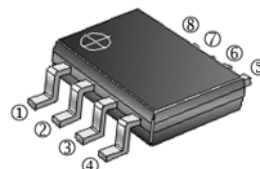


RoHS Compliant Product  
A suffix of "-C" specifies halogen & lead-free

## DESCRIPTION

The SSG4903J-C uses advanced trench technology and design to provide excellent  $R_{DS(ON)}$  with low gate charge. This device is ideally suited for use in a wide variety of applications.

**SOP-8**



## FEATURES

- Surface Mount Package
- Super High Density Cell Design for Extremely Low  $R_{DS(ON)}$

## MARKING

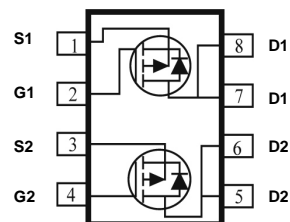


## PACKAGE INFORMATION

Package	MPQ	Leader Size
SOP-8	4K	13 inch

## ORDER INFORMATION

Part Number	Type
SSG4903J-C	Lead (Pb)-free and Halogen-free



## ABSOLUTE MAXIMUM RATINGS ( $T_J=25^\circ\text{C}$ unless otherwise specified)

Parameter	Symbol	Ratings	Unit
Drain-Source Voltage	$V_{DS}$	-30	V
Gate-Source Voltage	$V_{GS}$	$\pm 20$	V
Continuous Drain Current <sup>1</sup>	$I_D$	-8	A
Pulsed Drain Current <sup>1</sup>	$I_{DM}$	-32	A
Power Dissipation <sup>3</sup>	$P_D$	2.2	W
Thermal Resistance Junction-Ambient <sup>3</sup>	$R_{\theta JA}$	56	$^\circ\text{C/W}$
Operating Junction & Storage Temperature Range	$T_J, T_{STG}$	-55~150	$^\circ\text{C}$

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

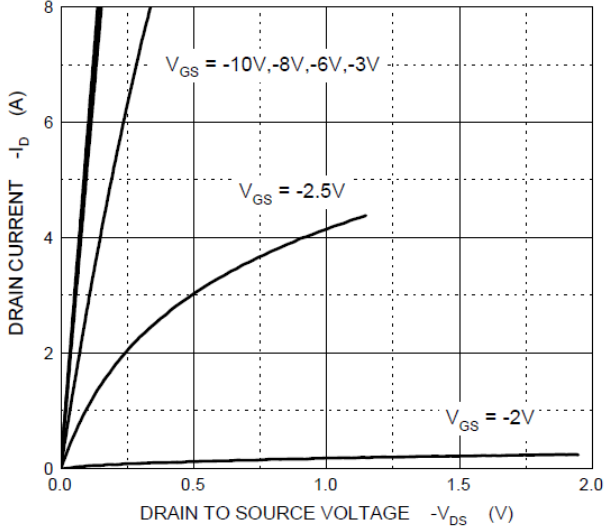
Parameter	Symbol	Min.	Typ.	Max.	Unit	Test Conditions
Drain-Source Breakdown Voltage	$BV_{DSS}$	-30	-	-	V	$V_{GS}=0, I_D=-250\mu\text{A}$
Gate Threshold Voltage	$V_{GS(th)}$	-1	-1.4	-2.5	V	$V_{DS}=V_{GS}, I_D=-250\mu\text{A}$
Gate-Body Leakage	$I_{GSS}$	-	-	$\pm 100$	nA	$V_{DS}=0\text{V}, V_{GS}=\pm 20\text{V}$
Zero Gate Voltage Drain Current	$I_{DSS}$	-	-	-1	$\mu\text{A}$	$V_{DS}=-24\text{V}, V_{GS}=0\text{V}$
		-	-	-100		$V_{DS}=-24\text{V}, V_{GS}=0\text{V}, T_J=125^\circ\text{C}$
Drain-Source On-Resistance <sup>2</sup>	$R_{DS(ON)}$	-	18	23	m $\Omega$	$V_{GS}=-10\text{V}, I_D=-8\text{A}$
		-	22	33		$V_{GS}=-4.5\text{V}, I_D=-4\text{A}$
Gate Resistance	$R_G$	-	6	-	$\Omega$	$f=1\text{MHz}$
Total Gate Charge	$Q_g$	-	17	-	nC	$I_D=-8\text{A}$ $V_{DD}=-15\text{V}, V_{GS}=-4.5\text{V}$
		-	38	-		$I_D=-8\text{A}$ $V_{DD}=-15\text{V}$ $V_{GS}=-10\text{V}$
Gate-Source Charge	$Q_{gs}$	-	5	-		
Gate-Drain Charge	$Q_{gd}$	-	7	-		
Turn-On Delay Time	$T_{d(on)}$	-	8	-	nS	$I_D=-8\text{A}$ $V_{DD}=-15\text{V}$ $V_{GS}=-10\text{V}$ $R_G=10\Omega$
Rise Time	$T_r$	-	57	-		
Turn-Off Delay Time	$T_{d(off)}$	-	88	-		
Fall Time	$T_f$	-	43	-		
Input Capacitance	$C_{iss}$	-	1948	-	pF	$V_{DS}=-15\text{V}$ $V_{GS}=0$ $f=1\text{MHz}$
Output Capacitance	$C_{oss}$	-	183	-		
Reverse Transfer Capacitance	$C_{rss}$	-	175	-		
<b>Source-Drain Diode</b>						
Diode Forward Voltage <sup>2</sup>	$V_{SD}$	-	-	-1.2	V	$V_{GS}=0\text{V}, I_S=-2\text{A}$
Continuous Drain-Source Diode Forward Current <sup>1</sup>	$I_S$	-	-	-8	A	
Pulsed Drain-Source Diode Forward Current <sup>1</sup>	$I_{SM}$	-	-	-32		

