Elektronische Bauelemente

SSG4953-C

-4.9A, -30V, $R_{DS(ON)}$ 48mΩ

Dual-P Enhancement Mode Power MOSFET

RoHS Compliant Product

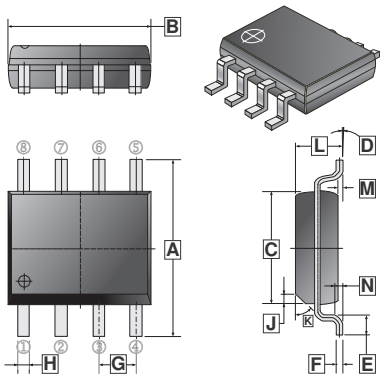
A suffix of "-C" specifies halogen & lead-free

DESCRIPTION

The SSG4953-C is the highest performance trench Dual 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 SSG4953-C meet the RoHS and Green Product requirement with full function reliability approved.

SOP-8

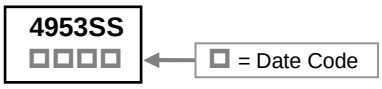


REF.	Millimeter		REF.	Millimeter	
	Min.	Max.		Min.	Max.
A	5.79	6.20	H	0.33	0.51
B	4.70	5.11	J	0.375 REF.	
C	3.80	4.00	K	45°REF.	
D	0°	8°	L	1.3	1.752
E	0.40	1.27	M	0	0.25
F	0.10	0.25	N	0.25 REF.	
G	1.27 TYP.				

FEATURES

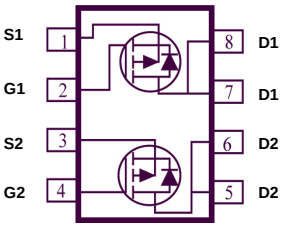
- Advanced High Cell Density Trench Technology
- Super Low Gate Charge
- Green Device Available

MARKING

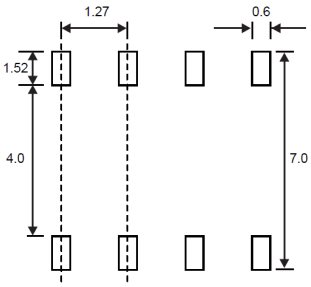


PACKAGE INFORMATION

Package	MPQ	Leader Size
SOP-8	2.5K	13 inch



Mounting Pad Layout



*Dimensions in millimeters

ORDER INFORMATION

Part Number	Type
SSG4953-C	Lead (Pb)-free and Halogen-free

MAXIMUM RATINGS

Parameter		Symbol	Ratings	Unit
Drain-Source Voltage		V_{DS}	-30	V
Gate-Source Voltage		V_{GS}	±20	V
Continuous Drain Current @V_{GS}= -10V [1]	T_A=25℃	I_D	-4.9	A
	T_A=70℃		-3.9	
Pulsed Drain Current [3]		I_{DM}	-10	A
Total Power Dissipation	T_A=25℃	P_D	1.5	W
Operating Junction & Storage Temperature Range		T_J, T_{STG}	-55~150	℃
Thermal Resistance Ratings				
Thermal Resistance Junction-Ambient [1]		$R_{\theta JA}$	83	℃/W
Thermal Resistance Junction-Ambient [2]			125	
Thermal Resistance Junction-Case [1]		$R_{\theta JC}$	50	

ELECTRICAL CHARACTERISTICS (T_J=25℃ unless otherwise specified)

Parameter		Symbol	Min.	Typ.	Max.	Unit	Test Conditions
Drain-Source Breakdown Voltage		BV_{DSS}	-30	-	-	V	V_{GS}=0, I_D= -250μA
Gate Threshold Voltage		$V_{GS(th)}$	-1	-	-2.5	V	V_{DS}=V_{GS}, I_D= -250μA
Forward Transconductance		g_{fs}	-	6	-	S	V_{DS}= -10V, I_D= -4A
Gate-Source Leakage Current		I_{GSS}	-	-	±100	nA	V_{GS}= ±20V
Drain-Source Leakage Current	T_J=25℃	I_{DSS}	-	-	-1	μA	V_{DS}= -24V, V_{GS}=0
	T_J=55℃		-	-	-5		V_{DS}= -24V, V_{GS}=0
Static Drain-Source On-Resistance [4]		$R_{DS(ON)}$	-	-	48	mΩ	V_{GS}= -10V, I_D= -4A
			-	-	82		V_{GS}= -4.5V, I_D= -3A
Total Gate Charge		Q_g	-	6.4	-	nC	I_D= -4A V_{DS}= -20V V_{GS}= -4.5V
Gate-Source Charge		Q_{gs}	-	2.2	-		
Gate-Drain Charge		Q_{gd}	-	2.3	-		
Turn-on Delay Time		$T_{d(on)}$	-	9	-	nS	V_{DS}= -12V I_D= -4A V_{GS}= -10V R_G=3.3Ω
Rise Time		T_r	-	16.6	-		
Turn-off Delay Time		$T_{d(off)}$	-	21	-		
Fall Time		T_f	-	21.6	-		
Input Capacitance		C_{iss}	-	632	-	pF	V_{GS}=0 V_{DS}= -15V f=1MHz
Output Capacitance		C_{oss}	-	100	-		
Reverse Transfer Capacitance		C_{rss}	-	74	-		
Source-Drain Diode							
Continuous Source Current [1]		I_S	-	-	-4.9	A	
Pulsed Source Current [3]		I_{SM}	-	-	-10		
Forward on Voltage [4]		V_{SD}	-	-	-1.2	V	I_S= -1A, V_{GS}=0

