Elektronische Bauelemente

SSU206N15SV-C

206A, 150V, $R_{DS(ON)}$ 4.3mΩ

N-Channel Shielded Gate Trench Power MOSFET

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

DESCRIPTION

The SSU206N15SV-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 SSU206N15SV-C meet the RoHS and Green Product requirement with full function reliability approved.

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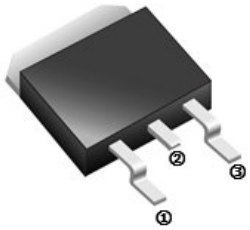
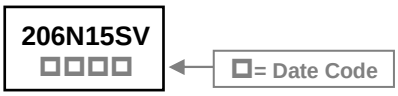


FEATURES

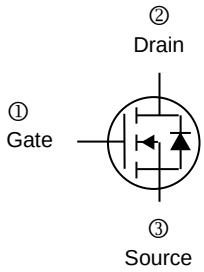
- Shielded Gate Trench Technology
- Super Low Gate Charge
- Green Device Available

MARKING



PACKAGE INFORMATION

Package	MPQ	Leader Size
TO-263	0.8K	13 inch



ORDER INFORMATION

Part Number	Type
SSU206N15SV-C	Lead (Pb)-free and Halogen-free

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

Parameter		Symbol	Rating	Unit
Drain-Source Voltage		V_{DS}	150	V
Gate-Source Voltage		V_{GS}	±20	V
Continuous Drain Current [1] (Silicon Limited)	T_C=25℃	I_D	206	A
	T_C=100℃		146	
Continuous Drain Current [1] (Package Limited)	T_C=25℃		180	
Pulsed Drain Current [2]		I_{DM}	650	A
Power Dissipation	T_C=25℃	P_D	429	W
Operating Junction & Storage Temperature Range		T_J, T_{STG}	-55~175	℃
Thermal Resistance Rating				
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		$V_{(BR)DSS}$	150	-	-	V	V_{GS}=0V, I_D=250μA
Gate-Threshold Voltage		$V_{GS(th)}$	2	-	4	V	V_{DS}=V_{GS}, I_D=250μA
Forward Transfer Conductance		g_{fs}	-	70	-	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}=150V, V_{GS}=0V
	T_J=100℃		-	-	100		
Static Drain-Source On-Resistance [3]		$R_{DS(ON)}$	-	3.9	4.3	mΩ	V_{GS}=10V, I_D=20A
Gate Resistance		R_g	-	4	-	Ω	f=1MHz
Total Gate Charge		Q_g	-	70	-	nC	I_D=20A V_{DD}=75V V_{GS}=10V
Gate-Source Charge		Q_{gs}	-	20	-		
Gate-Drain Change		Q_{gd}	-	10	-		
Turn-on Delay Time		$T_{d(on)}$	-	19	-	nS	V_{DD}=75V I_D=20A V_{GS}=10V R_G=10Ω
Rise Time		T_r	-	24	-		
Turn-off Delay Time		$T_{d(off)}$	-	35	-		
Fall Time		T_f	-	11	-		
Input Capacitance		C_{iss}	-	5230	-	pF	V_{GS}=0V V_{DS}=75V f=1MHz
Output Capacitance		C_{oss}	-	745	-		
Reverse Transfer Capacitance		C_{rss}	-	11.5	-		
Source-Drain Diode							
Diode Forward Voltage [3]		V_{SD}	-	0.9	-	V	I_F=20A, V_{GS}=0V
Reverse Recovery Time		T_{rr}	-	120	-	nS	I_F=20A, V_R=75V dI_F/dt=100A/μs
Reverse Recovery Charge		Q_{rr}	-	270	-	nC	

Notes:

