Elektronische Bauelemente

SSU170N10SV-C

170A , 100V , $R_{DS(ON)}$ 3.9mΩ

N-Ch Enhancement Mode Power MOSFET

RoHS Compliant Product

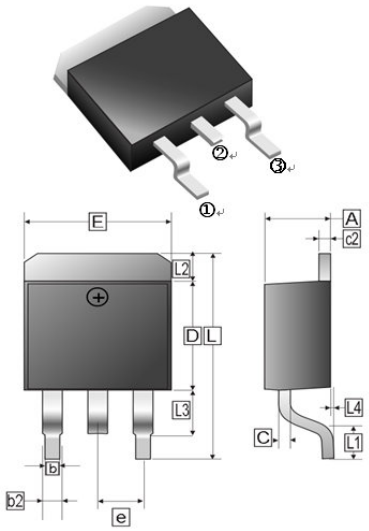
A suffix of "-C" specifies halogen free

DESCRIPTION

The SSU170N10SV-C is the highest performance 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 SSU170N10SV-C meet the RoHS and Green Product requirement with full function reliability approved.

TO-263



REF.	Millimeter		REF.	Millimeter	
	Min.	Max.		Min.	Max.
A	4.00	4.87	c2	1.07	1.65
b	0.51	1.01	b2	1.34 REF.	
L4	0	0.30	D	8	9.65
C	0.30	0.74	e	2.54 REF.	
L3	1.50 REF.		L	14.60	16.10
L1	2.50 REF.		L2	1.27 REF.	
E	9.60	10.67			

FEATURES

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

MARKING

170N10SV

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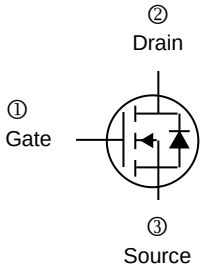
□=Date Code

PACKAGE INFORMATION

Package	MPQ	Leader Size
TO-263	0.8K	13 inch

ORDER INFORMATION

Part Number	Type
SSU170N10SV-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}	100	V
Gate-Source Voltage		V_{GS}	±20	V
Continuous Drain Current [1] @V_{GS}=10V	T_C=25℃	I_D	170	A
	T_C=100℃		120	
Pulsed Drain Current [2]		I_{DM}	380	A
Power Dissipation [3]	T_C=25℃	P_D	231	W
Operating Junction and Storage Temperature		T_J, T_{STG}	-55~175	℃
Thermal Resistance Rating				
Thermal Resistance Junction-Ambient [1]		$R_{\theta JA}$	62	℃/W
Thermal Resistance Junction-Case [1]		$R_{\theta JC}$	0.65	

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 Transfer Conductance	g_{fs}	-	50	-	S	V_{DS}=5V, I_D=20A
Gate-Source Leakage Current	I_{GSS}	-	-	±100	nA	V_{GS}=±20V
Drain-Source Leakage Current	I_{DSS}	-	-	1	μA	V_{DS}=80V, V_{GS}=0V, T_J=25℃
		-	-	100		V_{DS}=80V, V_{GS}=0V, T_J=55℃
Static Drain-Source On-Resistance [2]	$R_{DS(ON)}$	-	3.4	3.9	mΩ	V_{GS}=10V, I_D=20A
Total Gate Charge	Q_g	-	75	-	nC	I_D=20A V_{DS}=50V V_{GS}=10V
Gate-Source Charge	Q_{gs}	-	10	-		
Gate-Drain Change	Q_{gd}	-	34	-		
Turn-on Delay Time	$T_{d(on)}$	-	13	-	nS	V_{DD}=50V I_D=20A V_{GS}=10V R_G=10Ω
Rise Time	T_r	-	19	-		
Turn-off Delay Time	$T_{d(off)}$	-	45	-		
Fall Time	T_f	-	27	-		
Input Capacitance	C_{iss}	-	3650	-	pF	V_{GS}=0V V_{DS}=50V f=1MHz
Output Capacitance	C_{oss}	-	1110	-		
Reverse Transfer Capacitance	C_{rss}	-	43	-		
Source-Drain Diode						
Diode Forward Voltage [2]	V_{SD}	-	-	1.2	V	I_S=1A, V_{GS}=0V
Continuous Source Current [1]	I_S	-	-	170	A	V_G=V_D=0, Force Current
Reverse Recovery Time	T_{rr}	-	50	-	nS	I_F=20A, dI/dt=500A/μs, T_J=25℃
Reverse Recovery Charge	Q_{rr}	-	275	-	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≦10us, duty cycle≦2%.
3. The power dissipation is limited by 150℃ juncti on temperature.

