Elektronische Bauelemente

SSU10N20-C

10A, 200V, $R_{DS(ON)}$ 380mΩ
N-Ch Enhancement Mode Power MOSFET

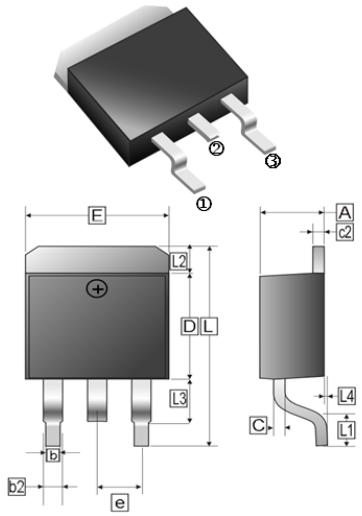
RoHS Compliant Product
A suffix of "-C" specifies halogen free

DESCRIPTION

The SSU10N20-C is the highest performance trench 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 SSU10N20-C meet the RoHS and Green Product requirement 100% EAS and 100% Rg uaranteed with full function reliability approved.

TO-263(D^2-Pack)

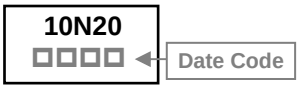


REF.	Millimeter		REF.	Millimeter	
	Min.	Max.		Min.	Max.
A	4.00	4.87	c2	1.07	1.65
b	0.51	1.01	b2	1.34 REF	
L4	0.00	0.30	D	8.0	9.65
C	0.30	0.74	e	2.54 REF	
L3	1.50 REF		L	14.6	16.1
L1	2.5 REF		L2	1.27 REF	
E	9.60	10.67			

FEATURES

- Advanced High Cell Density Trench Technology
- Super Low Gate Charge
- Excellent Cdv/dt effect decline

MARKING

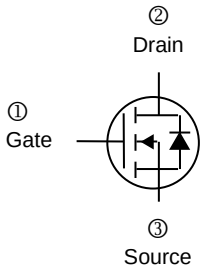


PACKAGE INFORMATION

Package	MPQ	Leader Size
TO-263	0.8K	13 inch

ORDER INFORMATION

Part Number	Type
SSU10N20-C	Lead (Pb)-free and Halogen-free



ABSOLUTE MAXIMUM RATINGS

Parameter		Symbol	Ratings	Unit
Drain-Source Voltage		V_{DS}	200	V
Gate-Source Voltage		V_{GS}	±20	V
Continuous Drain Current, @V_{GS}=10V [1]	T_C=25℃	I_D	10	A
	T_C=100℃		5.4	
Pulsed Drain Current [2]		I_{DM}	20	A
Single Pulse Avalanche Energy [3]		EAS	2	mJ
Avalanche Current		I_{AS}	2	A
Total Power Dissipation	T_C=25℃	P_D	57	W
	T_A=25℃		1.56	
Operating Junction and Storage Temperature Range		T_J, T_{STG}	-55~150	℃
Thermal Resistance Ratings				
Maximum Thermal Resistance from Junction-Case [1]		$R_{\theta JC}$	2.2	℃/W
Maximum Thermal Resistance from Junction-Ambient [1]		$R_{\theta JA}$	80	

ELECTRICAL CHARACTERISTICS (T_J=25℃ unless otherwise specified)

