Elektronische Bauelemente

SSE102N10SV-C

102A, 100V, $R_{DS(ON)}$ 8.8mΩ

N-Channel Shielded Gate Trench Power MOSFET

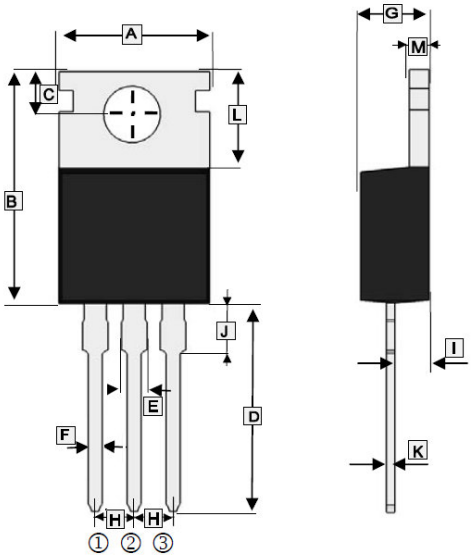
RoHS Compliant Product
A suffix of "-C" specifies halogen free

DESCRIPTION

The SSE102N10SV-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 SSE102N10SV-C meet the RoHS and Green Product requirement with full function reliability approved.

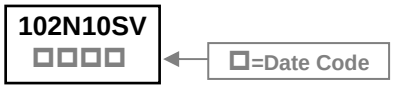
TO-220

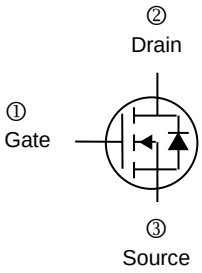


FEATURES

- Shielded Gate Trench Technology
- High Speed Power Switching
- Super Low Gate Charge
- Green Device Available

MARKING





REF.	Millimeter		REF.	Millimeter	
	Min.	Max.		Min.	Max.
A	9.70	10.60	H	2.54 TYP.	
B	14.22	16.5	I	2.03	2.92
C	2.54.	3.40	J	2.70	3.30
D	12.7	14.7	K	0.33	0.65
E	1.17	1.78	L	5.5	7
F	0.4	1.00	M	1.20	1.40
G	3.60	4.82			

ORDER INFORMATION

Part Number	Type
SSE102N10SV-C	Lead (Pb)-free and Halogen-free

ABSOLUTE MAXIMUM RATINGS (T_A=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 [1] @V_{GS}=10V	T_C=25℃	I_D	102	A
	T_C=100℃		65	
Pulsed Drain Current [2]		I_{DM}	250	A
Power Dissipation [3]	T_C=25℃	P_D	156	W
Operating Junction & Storage Temperature Range		T_J, T_{STG}	-55~150	℃
Thermal Resistance Ratings				
Thermal Resistance Junction-Ambient [1]		$R_{\theta JA}$	62	℃/W
Thermal Resistance Junction-Case [1]		$R_{\theta JC}$	0.8	

ELECTRICAL CHARACTERISTICS (T_J=25℃ unless otherwise specified)

Parameter		Symbol	Min.	Typ.	Max.	Unit	Test Conditions
Drain-Source Breakdown Voltage		$V_{(BR)DSS}$	100	-	-	V	V_{GS}=0V, I_D=250μA
Gate Threshold Voltage		$V_{GS(th)}$	2	-	4	V	V_{DS}=V_{GS}, I_D=250μA
Forward Transconductance		g_{fs}	-	80	-	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}=80V, V_{GS}=0V
	T_J=100℃			-	5		V_{DS}=80V, V_{GS}=0V
Static Drain-Source On-Resistance [2]		$R_{DS(ON)}$	-	6.6	8.8	mΩ	V_{GS}=10V, I_D=13.5A
Total Gate Charge		Q_g	-	52	-	nC	I_D=20A V_{DS}=50V V_{GS}=10V
Gate-Source Charge		Q_{gs}	-	13.5	-		
Gate-Drain Change		Q_{gd}	-	16	-		
Turn-on Delay Time		$T_{d(on)}$	-	10	-	nS	V_{DD}=50V I_D=13.5A V_{GS}=10V R_G=3Ω
Rise Time		T_r	-	6.5	-		
Turn-off Delay Time		$T_{d(off)}$	-	45	-		
Fall Time		T_f	-	7.5	-		
Input Capacitance		C_{iss}	-	3148	-	pF	V_{GS}=0V V_{DS}=50V f=1MHz
Output Capacitance		C_{oss}	-	693	-		
Reverse Transfer Capacitance		C_{rss}	-	26	-		
Source-Drain Diode							
Diode Forward Voltage [2]		V_{SD}	-	-	1.2	V	I_S=1A, V_{GS}=0V
Continuous Source Current [1]		I_S	-	-	102	A	V_{DS}=V_{GS}=0V, Force Current
Reverse Recovery Time		t_{rr}	-	33	-	nS	I_F=13.5A, dI/dt=100A/μs, T_J=25℃
Reverse Recovery Charge		Q_{rr}	-	150	-	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≦300us, duty cycle≦2%.
3. The power dissipation is limited by 150℃ juncti on temperature.

