Elektronische Bauelemente

SSR330N10SV-C

330A, 100V, $R_{DS(ON)}$ 2.2mΩ

N-Channel Shielded Gate Trench Power MOSFET

RoHS Compliant Product

A suffix of "-C" specifies halogen free

DESCRIPTION

The SSR330N10SV-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 SSR330N10SV-C meet the RoHS and Green Product requirement with full function reliability approved.

FEATURES

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

MARKING

330N10SV

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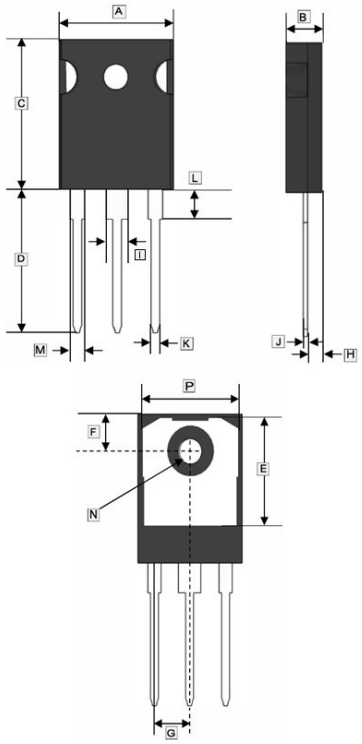
□= Date Code

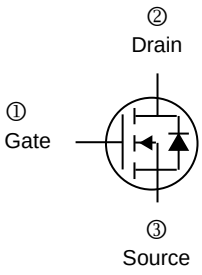
ORDER INFORMATION

Part Number	Type
SSR330N10SV-C	Lead (Pb)-free and Halogen-free

TO-247



REF.	Millimeter		REF.	Millimeter	
	Min.	Max.		Min.	Max.
A	15.75	16.13	I	2.87	3.22
B	4.83	5.21	J	0.55	0.69
C	20.8	21.1	K	1.12	1.33
D	19.81	20.32	L	4.10	4.44
E	16.25	17.65	M	1.91	2.39
F	6.04	6.30	N	Ø3.56	Ø3.65
G	5.44 BSC.		P	13.46	14.16
H	2.29	2.55			



ABSOLUTE MAXIMUM RATINGS (T_J=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] (Silicon Limited)	T_C=25℃	I_D	330	A
	T_C=100℃		231	
Continuous Drain Current [1] (Package Limited)	T_C=25℃		180	
Pulsed Drain Current [2]		I_{DM}	1000	A
Total Power Dissipation	T_C=25℃	P_D	429	W
Operating Junction & Storage Temperature Range		T_J, T_{STG}	-55~175	℃
Thermal Resistance Ratings				
Thermal Resistance Junction-Ambient [1]		$R_{\theta JA}$	60	℃/W
Thermal Resistance Junction-Case [1]		$R_{\theta JC}$	0.35	

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}=0, I_D=250μA
Gate Threshold Voltage		$V_{GS(th)}$	2	-	4	V	V_{DS}=V_{GS}, I_D=250μA
Forward Transfer Conductance		g_{fs}	-	80	-	S	V_{DS}=5V, I_D=20A
Gate-Source Leakage Current		I_{GSS}	-	-	±100	nA	V_{GS}=±20V, V_{DS}=0
Drain-Source Leakage Current	T_J=25℃	I_{DSS}	-	-	1	μA	V_{DS}=100V, V_{GS}=0
	T_J=100℃		-	-	100		
Static Drain-Source On-Resistance [3]		$R_{DS(ON)}$	-	1.8	2.2	mΩ	V_{GS}=10V, I_D=20A
Gate Resistance		R_g	-	0.94	-	Ω	V_{GS}=0V, V_{DS} Open, f=1MHz
Total Gate Charge		Q_g	-	140	-	nC	I_D=20A V_{DS}=50V V_{GS}=10V
Gate-Source Charge		Q_{gs}	-	36	-		
Gate-Drain (“Miller”) Change		Q_{gd}	-	24	-		
Turn-on Delay Time		$T_{d(on)}$	-	30	-	nS	V_{DD}=50V I_D=20A V_{GS}=10V R_G=10Ω
Rise Time		T_r	-	32	-		
Turn-off Delay Time		$T_{d(off)}$	-	48	-		
Fall Time		T_f	-	18	-		
Input Capacitance		C_{iss}	-	10920	-	pF	V_{GS}=0V V_{DS}=50V f=1MHz
Output Capacitance		C_{oss}	-	2657	-		
Reverse Transfer Capacitance		C_{rss}	-	52	-		
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}	-	85	-	nS	V_R=50V, I_F=20A, dI/dt=100A/μs
Reverse Recovery Charge		Q_{rr}	-	137	-	nC	

Notes:
1. Surface mounted on a 1 inch^2 FR-4 board with 2oz copper.
2. Pulse width limited by maximum junction temperature, pulse width≦300μs, duty cycle≦2%.
3. The data tested by pulsed, pulse width≦300μs, duty cycle≦2%.