1. The data tested by 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

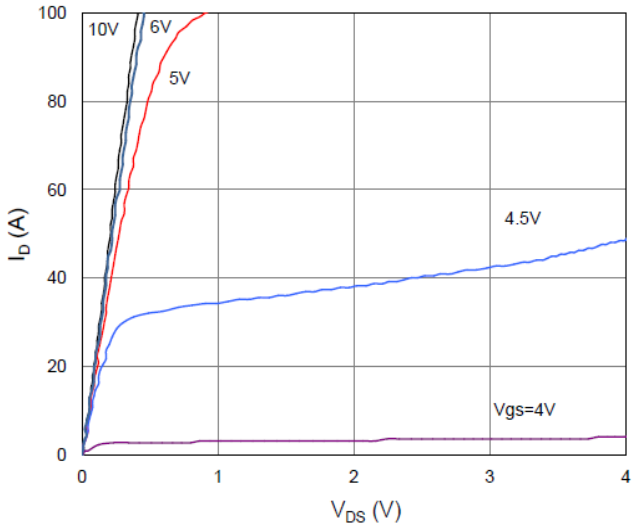


Figure 2. On-Resistance vs. Gate-Source Voltage

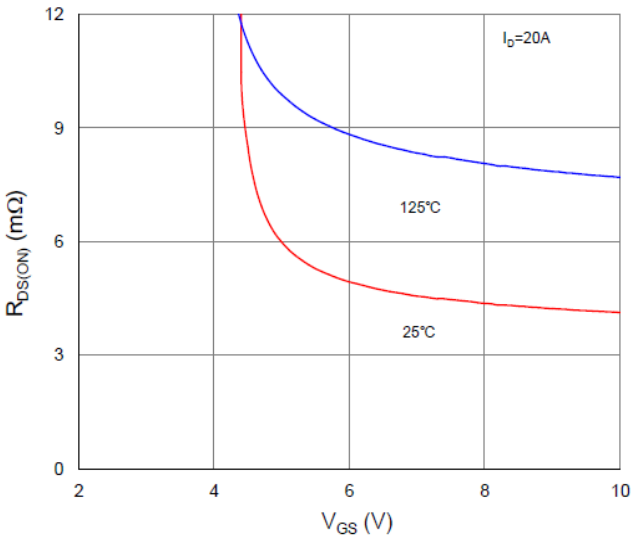


Figure 3. On-Resistance vs. Drain Current and Gate Voltage