Notes:
1. Surface Mounted on 1”x1” FR-4 Board with 2oz copper.
2. When mounted on Min. copper pad.
3. Pulse width limited by maximum junction temperature, Pulse Width≦300μs, Duty Cycle≦2%.
4. Pulse Test: Pulse Width≦300μs, Duty Cycle≦2%.

CHARACTERISTIC CURVES

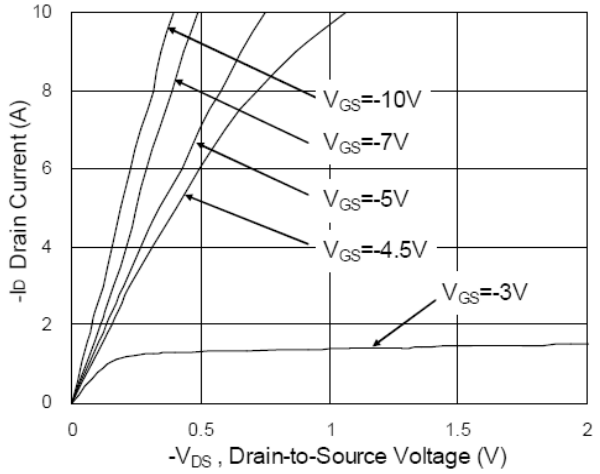


Fig.1 Typical Output Characteristics

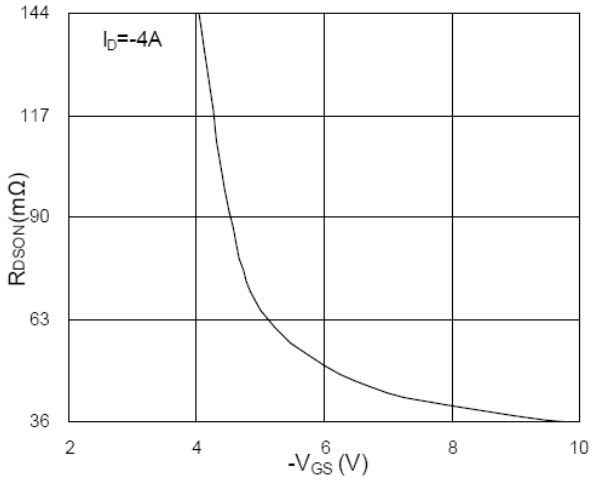


