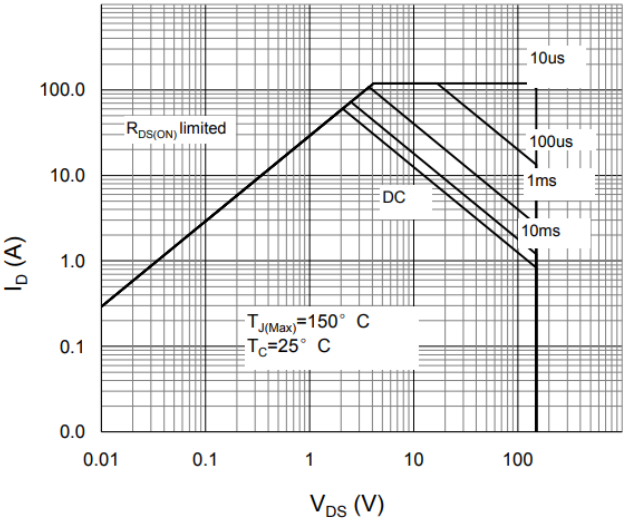


Figure 10. Maximun Drain Current vs. Case Temperature

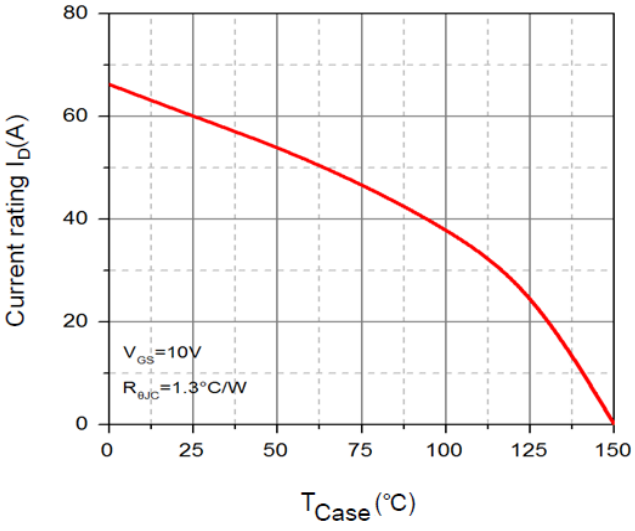
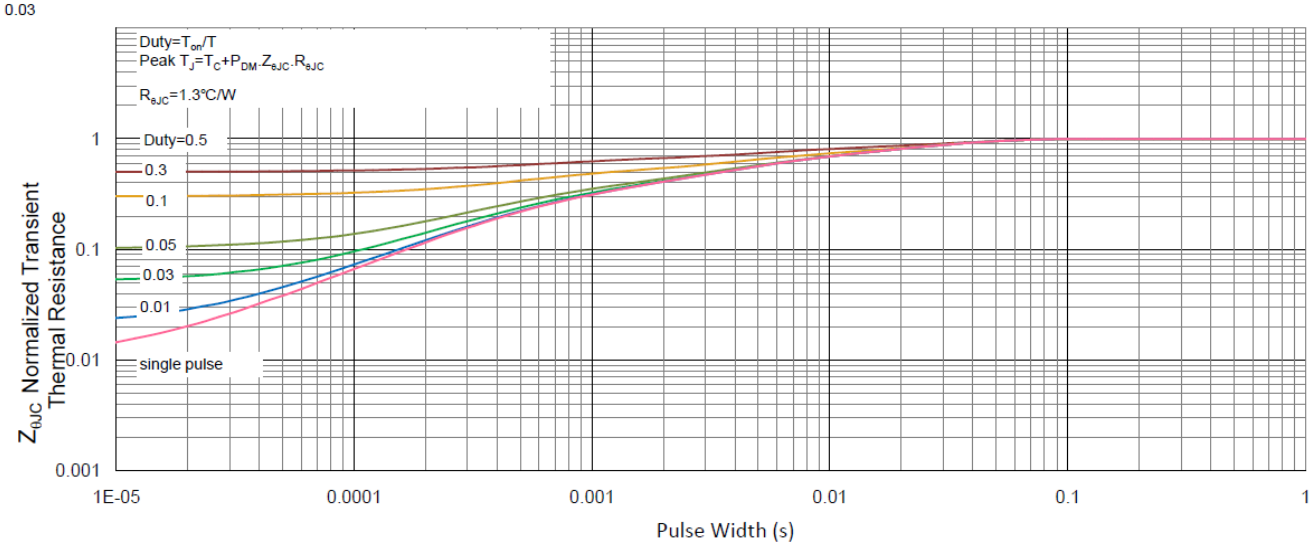
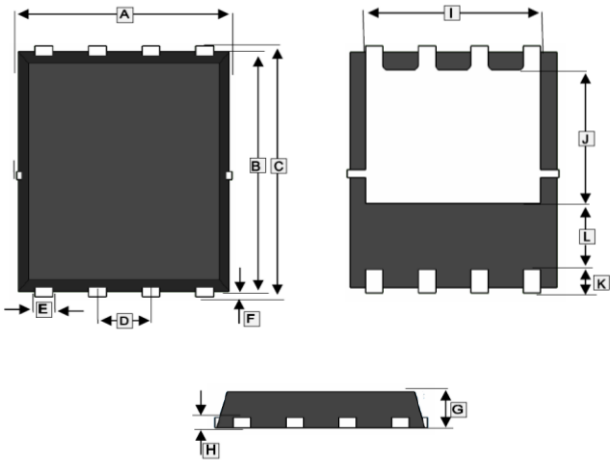


Figure 11. Normalized Maximum Transient Thermal Impedance, Junction-to-Case



PACKAGE OUTLINE DIMENSIONS

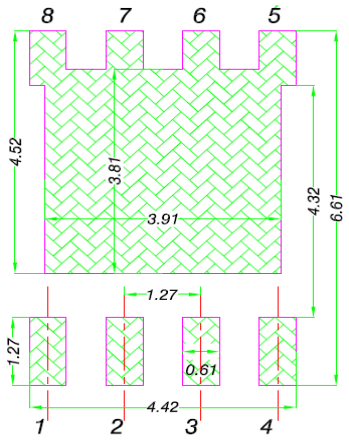
PR-8PP



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