TYPICAL CHARACTERISTICS CURVE

Fig 1. Typical Output Characteristics

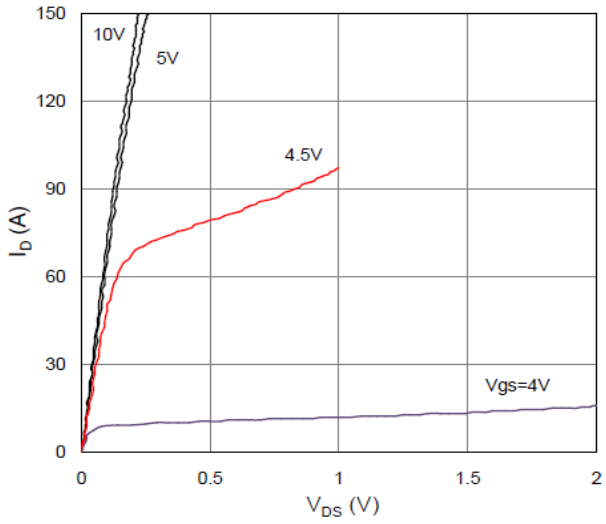


Figure 2. On-Resistance vs. Gate-Source Voltage

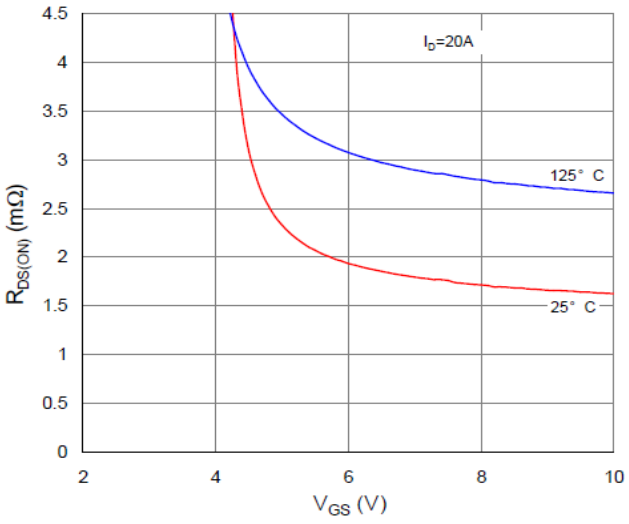


Figure 3. On-Resistance vs. Drain Current and Gate Voltage

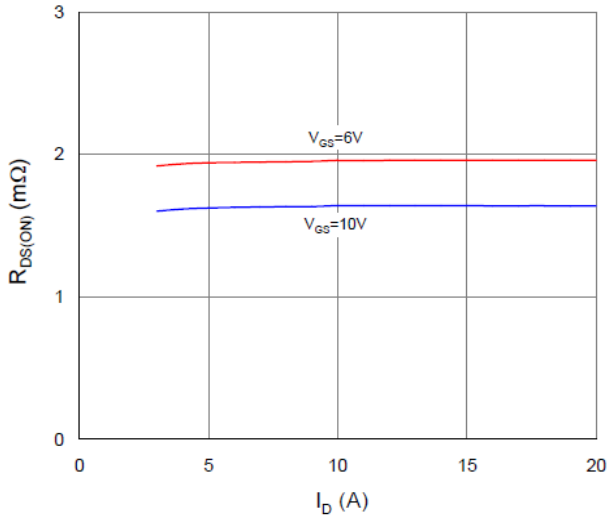


Figure 4. Normalized On-Resistance vs. Junction Temperature

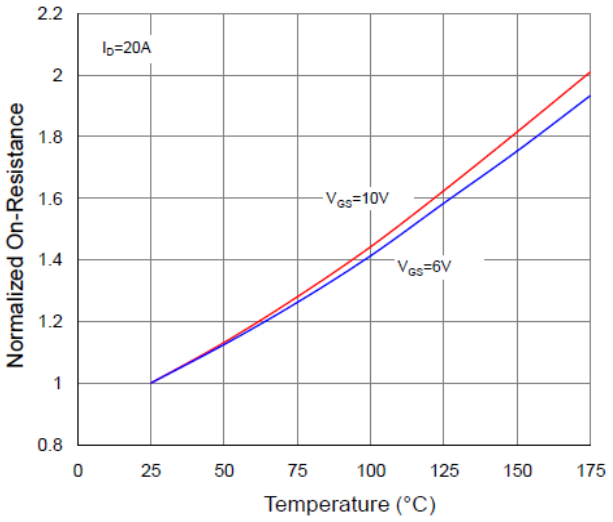


Figure 5. Typical Transfer Characteristics

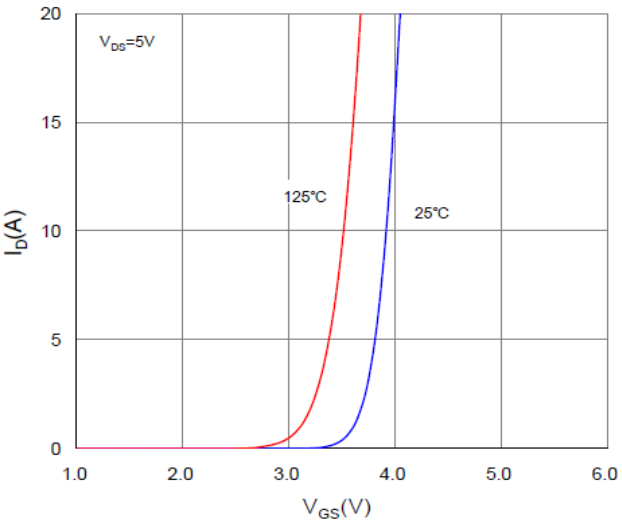
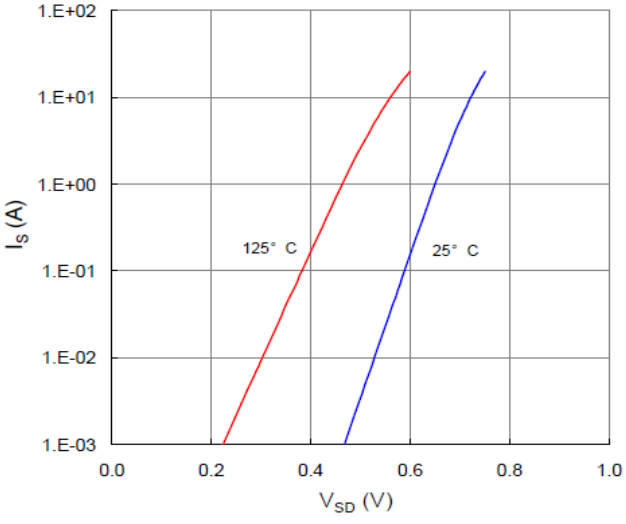