Notes:

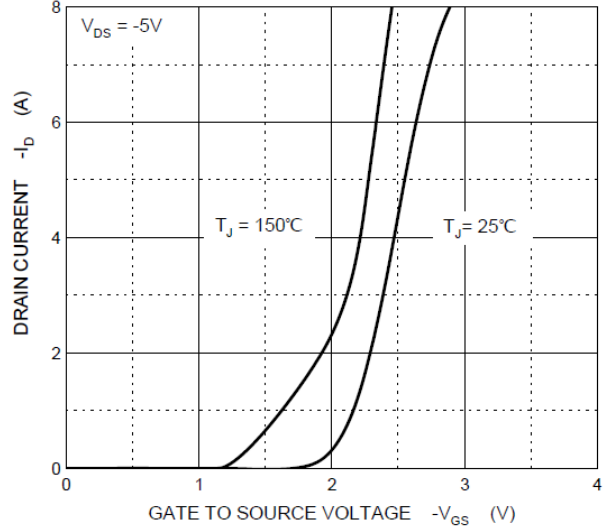
- $T_A=25^\circ\text{C}$
- Pulse Test : Pulse Width $\leq 380\mu\text{s}$ , duty cycle  $\leq 2\%$ .
- Device mounted on 1 in<sup>2</sup> FR-4 board with 2oz. single-sided Copper, in a still air environment with  $T_A=25^\circ\text{C}$ . Single-sided active.