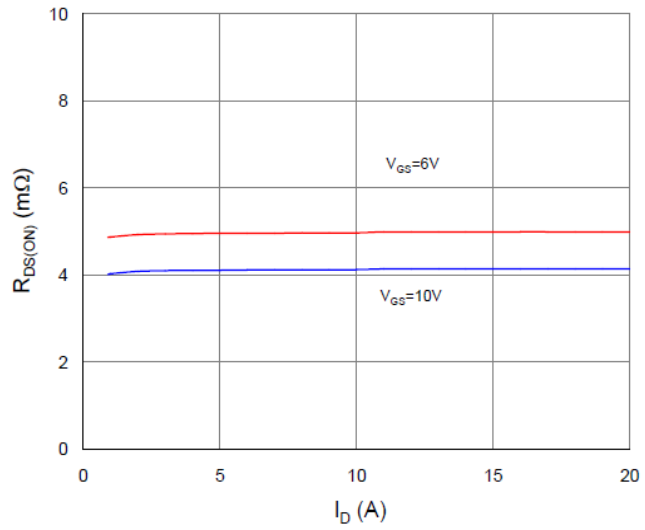


Figure 4. Normalized On-Resistance vs. Junction Temperature

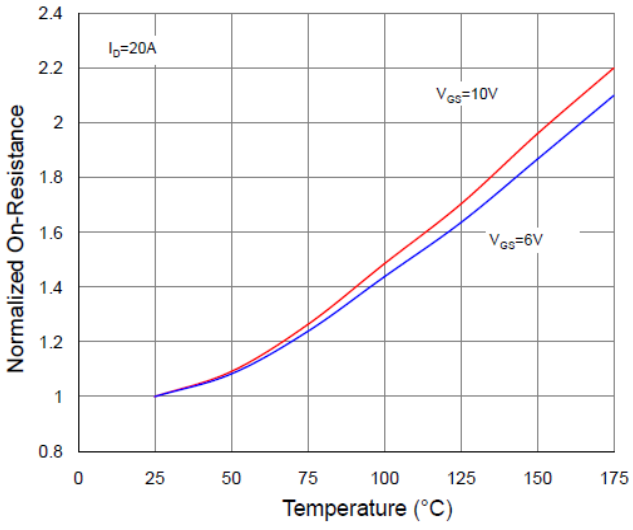


Figure 5. Typical Transfer Characteristics

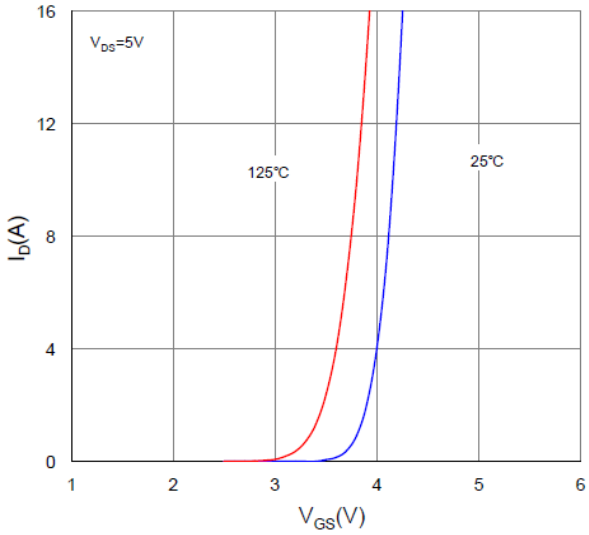
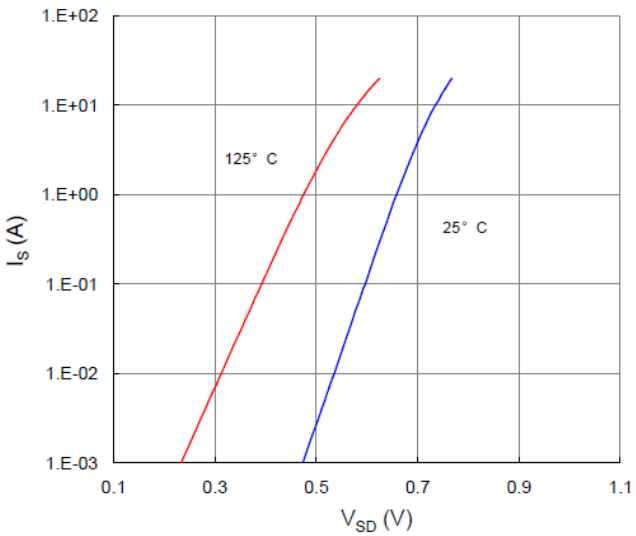