CHARACTERISTIC CURVES

Fig 1. Typical Output Characteristics

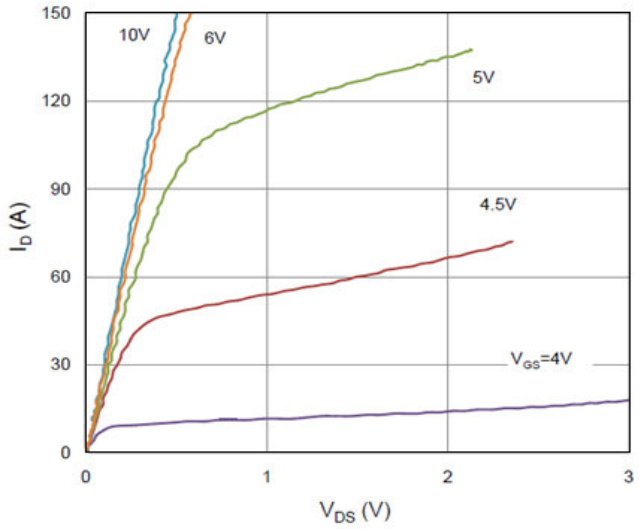


Figure 2. On-Resistance vs. Gate-Source Voltage

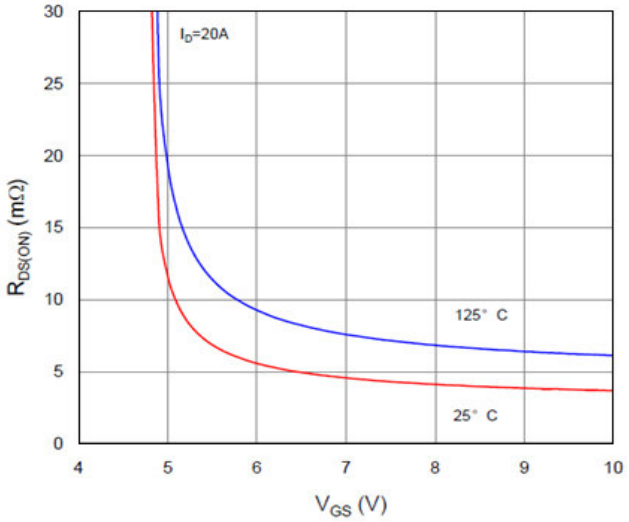


Figure 3. On-Resistance vs. Drain Current and Gate Voltage

