Elektronische Bauelemente

SSU98P03-C

-98A, -30V, $R_{DS(ON)}$ 7.5mΩ
P-Ch Enhancement Mode Power MOSFET

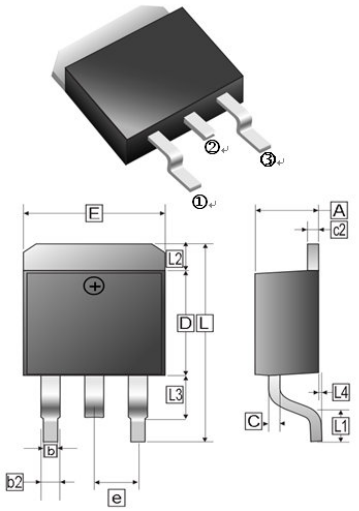
RoHS Compliant Product
A suffix of "-C" specifies halogen free

DESCRIPTION

The SSU98P03-C is the highest performance trench P-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 SSU98P03-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	0.00	0.30	D	8.00	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

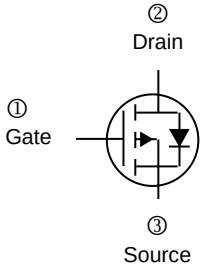
98P03
□□□□ ←□=Date Code

PACKAGE INFORMATION

Package	MPQ	Leader Size
TO-263	0.8K	13 inch

ORDER INFORMATION

Part Number	Type
SSU98P03-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}	-30	V
Gate-Source Voltage		V_{GS}	±20	V
Continuous Drain Current [1] @V_{GS}=10V	T_C=25℃	I_D	-98	A
	T_C=100℃		-62	
Pulsed Drain Current [2]		I_{DM}	-200	A
Power Dissipation [3]	T_C=25℃	P_D	111.6	W
Operating Junction & Storage Temperature Range		T_J, T_{STG}	-55~150	℃
Thermal Data				
Thermal Resistance Junction-Ambient [1]		$R_{\theta JA}$	62	℃/W
Thermal Resistance Junction-Case [1]		$R_{\theta JC}$	1.12	

ELECTRICAL CHARACTERISTICS (T_J=25℃ unless otherwise specified)

Parameter	Symbol	Min.	Typ.	Max.	Unit	Test Conditions
Drain-Source Breakdown Voltage	$V_{(BR)DSS}$	-30	-	-	V	V_{GS}=0V, I_D= -250μA
Gate-Threshold Voltage	$V_{GS(th)}$	-1	-	-2.5	V	V_{DS}=V_{GS}, I_D= -250μA
Gate-Source Leakage Current	I_{GSS}	-	-	±100	nA	V_{GS}= ±20V
Drain-Source Leakage Current	I_{DSS}	-	-	-1	μA	V_{DS}= -24V, V_{GS}=0V, T_J=25℃
		-	-	-5		V_{DS}= -24V, V_{GS}=0V, T_J=55℃
Static Drain-Source On-Resistance [2]	$R_{DS(ON)}$	-	6	7.5	mΩ	V_{GS}= -10V, I_D= -20A
		-	9.5	13		V_{GS}= -4.5V, I_D= -15A
Total Gate Charge	Q_g	-	60	-	nC	I_D= -18A V_{DS}= -15V V_{GS}= -10V
Gate-Source Charge	Q_{gs}	-	9	-		
Gate-Drain Change	Q_{gd}	-	15	-		
Turn-on Delay Time	$T_{d(on)}$	-	17	-	nS	V_{DD}= -15V I_D= -20A V_{GS}= -10V R_G=3.3Ω
Rise Time	T_r	-	40	-		
Turn-off Delay Time	$T_{d(off)}$	-	55	-		
Fall Time	T_f	-	13	-		
Input Capacitance	C_{iss}	-	3450	-	pF	V_{GS}=0V V_{DS}= -25V f=1MHz
Output Capacitance	C_{oss}	-	255	-		
Reverse Transfer Capacitance	C_{rss}	-	140	-		
Source-Drain Diode						
Diode Forward Voltage [2]	V_{SD}	-	-0.7	-1.2	V	I_S= -1A, V_{GS}=0V, T_J=25℃
Continuous Source Current [1]	I_S	-	-	-98	A	
Reverse Recovery Time	T_{rr}	-	22	-	nS	I_F= -20A, dI/dt=100A/μs, T_J=25℃
Reverse Recovery Charge	Q_{rr}	-	72	-	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.