Figure 6. Typical Source-Drain Diode Forward Voltage



CHARACTERISTIC CURVES

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

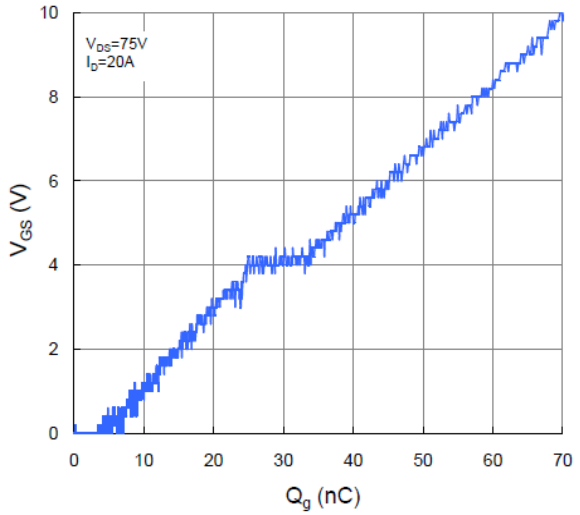


Figure 8. Typical Capacitance vs. Drain-to-Source Voltage

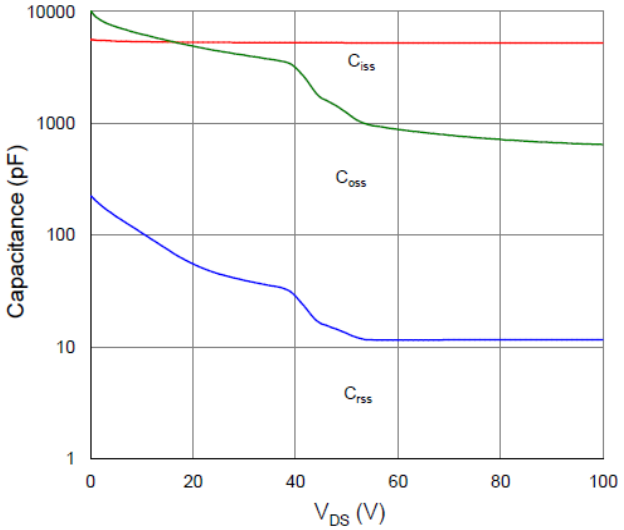


Figure 9. Maximum Safe Operating Area

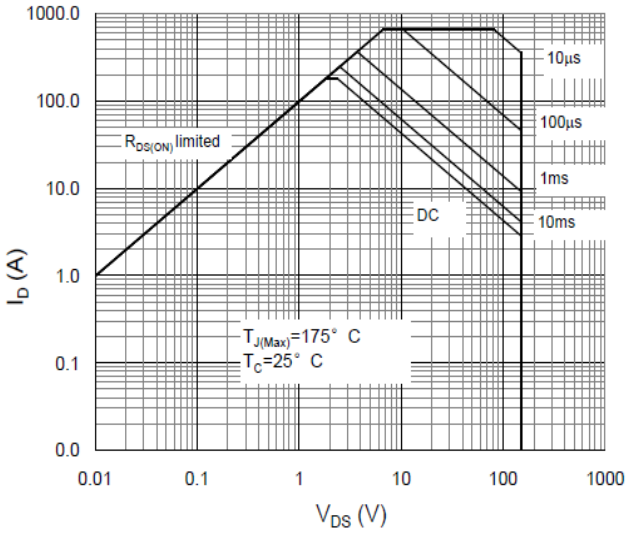


Figure 10. Maximun Drain Current vs. Case Temperature

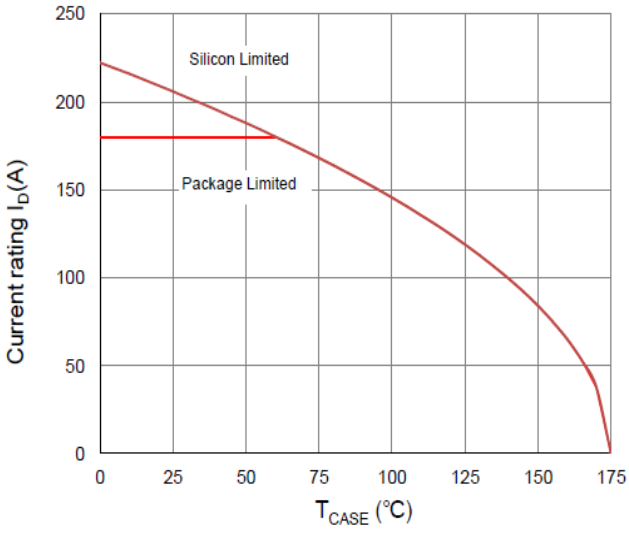
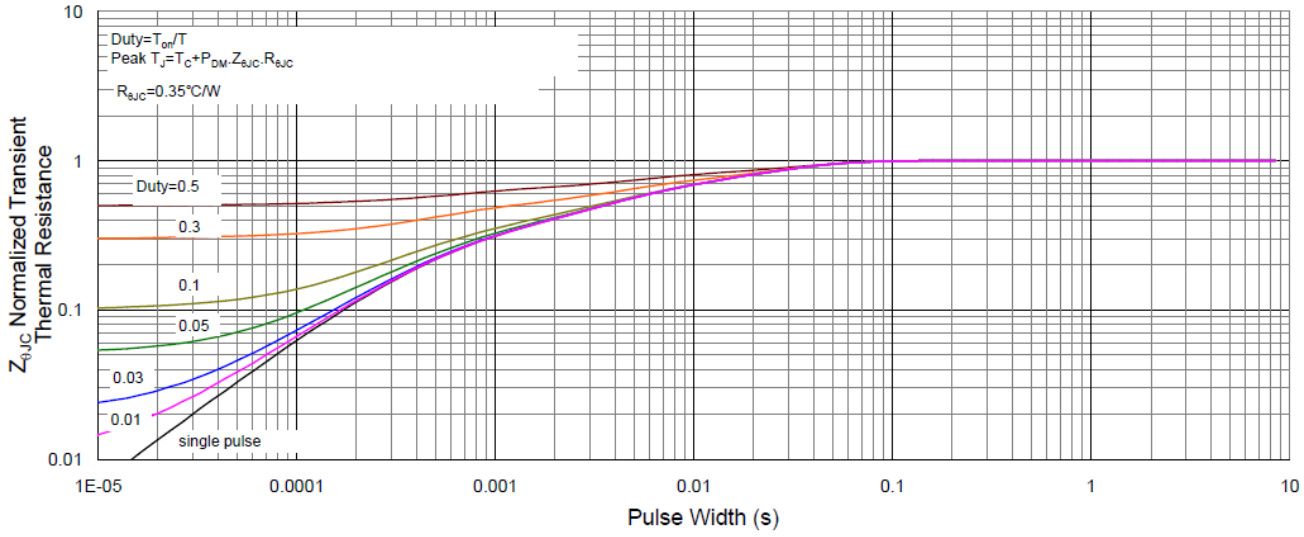