Fig.2 On-Resistance vs. Gate-Source

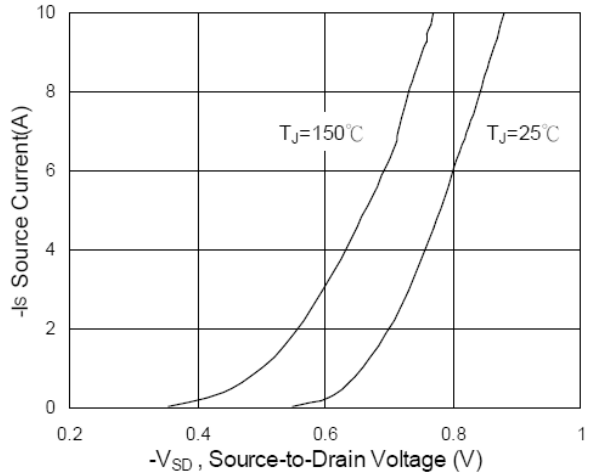


Fig.3 Forward Characteristics of Reverse

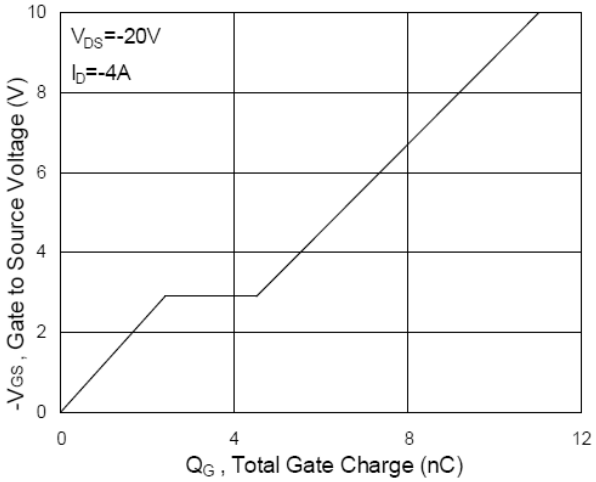


Fig.4 Gate-Charge Characteristics

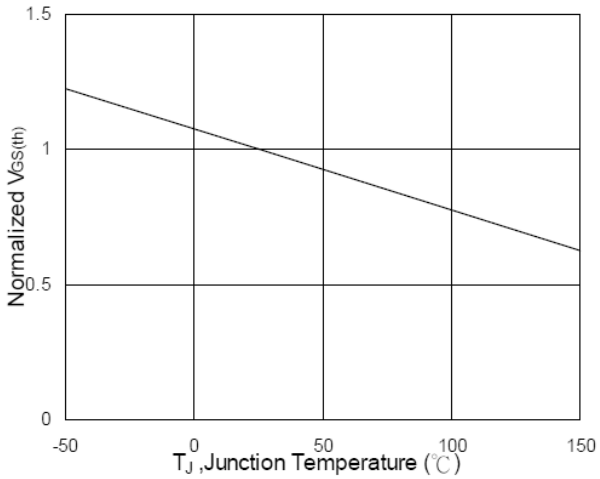


Fig.5 Normalized $V_{GS(th)}$ vs. T_J

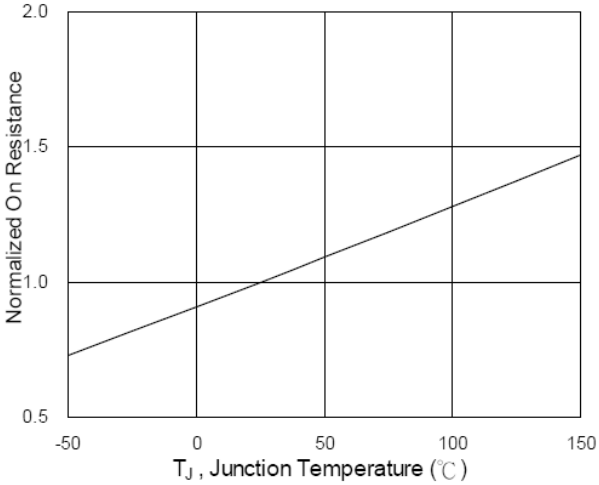


Fig.6 Normalized R_{DSON} vs. T_J

CHARACTERISTIC CURVES