CHARACTERISTIC CURVES

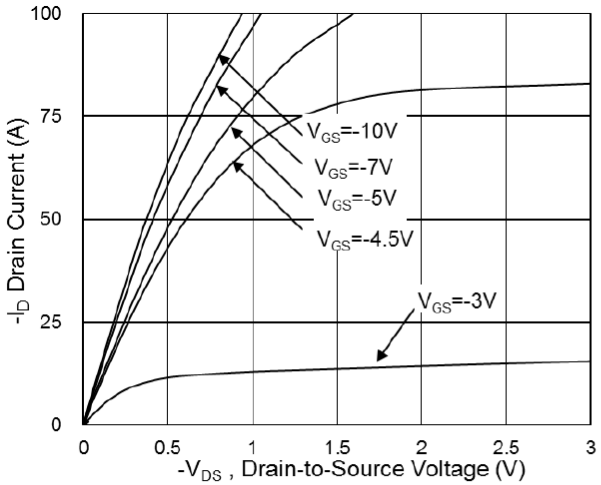


Fig.1 Typical Output Characteristics

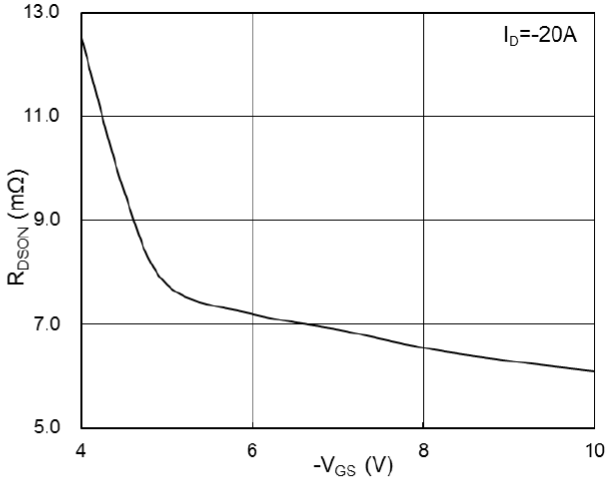


Fig.2 On-Resistance vs. Gate-Source Voltage

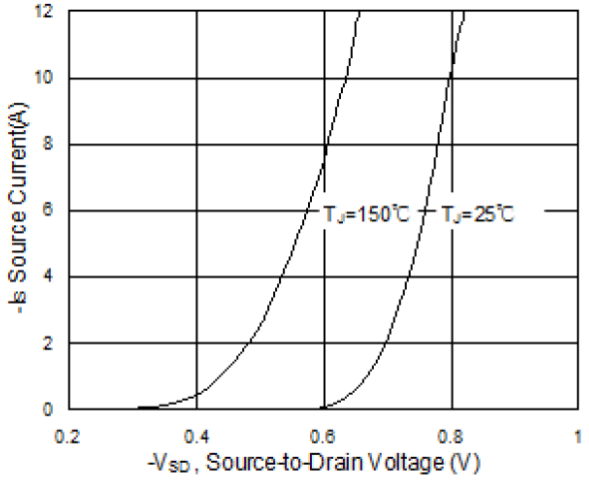


Fig.3 Forward Characteristics of Reverse

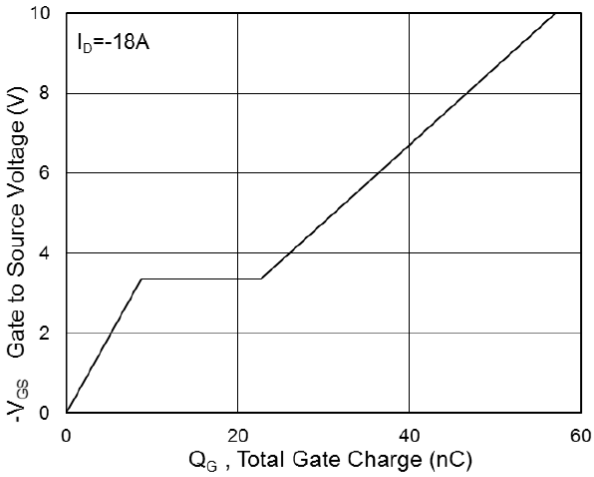