TYPICAL CHARACTERISTIC

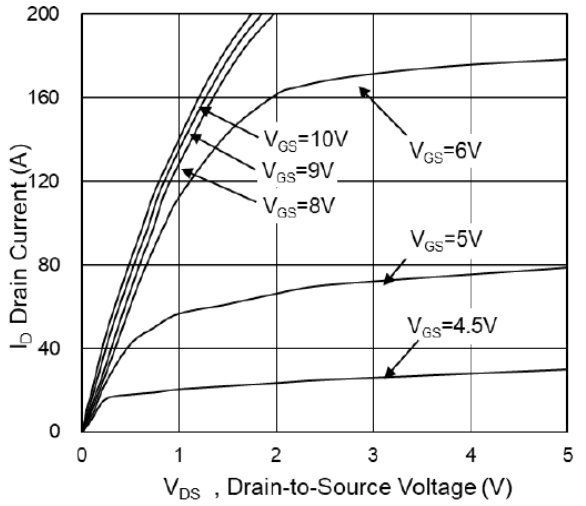


Fig.1 Typical Output Characteristics

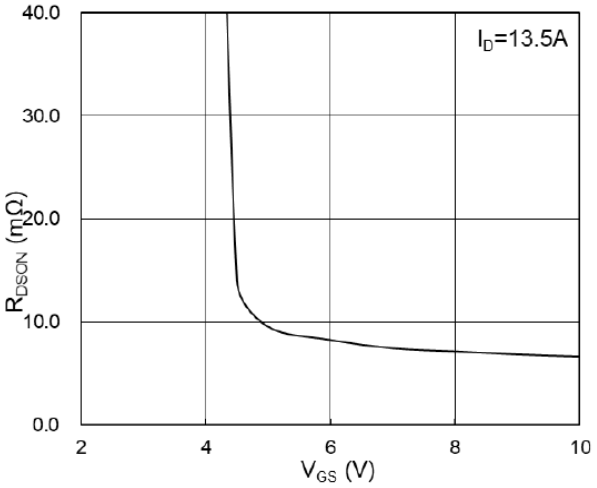


Fig.2 On-Resistance vs G-S Voltage

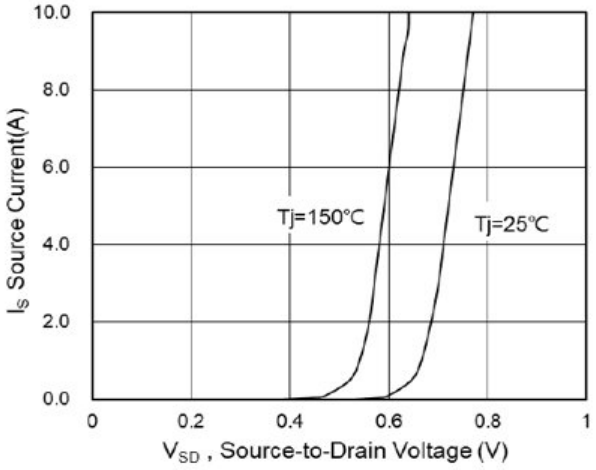


Fig.3 Source-Drain Forward Characteristics

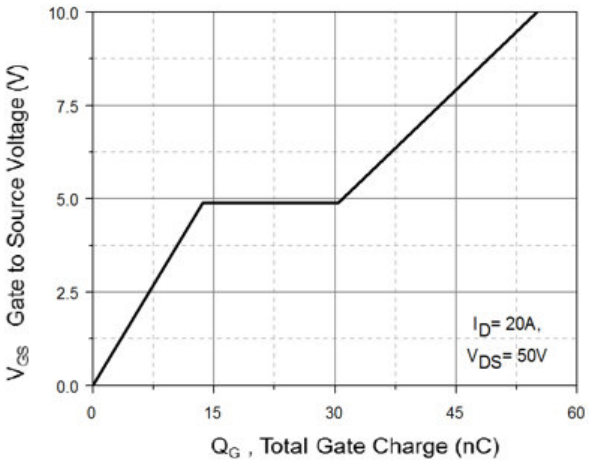