Figure 6. Typical Source-Drain Diode Forward Voltage



TYPICAL CHARACTERISTICS CURVE

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

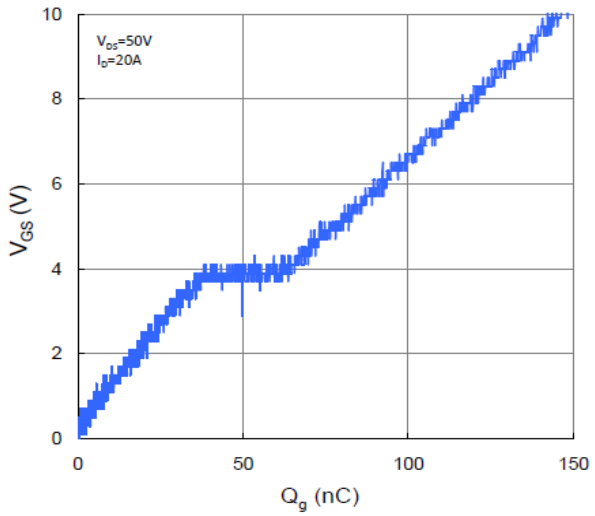


Figure 8. Typical Capacitance vs. Drain-to-Source Voltage

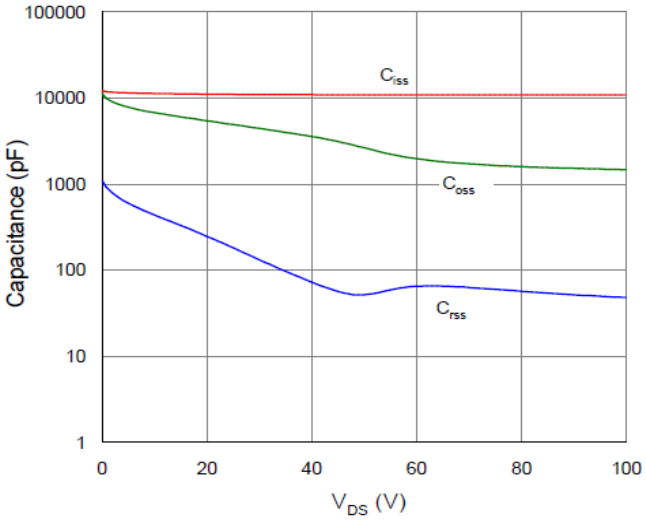