Fig.4 Gate-Charge Characteristics

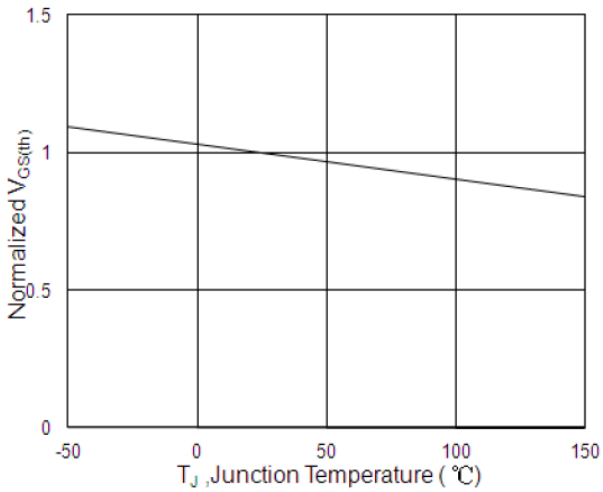


Fig.5 Normalized $-V_{GS(th)}$ vs. T_J

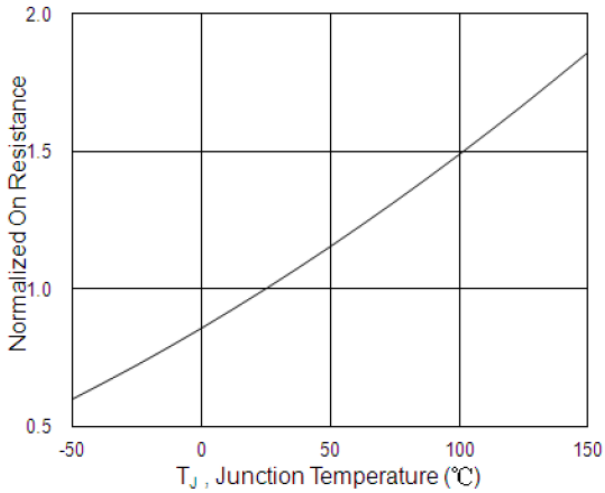


Fig.6 Normalized R_{DSON} vs. T_J

CHARACTERISTIC CURVES

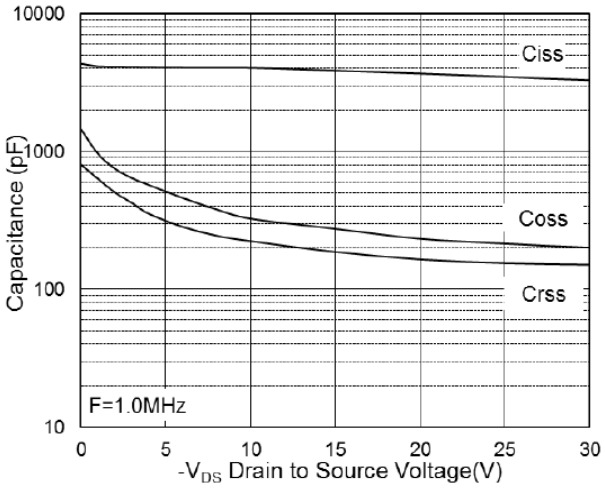


Fig.7 Capacitance