Fig.4 Gate-Charge Characteristics

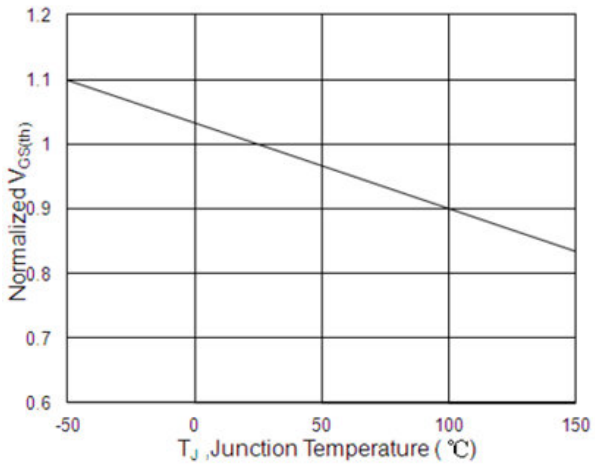


Fig.5 Normalized $V_{GS(th)}$ vs T_J

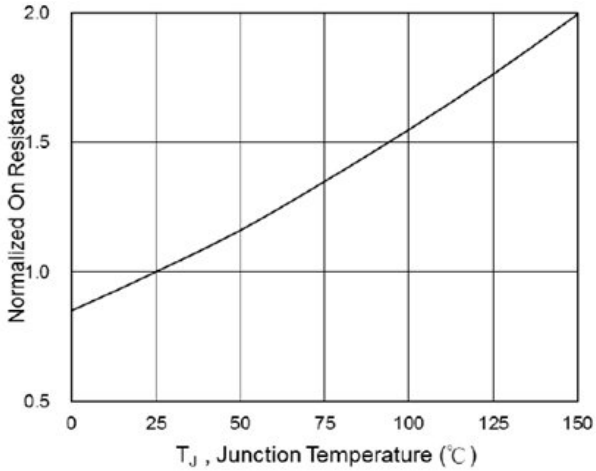


Fig.6 Normalized R_{DSON} vs T_J

TYPICAL CHARACTERISTIC

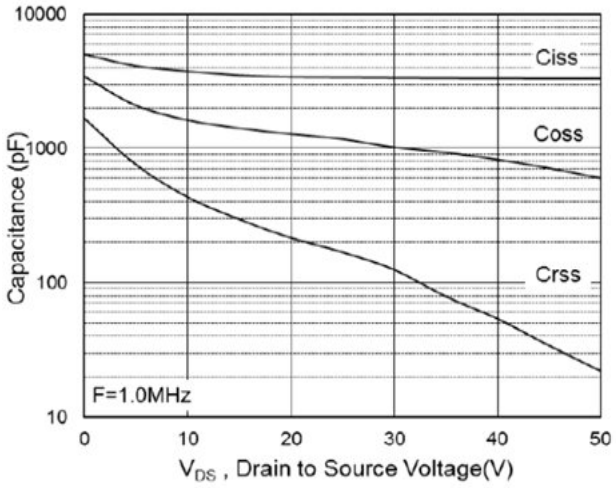


Fig.7 Capacitance

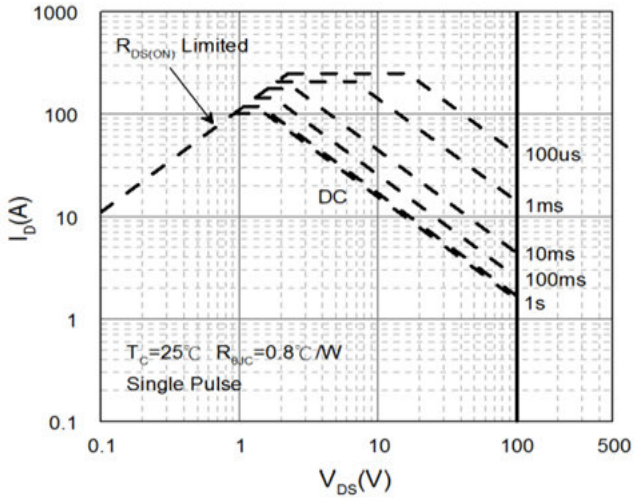