Figure 9. Maximum Safe Operating Area

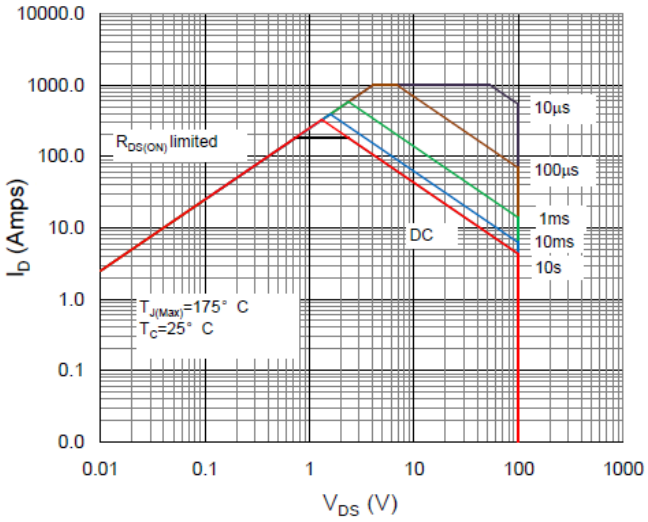


Figure 10. Maximun Drain Current vs. Case Temperature

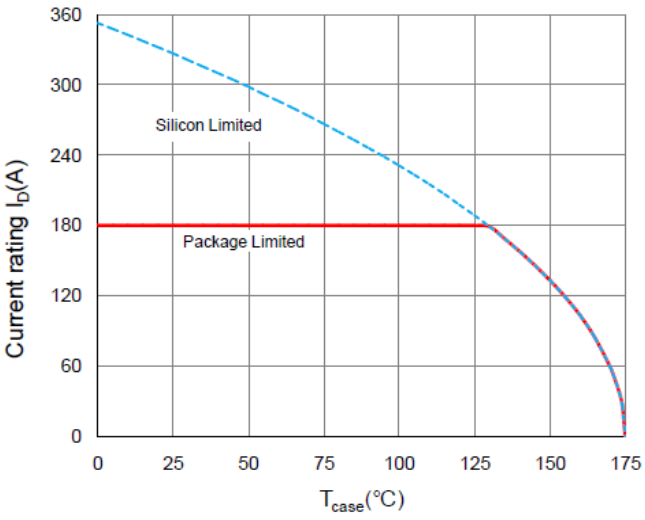
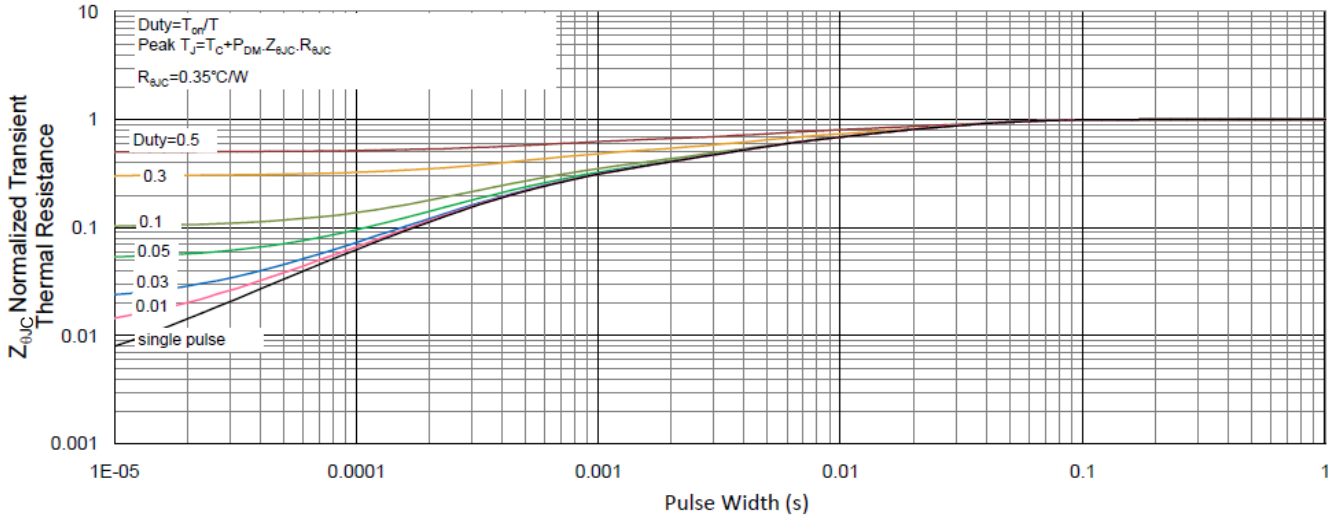



Figure 11. Normalized Maximum Transient Thermal Impedance, Junction-to-Case