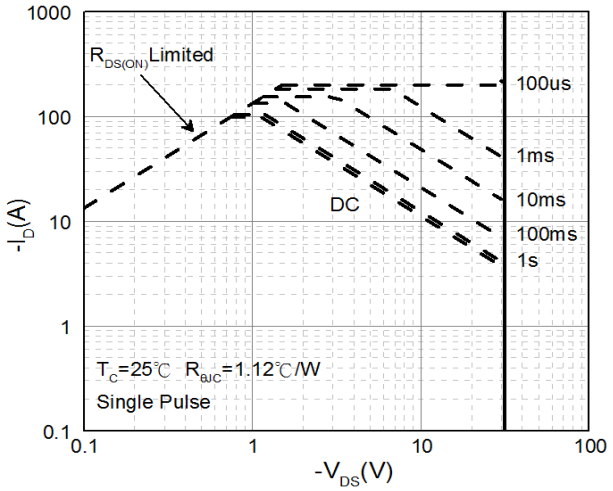


Fig.8 Safe Operating Area

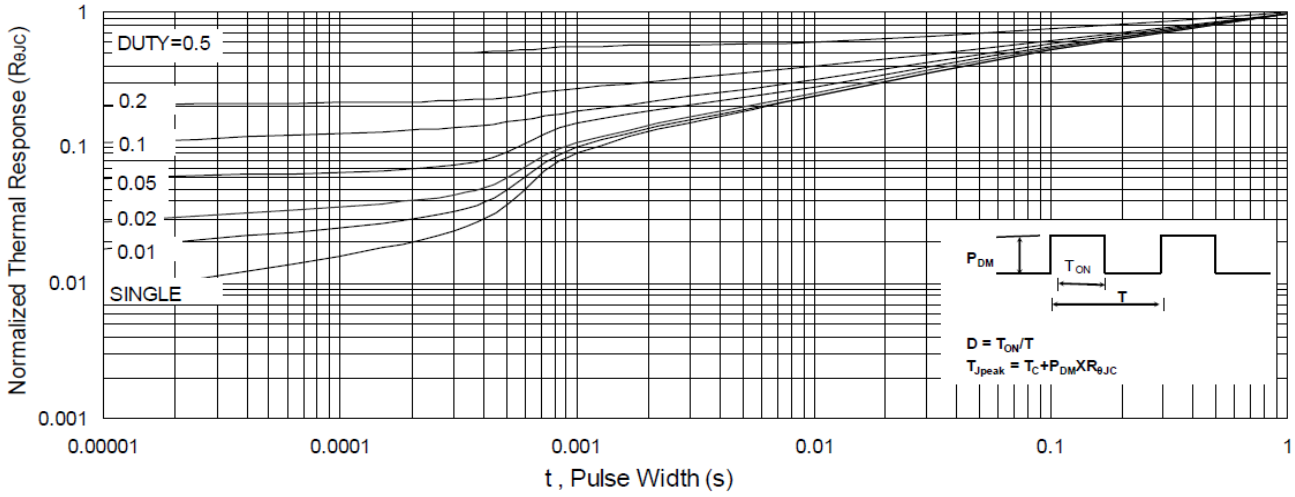


Fig.9 Normalized Maximum Transient Thermal Impedance

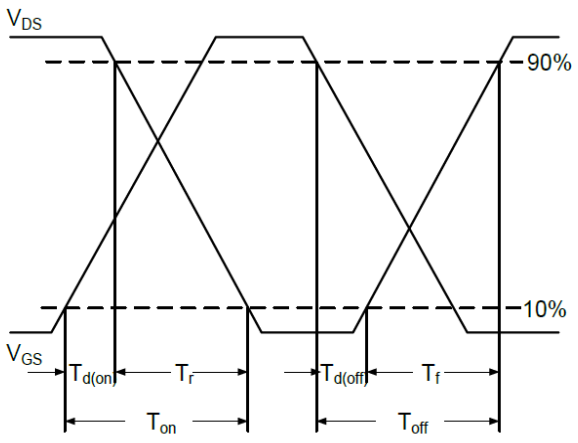


Fig.10 Switching Time Waveform

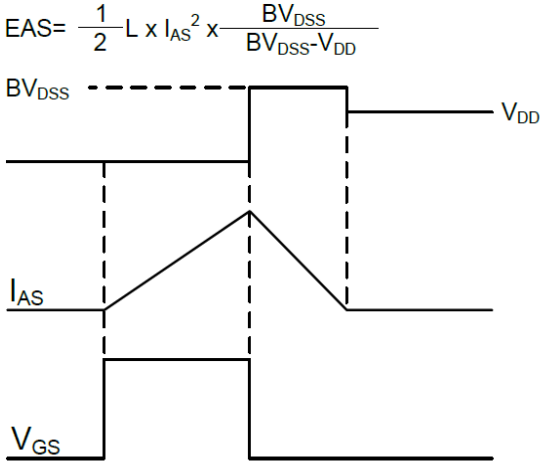


Fig.11 Unclamped Inductive Switching Waveform