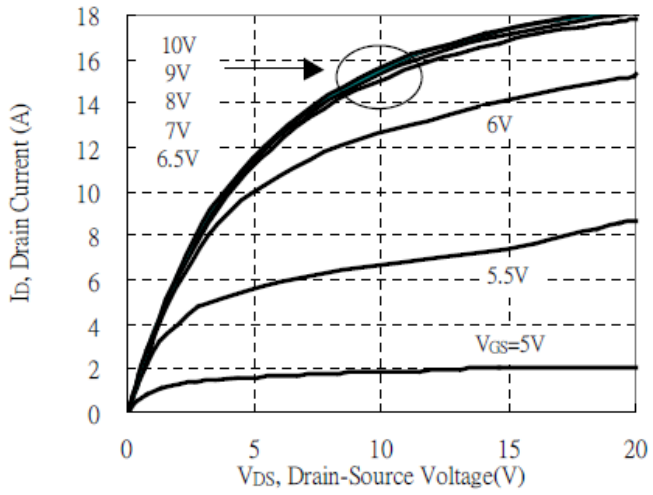
Parameter		Symbol	Min.	Typ.	Max.	Unit	Test Conditions
Drain-Source Breakdown Voltage		BV_{DSS}	200	-	-	V	V_{GS}=0, I_D=250uA
Gate-Threshold Voltage		$V_{GS(th)}$	2	-	4.5	V	V_{DS}=V_{GS}, I_D=250uA
Forward Transconductance		g_{fs}	-	5.3	-	S	V_{DS}=15V, I_D=5A
Gate-Source Leakage Current		I_{GSS}	-	-	±100	nA	V_{GS}= ±20V
Drain-Source Leakage Current	T_J=25℃	I_{DSS}	-	-	1	uA	V_{DS}=200V, V_{GS}=0
	T_J=125℃		-	-	25		V_{DS}=160V, V_{GS}=0
Static Drain-Source On-Resistance [4]		$R_{DS(ON)}$	-	-	380	mΩ	V_{GS}=10V, I_D=5A
Total Gate Charge		Q_g	-	10.6	-	nC	I_D=3A V_{DS}=160V V_{GS}=10V
Gate-Source Charge		Q_{gs}	-	2.3	-		
Gate-Drain Charge		Q_{gd}	-	3.9	-		
Turn-on Delay Time		$T_{d(on)}$	-	8.8	-	nS	V_{DS}=100V I_D=3A V_{GS}=10V R_G=25Ω
Rise Time		T_r	-	16.8	-		
Turn-off Delay Time		$T_{d(off)}$	-	21.2	-		
Fall Time		T_f	-	19.6	-		
Input Capacitance		C_{iss}	-	395	-	pF	V_{GS}=0 V_{DS}=25V f=1MHz
Output Capacitance		C_{oss}	-	47	-		
Reverse Transfer Capacitance		C_{rss}	-	23	-		
Guaranteed Avalanche Chatacteristics							
Single Pulse Avalanche Energy [5]		EAS	0.5	-	-	mJ	V_{DD}=50V, L=1mH, I_{AS}=1A
Source-Drain Diode							
Continuous Source Current [1]		I_S	-	-	10	A	
Pulsed Source Current [2]		I_{SM}	-	-	20		
Diode Forward Voltage [4]		V_{SD}	-	-	1.2	V	I_S=1A, V_{GS}=0
Reverse Recovery Time		Trr	-	50	-	nS	I_F=3A, T_J=25℃ dI/dt=100A/μs
Reverse Recovery Charge		Qrr	-	86	-	nC	

Notes:

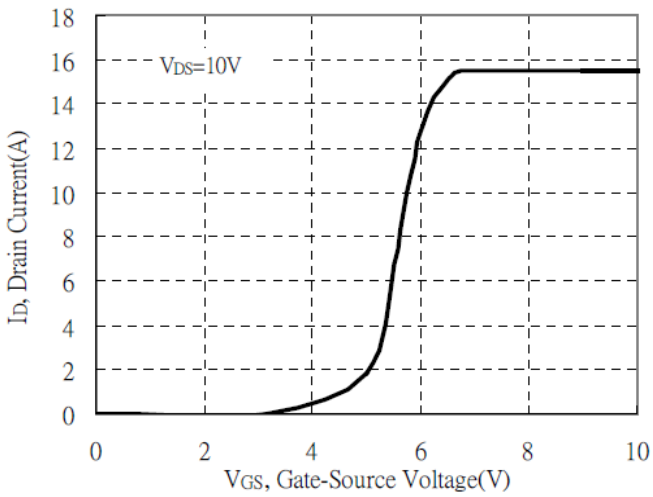
1. The surface mounted on a 1 inch^2 FR-4 board with 2OZ copper.
2. Pluse width limited by maximum junction temperature.
3. The EAS data shows Max. rating. The test condition is V_{DD}=50V, V_{GS}=10V, L=1mH, I_{AS}=2A.
4. The data tested by pulsed, pulse width≦300μs, duty cycle≦2%.
5. The Min. value is 100% EAS tested guarantee.