Fig.8 Safe Operating Area

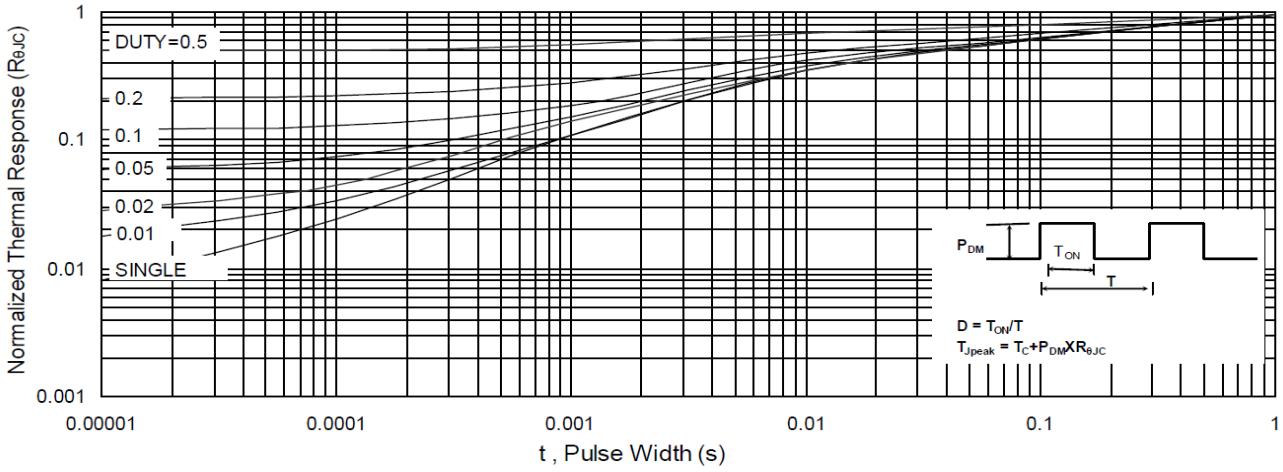


Fig.9 Normalized Maximum Transient Thermal Impedance

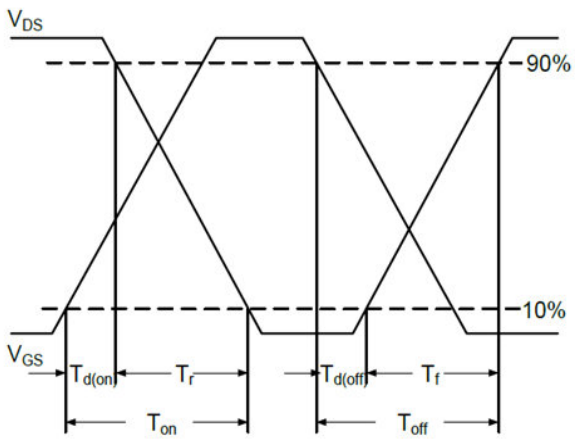


Fig.10 Switching Time Waveform

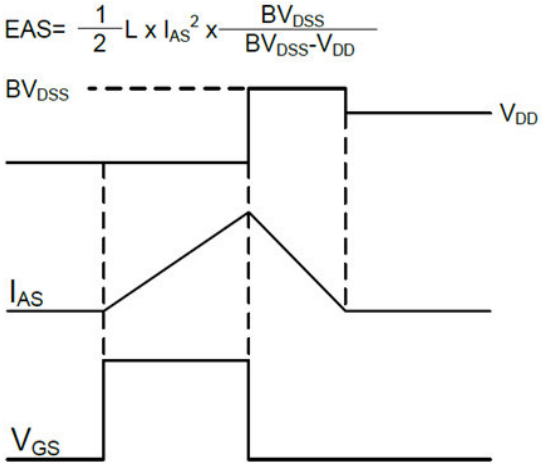


Fig.11 Unclamped Inductive Switching Waveform