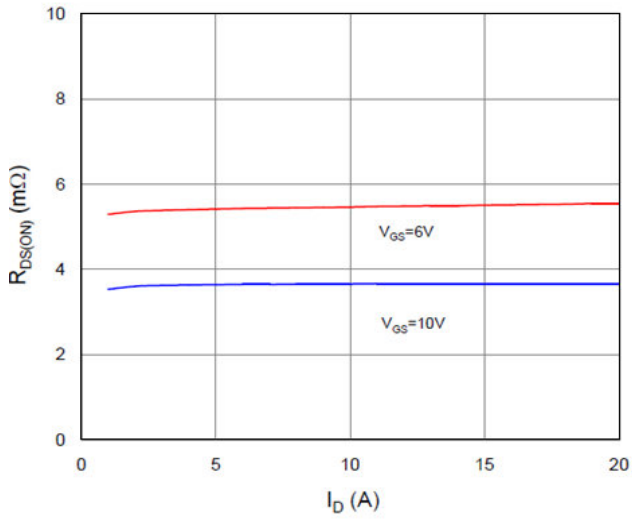


Figure 4. Normalized On-Resistance vs. Junction Temperature

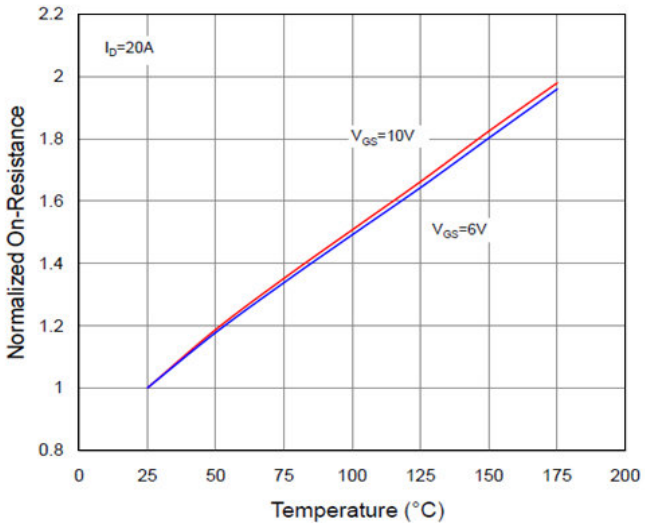


Figure 5. Typical Transfer Characteristics

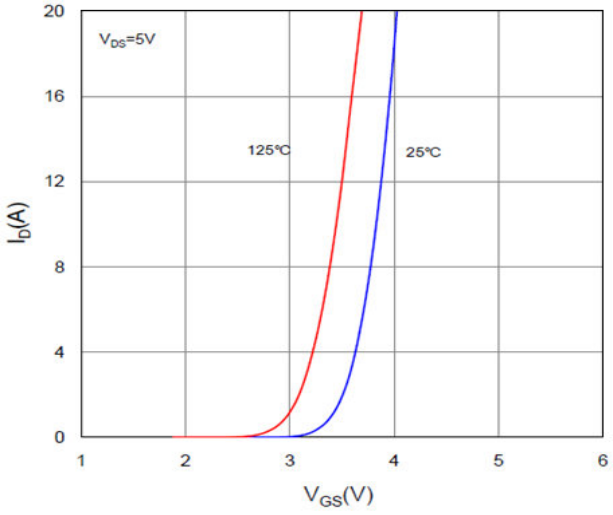
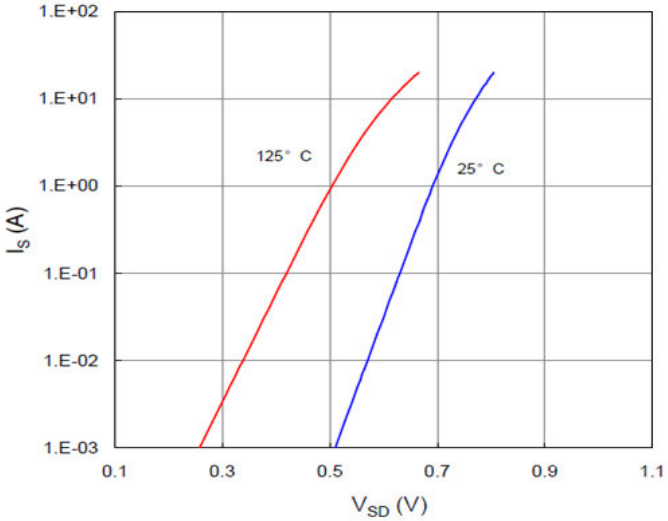


