

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

SOP-8

DESCRIPTION

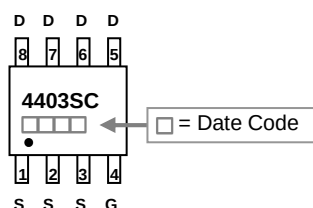
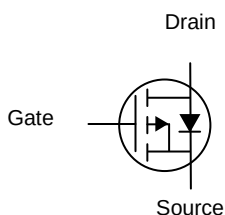
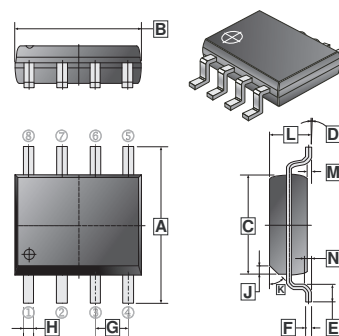
The SSG4403 uses advanced trench technology to provide excellent on-resistance, low gate charge and operation with gate voltages as low as 2.5V.

The device is suitable for use as a load switch or in PWM applications.

FEATURES

- Low Gate Charge
- Lower On-resistance
- Fast Switching Characteristic

PACKAGE DIMENSIONS



REF.	Millimeter		REF.	Millimeter	
	Min.	Max.		Min.	Max.
A	5.80	6.20	H	0.35	0.49
B	4.80	5.00	J	0.375	REF.
C	3.80	4.00	K	45°	
D	0°	8°	L	1.35	1.75
E	0.40	0.90	M	0.10	0.25
F	0.19	0.25	N	0.25	REF.
G	1.27 TYP.				

ABSOLUTE MAXIMUM RATINGS

PARAMETER	SYMBOL	RATINGS	UNIT
Drain-Source Voltage	V_{DS}	-30	V
Gate-Source Voltage	V_{GS}	± 12	V
Continuous Drain Current ³	I_D @ $T_a=25^\circ\text{C}$	-6.1	A
Continuous Drain Current ³	I_D @ $T_a=70^\circ\text{C}$	-5.1	A
Pulsed Drain Current ⁴	I_{DM}	-60	A
Total Power Dissipation	P_D @ $T_a=25^\circ\text{C}$	2.5	W
Linear Derating Factor		0.02	W/ $^\circ\text{C}$
Operating Junction and Storage Temperature Range	T_j, T_{stg}	-55 ~ +150	$^\circ\text{C}$
THERMAL DATA			
Thermal Resistance Junction-ambient ³	Max.	$R_{\theta j-amb}$	50 $^\circ\text{C/W}$

P-CHANNEL 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	$V_{GS}=0, I_D=-250\mu A$
Gate Threshold Voltage	$V_{GS(th)}$	-0.7	-	-1.3	V	$V_{DS}=V_{GS}, I_D=-250\mu A$
Forward Transconductance	g_{fs}	-	11	-	S	$V_{DS}=-5V, I_D=-5A$
Gate-Source Leakage Current	I_{GSS}	-	-	± 100	nA	$V_{GS}= \pm 12V$
Drain-Source Leakage Current($T_J=25^{\circ}C$)	I_{DSS}	-	-	-1	μA	$V_{DS}=-30V, V_{GS}=0$
Drain-Source Leakage Current($T_J=55^{\circ}C$)		-	-	-5	μA	$V_{DS}=-24V, V_{GS}=0$
Static Drain-Source On-Resistance ²	$R_{DS(ON)}$	-	-	50	m Ω	$V_{GS}=-10V, I_D=-6.1A$
		-	-	61		$V_{GS}=-4.5V, I_D=-5A$
		-	-	117		$V_{GS}=-2.5V, I_D=-1A$
Total Gate Charge ²	Q_g	-	9.4	-	nC	$I_D=-5A$
Gate-Source Charge	Q_{gs}	-	2	-		$V_{DS}=-15V$
Gate-Drain ("Miller") Change	Q_{gd}	-	3	-	ns	$V_{GS}=-4.5V$
Turn-on Delay Time ²	$T_{d(on)}$	-	7.6	-		$V_{DS}=-15V$
Rise Time	T_r	-	8.6	-		$I_D=-10V$
Turn-off Delay Time	$T_{d(off)}$	-	44.7	-		$R_G=6\Omega$
Fall Time	T_f	-	16.5	-	pF	$R_L=2.4\Omega$
Input Capacitance	C_{iss}	-	940	-		$V_{GS}=0V$
Output Capacitance	C_{oss}	-	104	-		$V_{DS}=-15V$
Reverse Transfer Capacitance	C_{rss}	-	73	-		$f=1.0MHz$
SOURCE-DRAIN DIODE						
Forward On Voltage ²	V_{SD}	-	-	-1.0	V	$I_S=-1A, V_{GS}=0V$
Continuous Source Current (Body Diode)	I_S	-	-	-4.2	A	
Reverse Recovery Time ²	T_{rr}	-	22.7	-	ns	$I_S=-5A, V_{GS}=0V,$
Reverse Recovery Charge	Q_{rr}	-	15.9	-	nC	$di/dt=100A/\mu s$

