

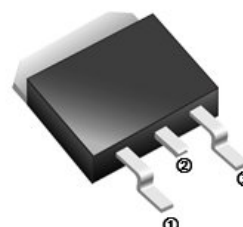
RoHS Compliant Product
A suffix of "-C" specifies halogen & lead-free

DESCRIPTION

The SSU35P10-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 SSU35P10-C meet the RoHS and Green Product requirement with full function reliability approved.

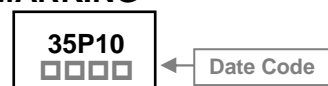
TO-263



FEATURES

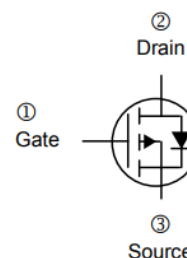
- Advanced High Cell Density Trench Technology
- Super Low Gate Charge

MARKING



PACKAGE INFORMATION

Package	MPQ	Leader Size
TO-263	0.8K	13 inch



ORDER INFORMATION

Part Number	Type
SSU35P10-C	Lead (Pb)-free and Halogen-free

ABSOLUTE MAXIMUM RATINGS

Parameter	Symbol	Ratings	Unit
Drain-Source Voltage	V_{DS}	-100	V
Gate-Source Voltage	V_{GS}	± 20	V
Continuous Drain Current ¹ , @ $V_{GS} = -10V$	$T_C = 25^\circ C$	-35	A
	$T_C = 100^\circ C$	-23	
Pulsed Drain Current ³	I_{DM}	-100	A
Total Power Dissipation ²	$T_C = 25^\circ C$	P_D	104 W
Operating Junction & Storage Temperature	T_J, T_{STG}	-55~150	$^\circ C$
Thermal Resistance Ratings			
Thermal Resistance Junction-Case ¹	$R_{\theta JC}$	1.2	$^\circ C/W$
Thermal Resistance Junction-Ambient ¹	$R_{\theta JA}$	62	

ELECTRICAL CHARACTERISTICS ($T_J=25^\circ\text{C}$ unless otherwise specified)

Parameter	Symbol	Min.	Typ.	Max.	Unit	Test Conditions
Drain-Source Breakdown Voltage	BV_{DSS}	-100	-	-	V	$V_{GS}=0, I_D = -250\mu\text{A}$
Gate Threshold Voltage	$V_{GS(th)}$	-1	-	-2.5	V	$V_{DS}=V_{GS}, I_D = -250\mu\text{A}$
Forward Transconductance	g_{fs}	-	32	-	S	$V_{DS} = -10\text{V}, I_D = -10\text{A}$
Gate-Source Leakage Current	I_{GSS}	-	-	± 100	nA	$V_{GS}=\pm 20\text{V}$
Drain-Source Leakage Current	I_{DSS}	-	-	-1	μA	$V_{DS} = -80\text{V}, V_{GS}=0$
Static Drain-Source On-Resistance ³	$R_{DS(ON)}$	-	-	50	m Ω	$V_{GS} = -10\text{V}, I_D = -10\text{A}$
		-	-	60		$V_{GS} = -4.5\text{V}, I_D = -8\text{A}$
Total Gate Charge	Q_g	-	92	-	nC	$I_D = -14\text{A}$ $V_{DS} = -80\text{V}$ $V_{GS} = -10\text{V}$
Gate-Source Charge	Q_{gs}	-	17.5	-		
Gate-Drain Charge	Q_{gd}	-	14	-		
Turn-on Delay Time	$T_{d(on)}$	-	20.5	-	nS	$V_{DD} = -50\text{V}$ $I_D = -14\text{A}$ $V_{GS} = -10\text{V}$ $R_G = 3.3\Omega$
Rise Time	T_r	-	32.2	-		
Turn-off Delay Time	$T_{d(off)}$	-	123	-		
Fall Time	T_f	-	63.7	-		
Input Capacitance	C_{iss}	-	6516	-	pF	$V_{GS}=0$ $V_{DS} = -25\text{V}$ $f=1\text{MHz}$
Output Capacitance	C_{oss}	-	223	-		
Reverse Transfer Capacitance	C_{rss}	-	125	-		
Source-Drain Diode						
Diode Forward Voltage ³	V_{SD}	-	-	-1.2	V	$I_S = -1\text{A}, V_{GS}=0$
Continuous Source Current ¹	I_S	-	-	-35	A	
Reverse Recovery Time	t_{rr}	-	31.2	-	nS	$I_F = -14\text{A}, dI/dt=100\text{A}/\mu\text{s},$ $T_J=25^\circ\text{C}$
Reverse Recovery Charge	Q_{rr}	-	31.97	-	nC	