Figure 6. Typical Source-Drain Diode Forward Voltage



CHARACTERISTIC CURVES

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

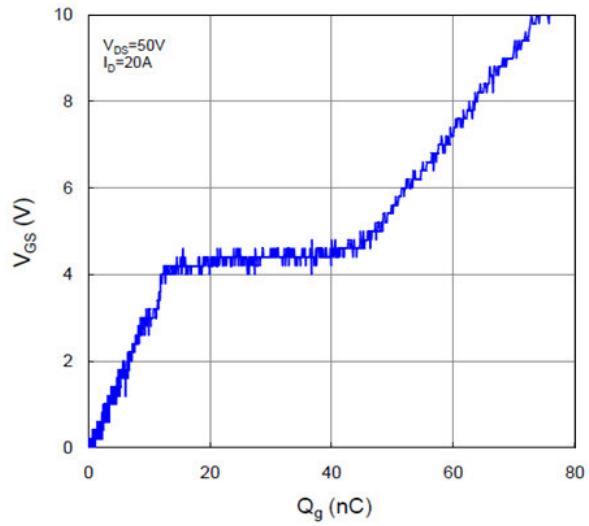


Figure 8. Typical Capacitance vs. Drain-to-Source Voltage

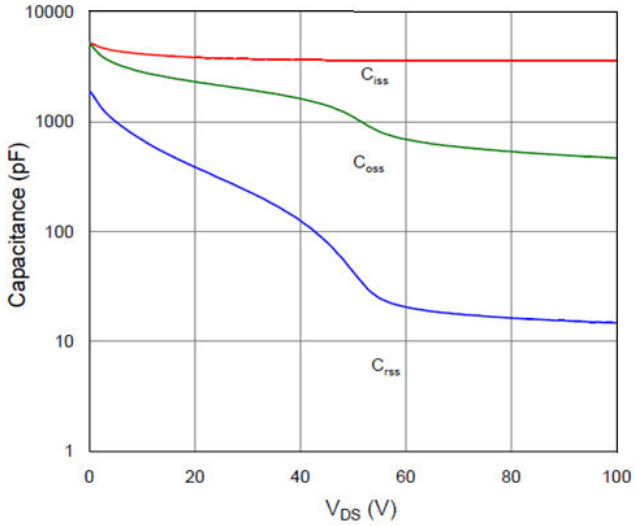


Figure 10. Maximun Drain Current vs. Case Temperature

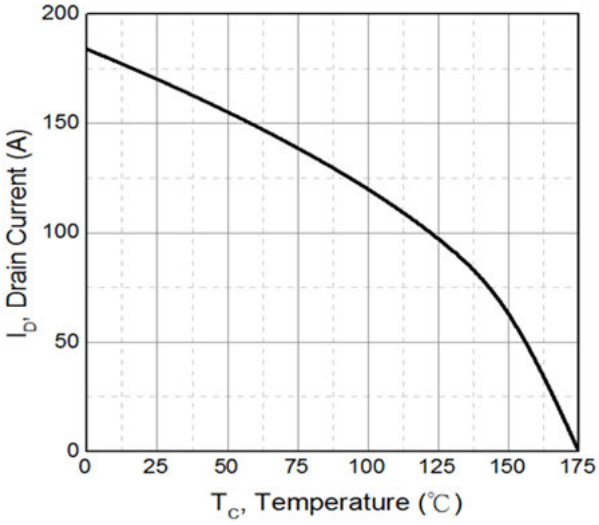


Figure 9. Maximum Safe Operating Area

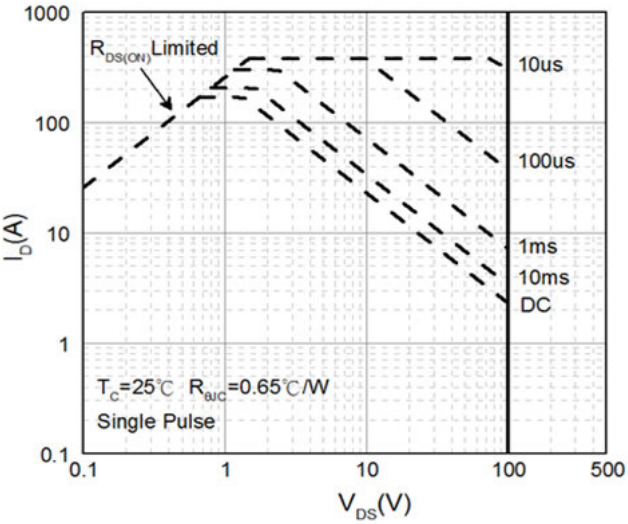


Figure 11. Normalized Maximum Transient Thermal Impedance, Junction-to-Case