Notes:

1. Pulse width limited by Max. junction temperature.
2. Pulse width $\leq 300\mu\text{s}$, duty cycle $\leq 2\%$.
3. Surface Mounted on 1 in² copper pad of FR4 board; 125 $^\circ\text{C/W}$ when mounted on Min. copper pad.

CHARACTERISTIC CURVE

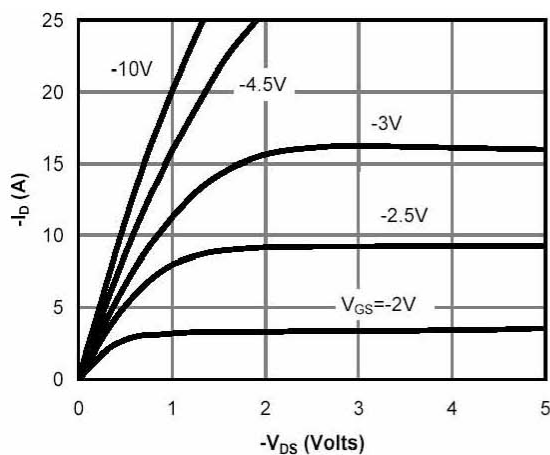


Fig 1. Typical Output Characteristics

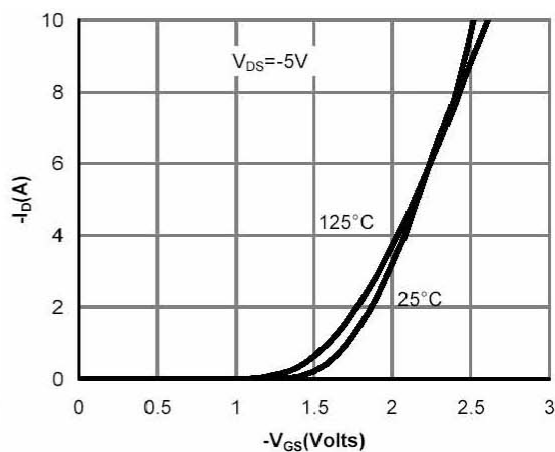


Fig 2. Transfer Characteristics

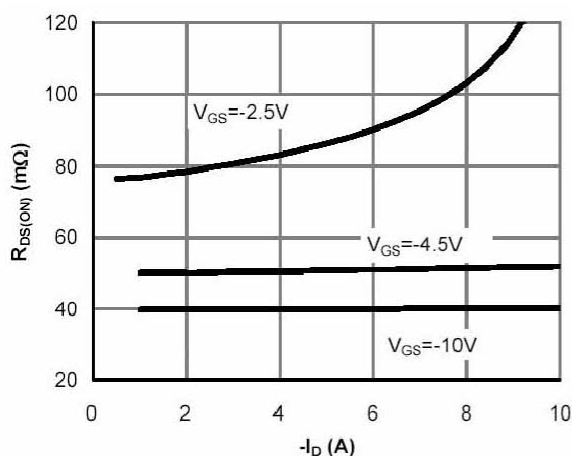


Fig 3. On-Resistance vs. Drain Current and Gate Voltage