Notes:

1. Surface mounted on a 1 inch² FR-4 board with 2OZ copper.
2. Pulse width limited by maximum junction temperature.
3. The data tested by pulsed, pulse width $\leq 300\mu\text{s}$, duty cycle $\leq 2\%$.

CHARACTERISTIC CURVES

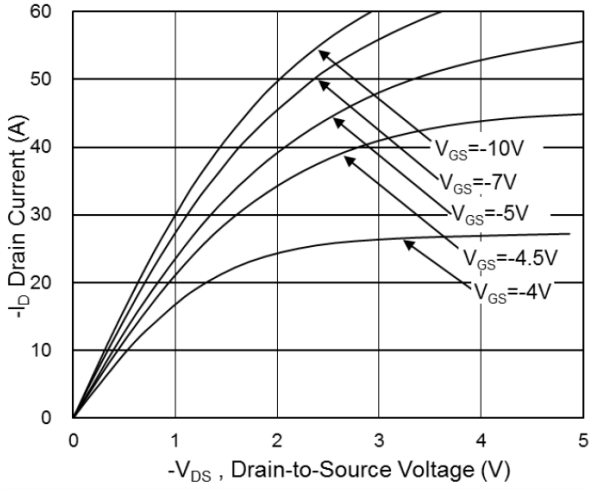


Fig.1 Typical Output Characteristics

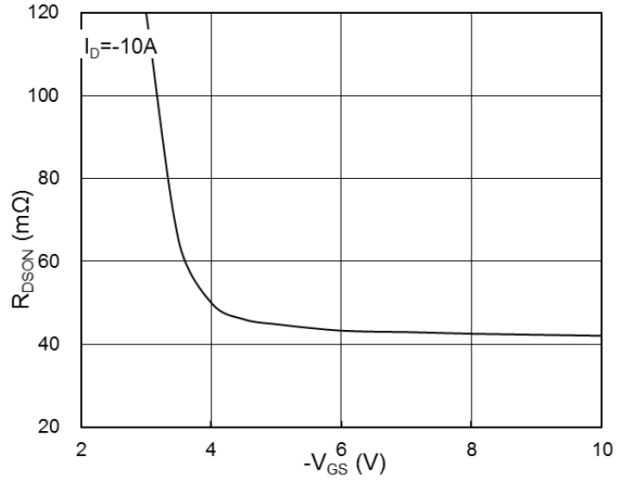


Fig.2 On-Resistance vs. G-S Voltage