CHARACTERISTIC CURVES

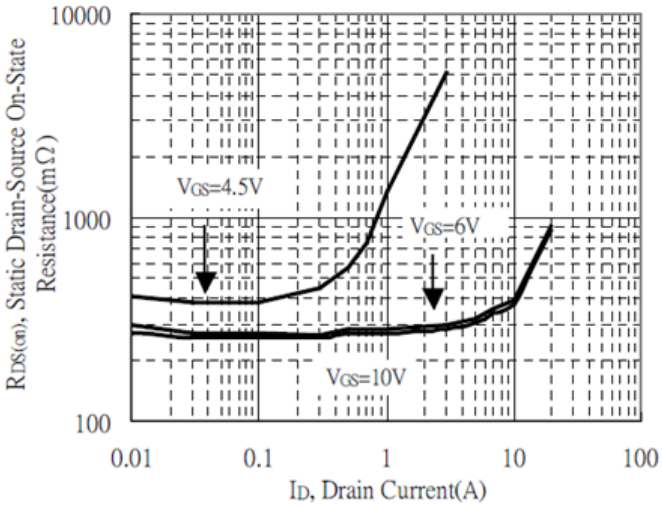
Typical Output Characteristics



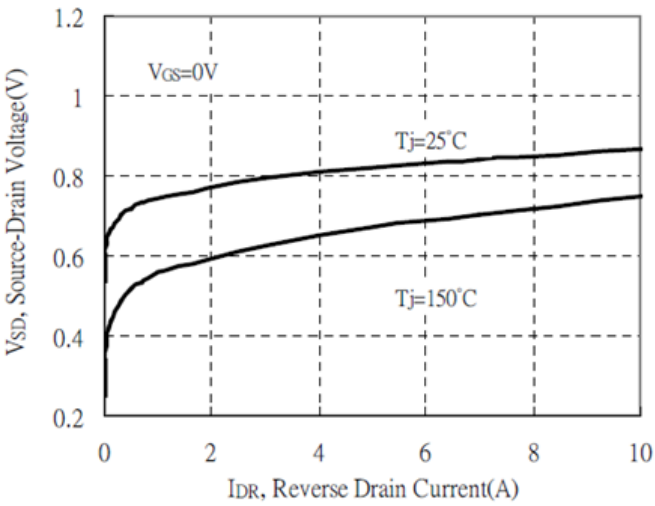
Typical Transfer Characteristics



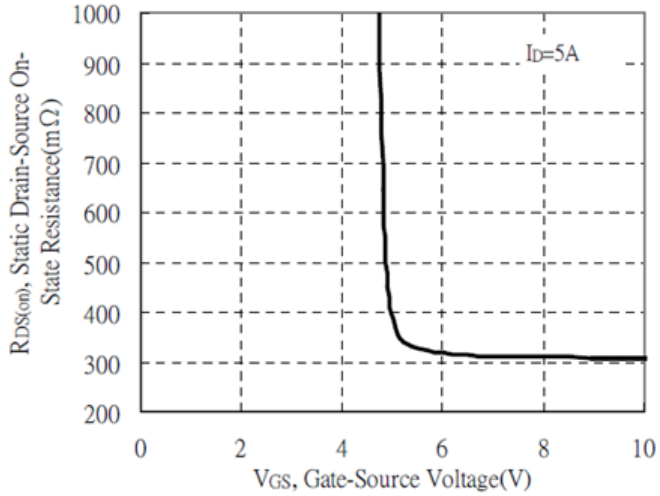
Static Drain-Source On-State resistance vs Drain Current



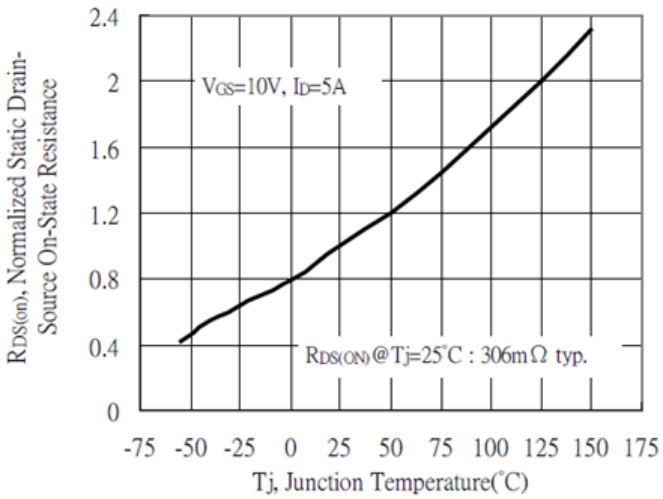
Reverse Drain Current vs Source-Drain Voltage