**CHARACTERISTIC CURVES**

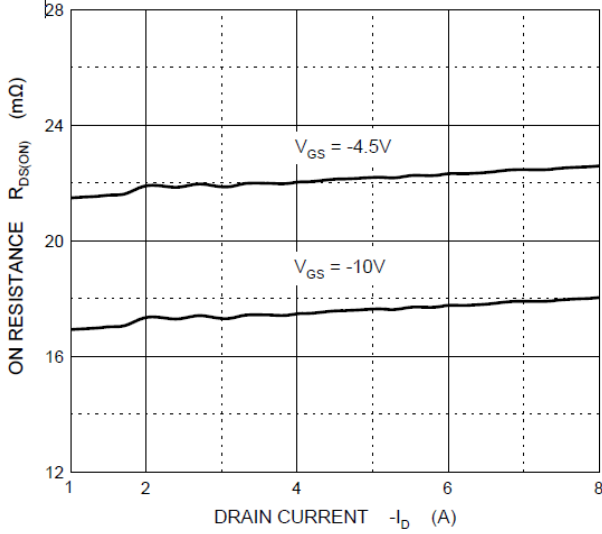
**Output Characteristics**



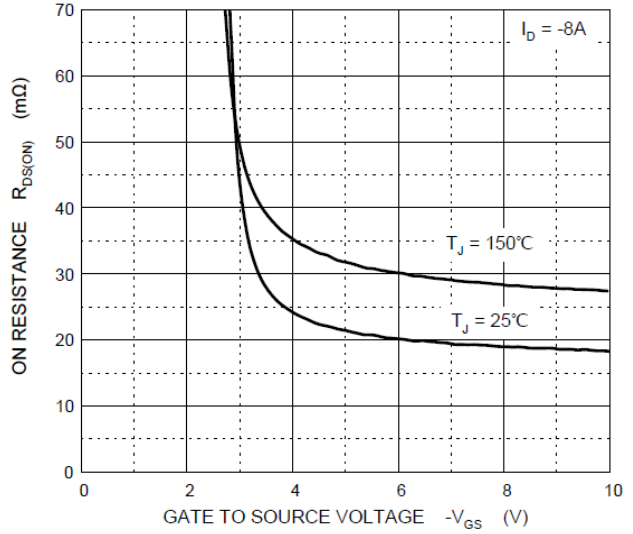
**Transfer Characteristics**



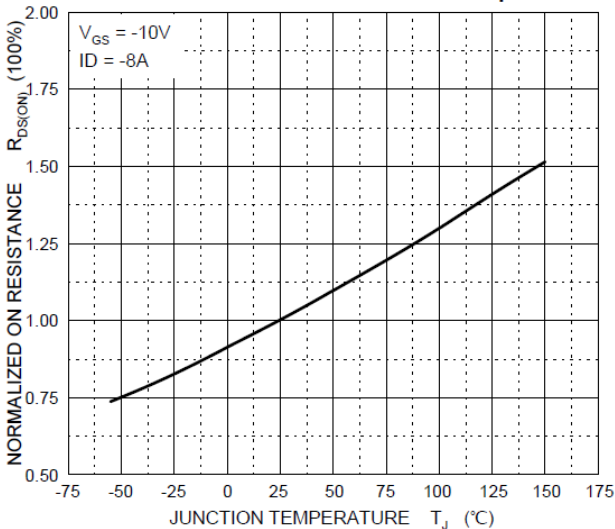
**On Resistance vs. Drain Current**



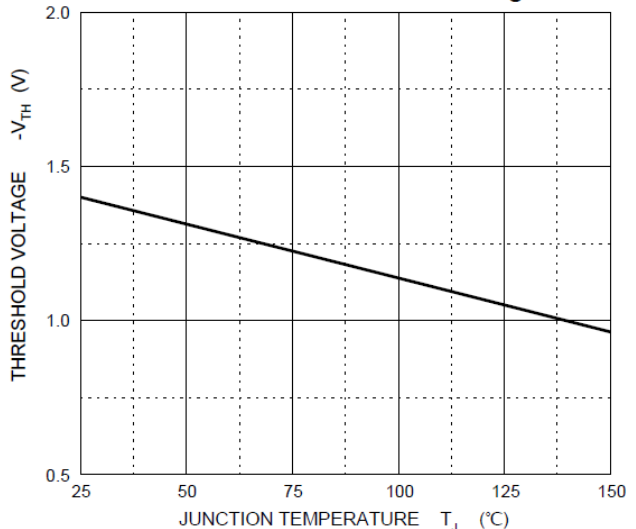
**On Resistance vs. Gate-Source Bias**



**On Resistance vs. Junction Temperature**

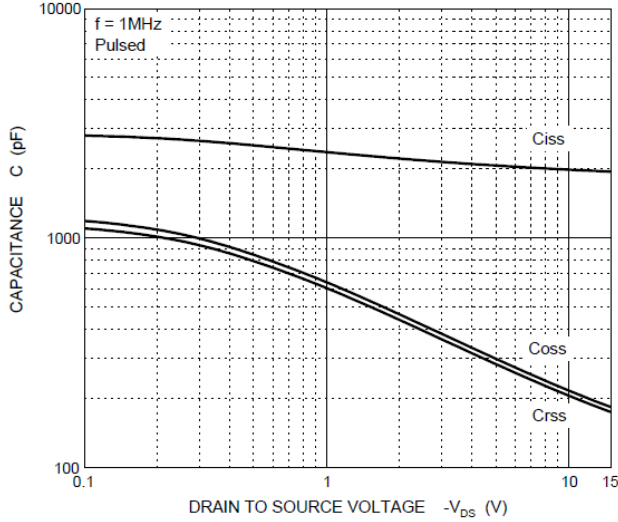