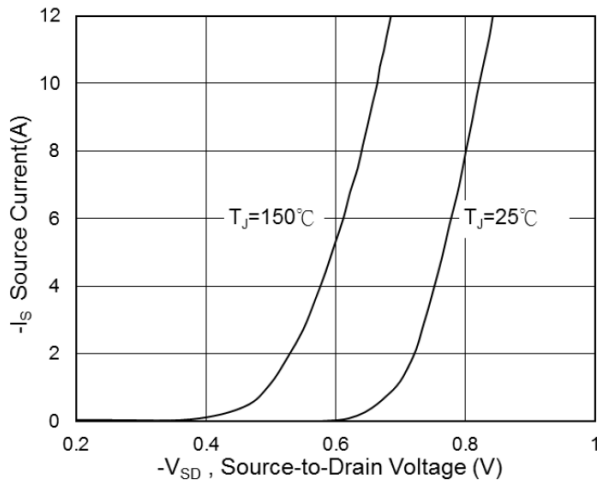


Fig.3 Typical S-D Diode Forward Voltage

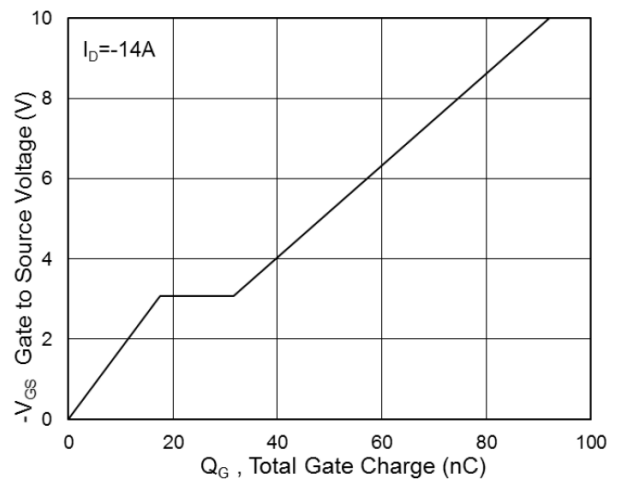


Fig.4 Gate-Charge Characteristics

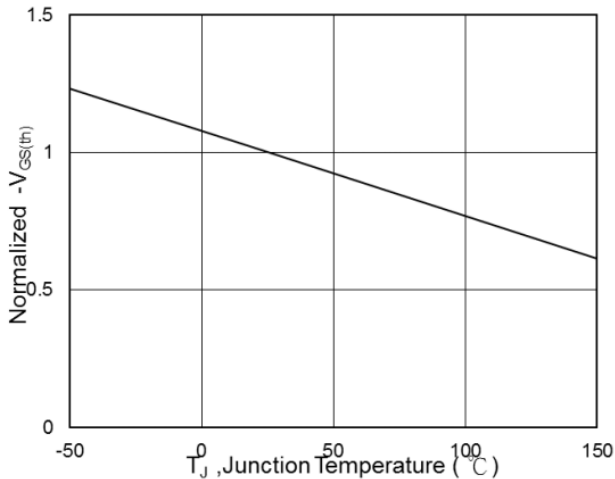


Fig.5 Normalized $V_{GS(th)}$ vs. T_J

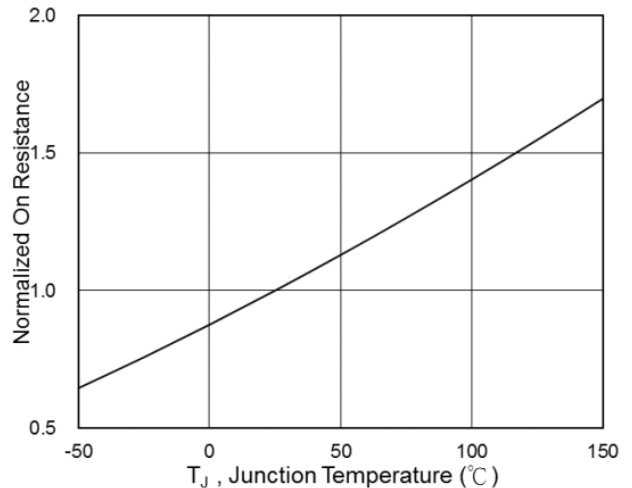


Fig.6 Normalized $R_{DS(ON)}$ vs. T_J

CHARACTERISTIC CURVES

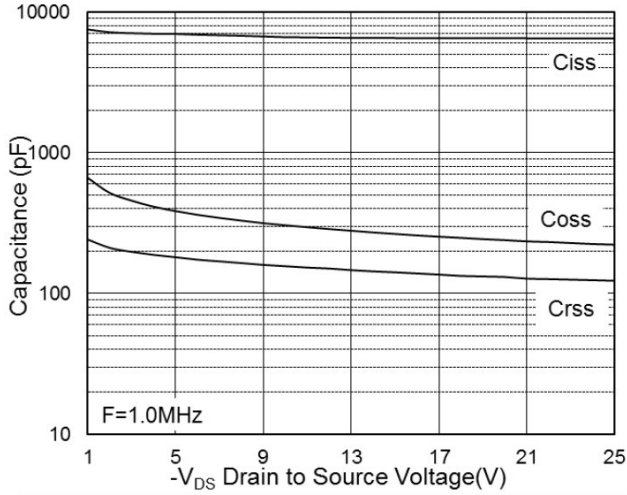