Static Drain-Source On-State Resistance vs Gate-Source Voltage

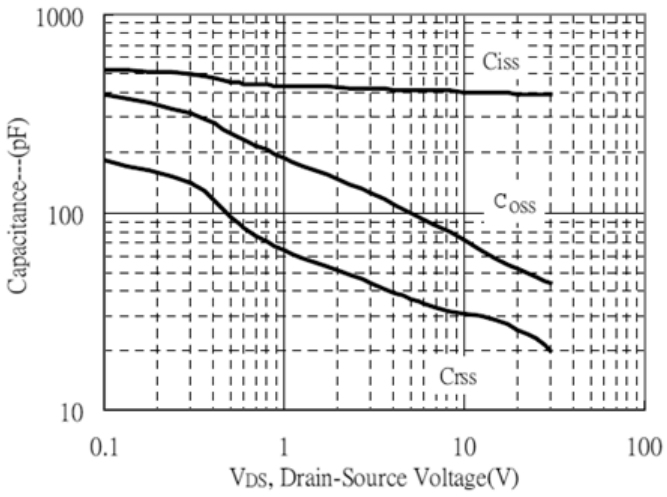


Drain-Source On-State Resistance vs Junction Tempearture

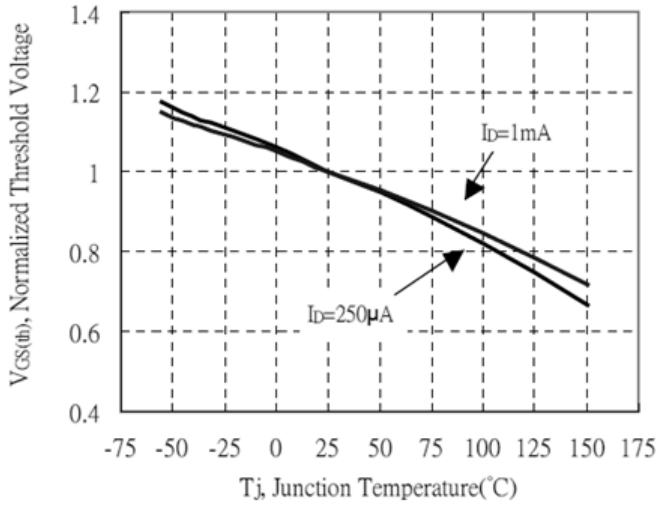


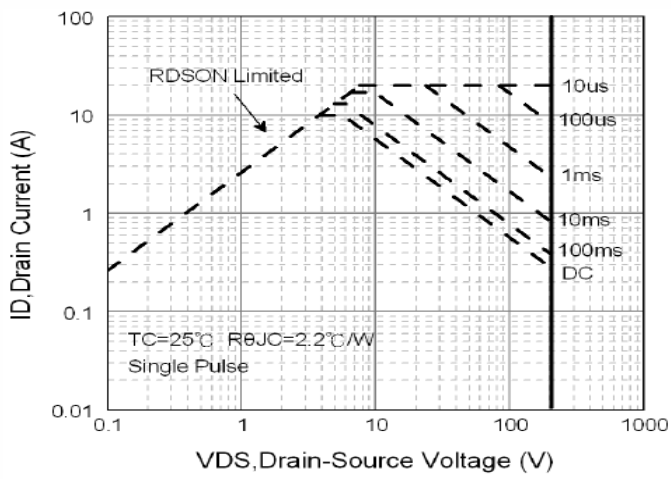
CHARACTERISTIC CURVES

Capacitance vs Drain-to-Source Voltage

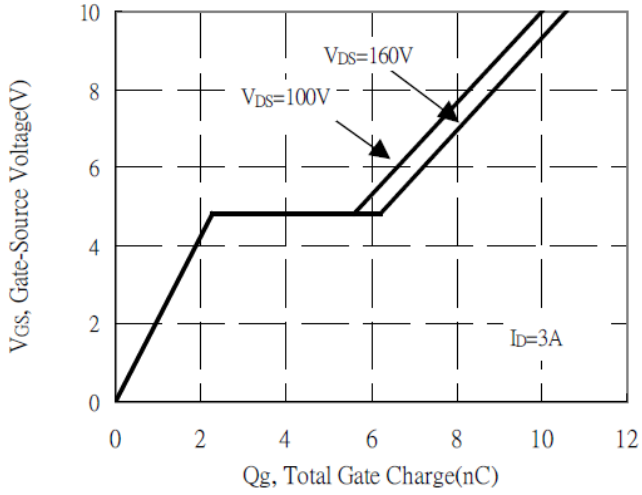


Threshold Voltage vs Junction Tempearture





Gate Charge Characteristics



Transient Thermal Response Curves