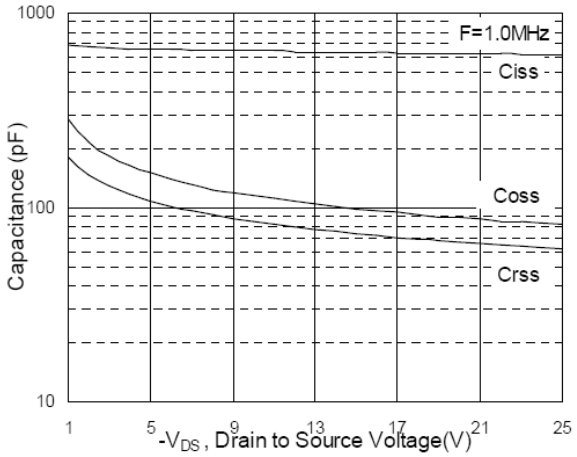


Fig.7 Capacitance

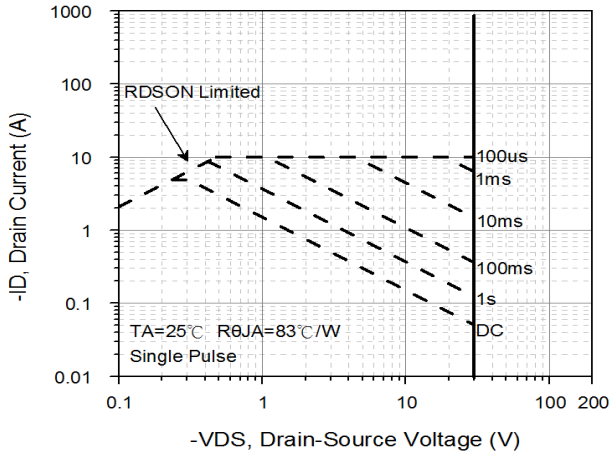


Fig.8 Safe Operating Area

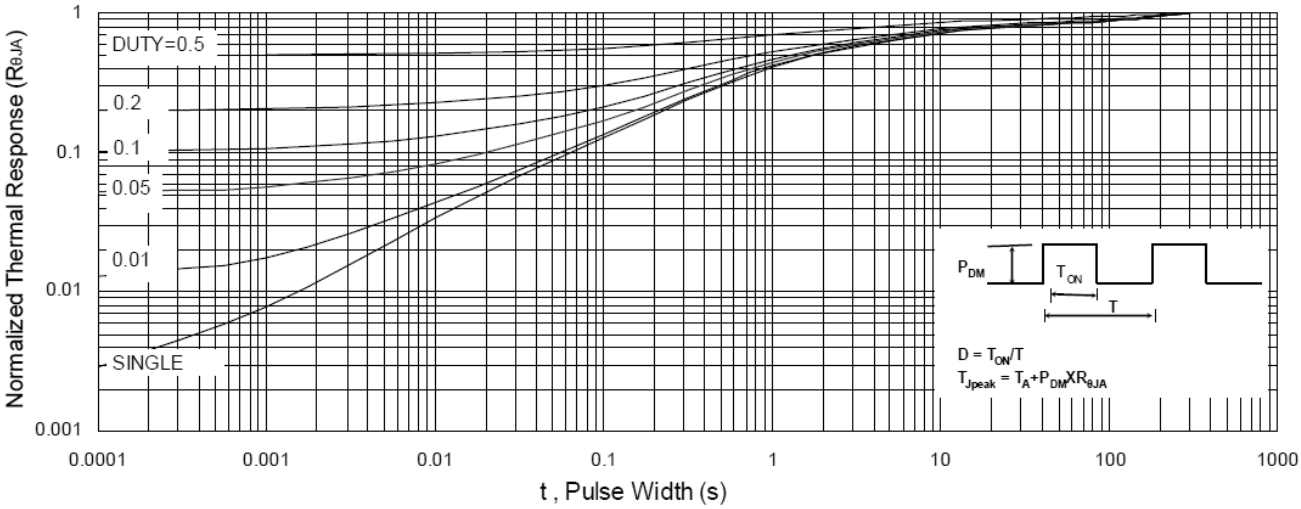


Fig.9 Normalized Maximum Transient Thermal Impedance

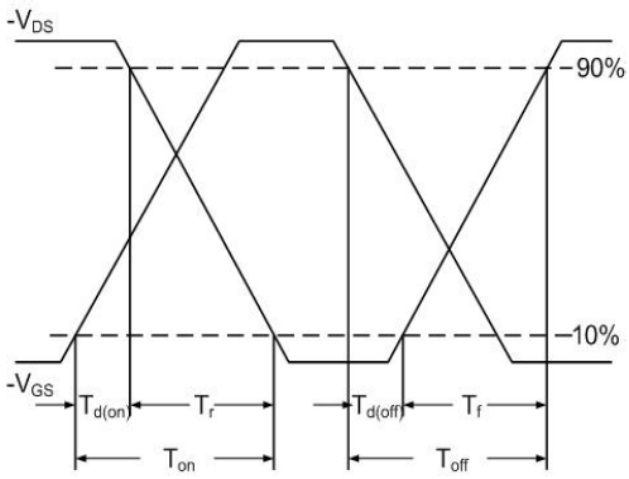


Fig.10 Switching Time Waveform

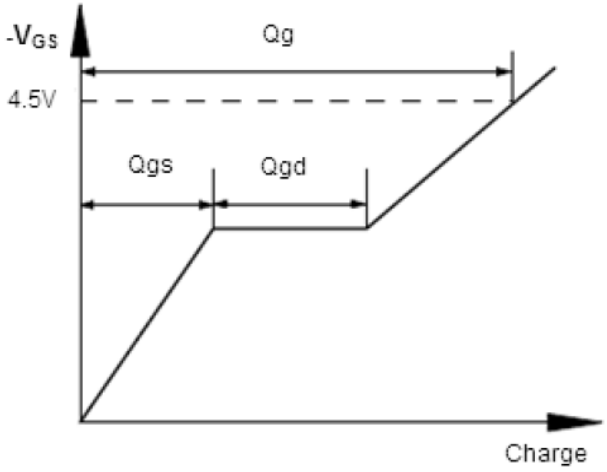


Fig.11 Gate Charge Waveform