Fig.7 Capacitance

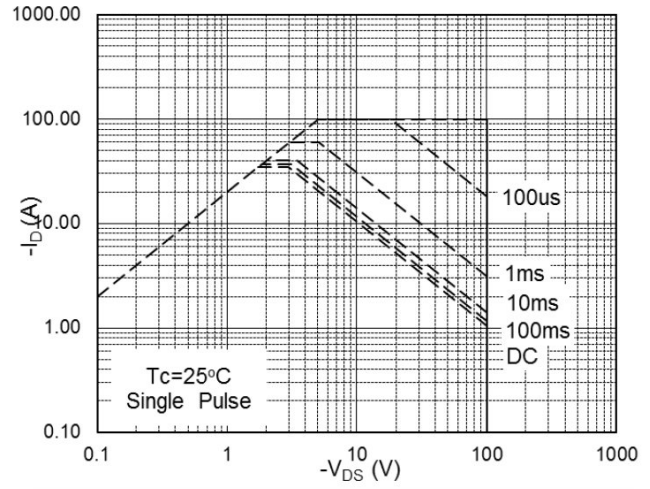


Fig.8 Safe Operating Area

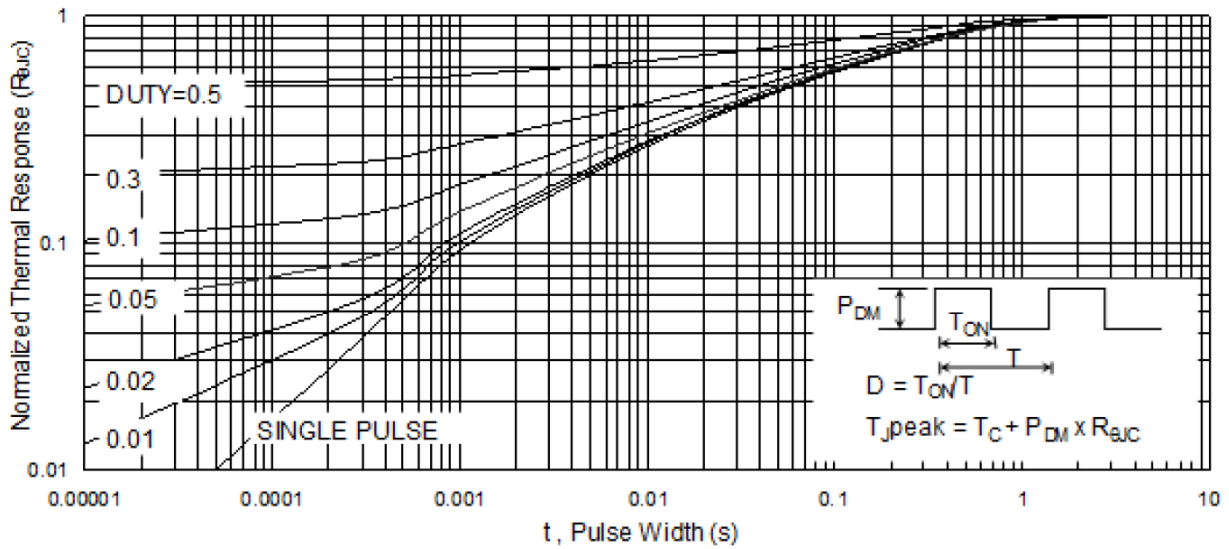


Fig.9 Normalized Maximum Transient Thermal Impedance

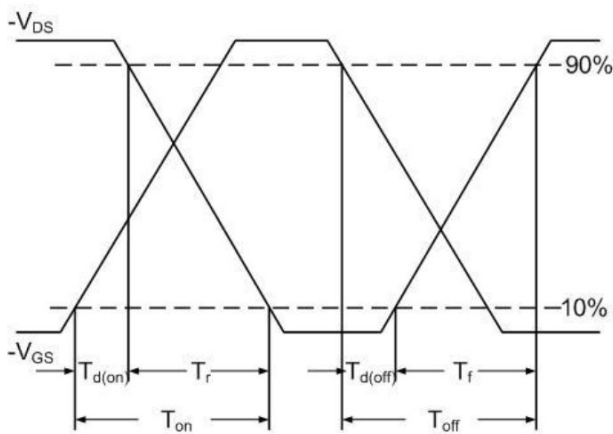


Fig.10 Switching Time Waveform

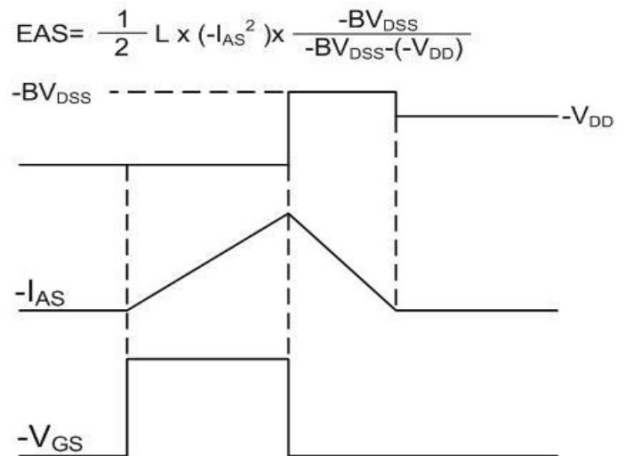
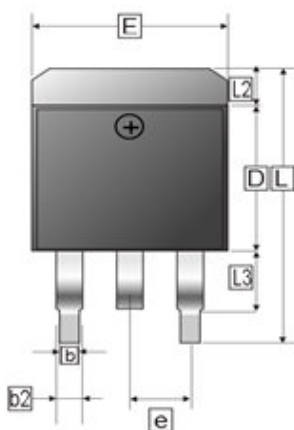


Fig.11 Unclamped Inductive Waveform

PACKAGE OUTLINE DIMENSIONS

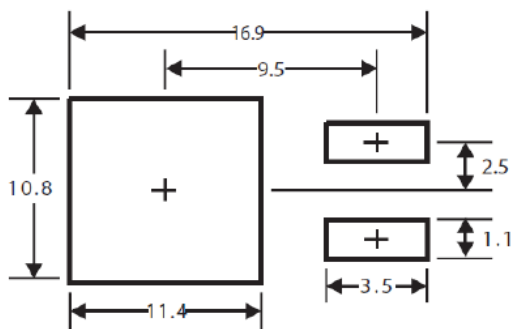
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REF.	Millimeter	
	Min.	Max.
A	4.00	4.87
b	0.508	1.01
L4	0	0.30
C	0.30	0.74
L3	1.50 REF.	
L1	2.50 REF.	
E	9.60	10.67
c2	1.07	1.65
b2	1.34 REF.	
D	8.00	9.652
e	2.54 REF.	
L	14.6	16.1
L2	1.27 REF.	

MOUNTING PAD LAYOUT

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*Dimensions in millimeters