**Gate-Source Threshold Voltage**

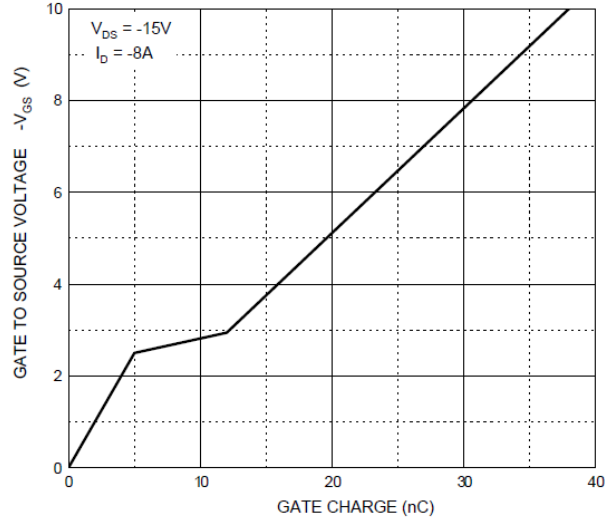


**CHARACTERISTIC CURVES**

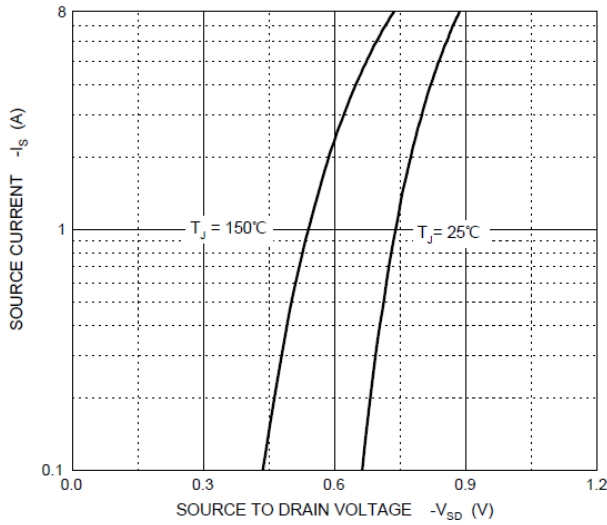
Typical Capacitances



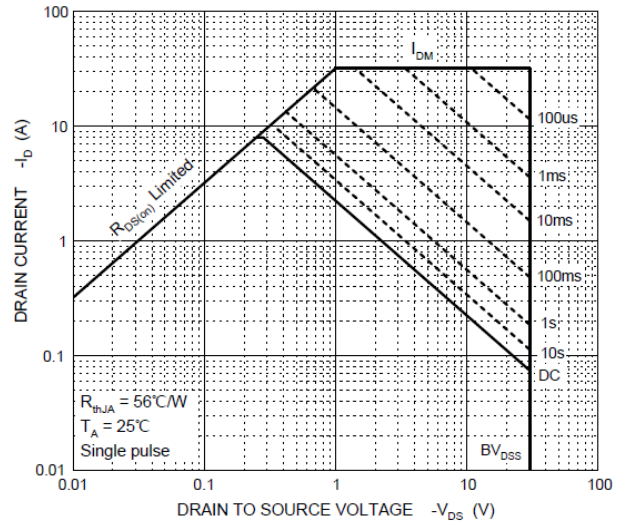
Gate Charge



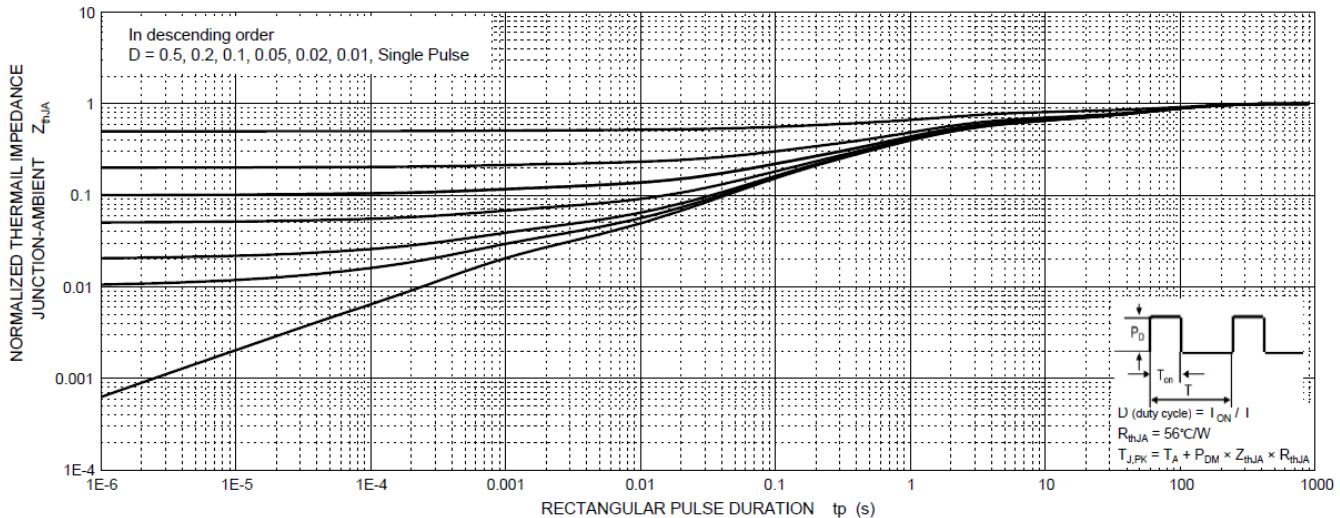
Source-Drain Diode Forward Characteristics



Maximum Safe Operating Area

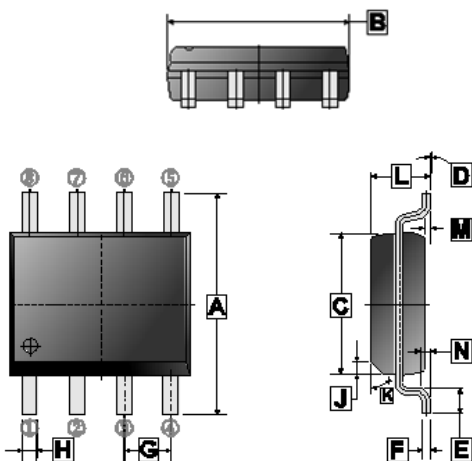


Transient Thermal Impedance, Junction-Ambient



**PACKAGE OUTLINE DIMENSIONS**

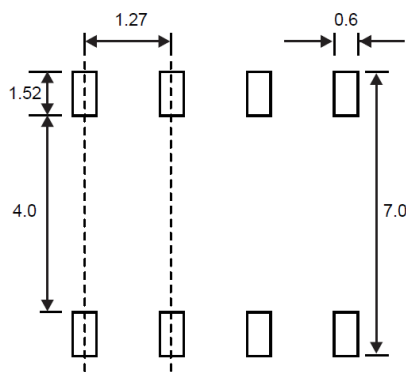
**SOP-8**



REF.	Millimeter	
	Min.	Max.
A	5.79	6.20
B	4.70	5.11
C	3.80	4.00
D	0°	8°
E	0.40	1.27
F	0.10	0.25
G	1.27 TYP.	
H	0.33	0.51
J	0.375 REF.	
K	45° REF.	
L	1.30	1.752
M	0	0.25
N	0.25 REF.	

**MOUNTING PAD LAYOUT**

**SOP-8**



\*Dimensions in millimeters