Figure 11. Normalized Maximum Transient Thermal Impedance, Junction-to-Case



PACKAGE OUTLINE DIMENSIONS

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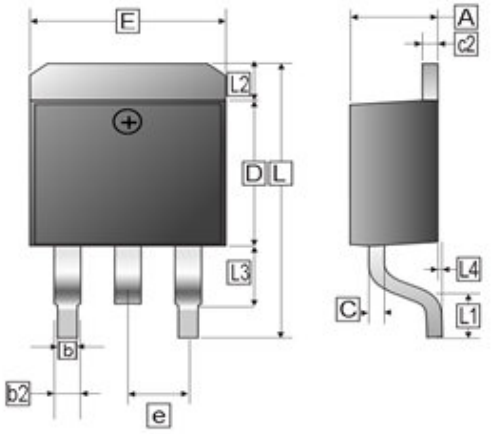

REF.	Millimeter	
	Min.	Max.
A	4.00	4.87
b	0.508	1.01
L4	0	0.30
C	0.30	0.74
L3	1.50 REF.	
L1	2.50 REF.	
E	9.60	10.67
c2	1.07	1.65
b2	1.34 REF.	
D	8.00	9.652
e	2.54 REF.	
L	14.6	16.1
L2	1.27 REF.	

MOUNTING PAD LAYOUT

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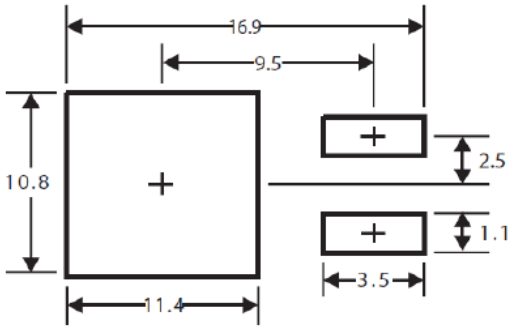

*Dimensions in millimeters