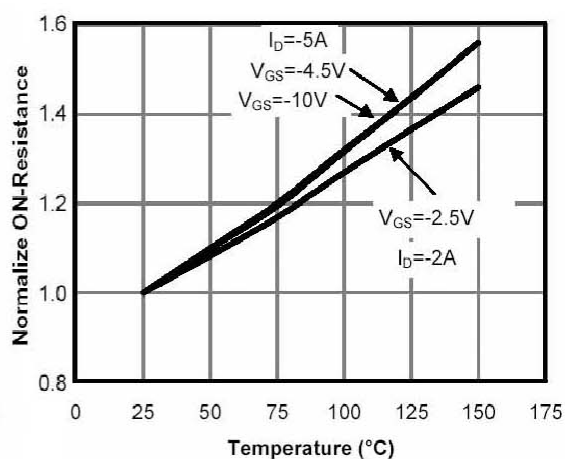


Fig 4. On-Resistance vs. Junction Temperature

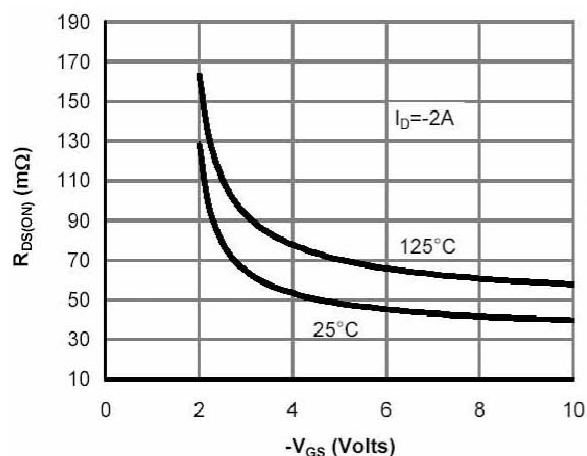


Fig 5. On-Resistance vs. Gate-Source Voltage

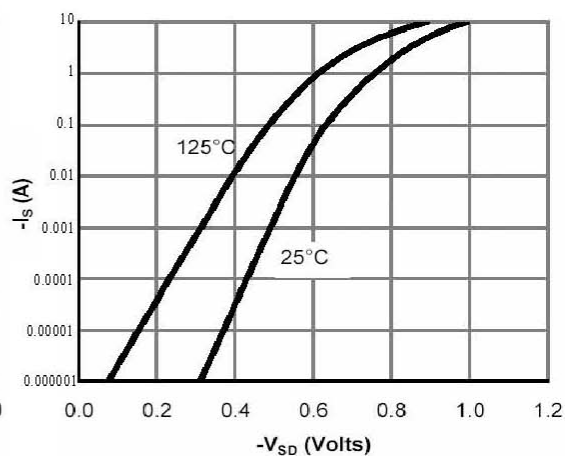


Fig 6. Body Diode Characteristics

CHARACTERISTIC CURVE (cont'd)

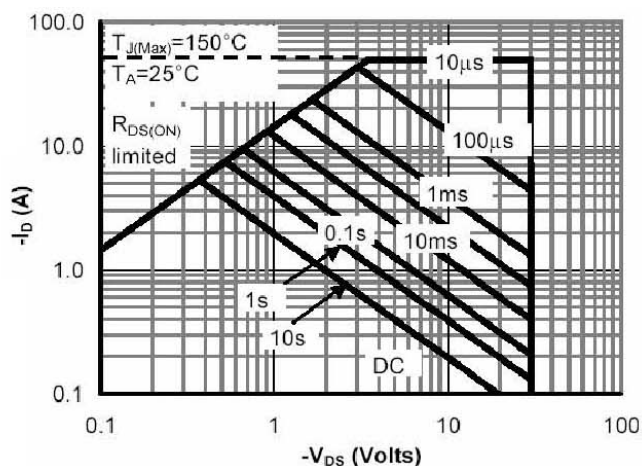


Fig 7. Maximum Safe Operating Area

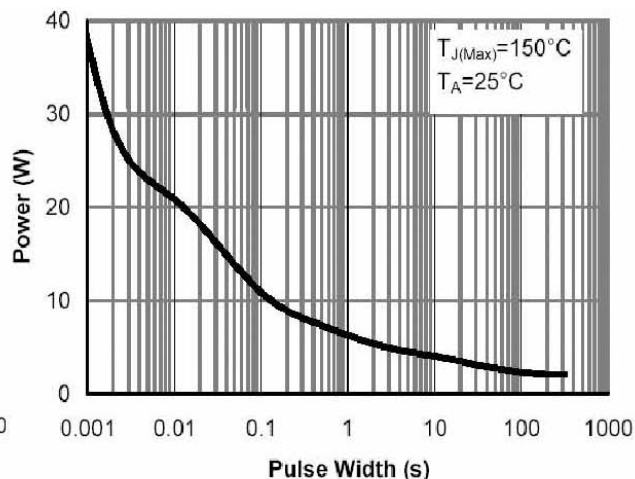


Fig 8. Single Pulse Power Rating
Junction-to-Ambient

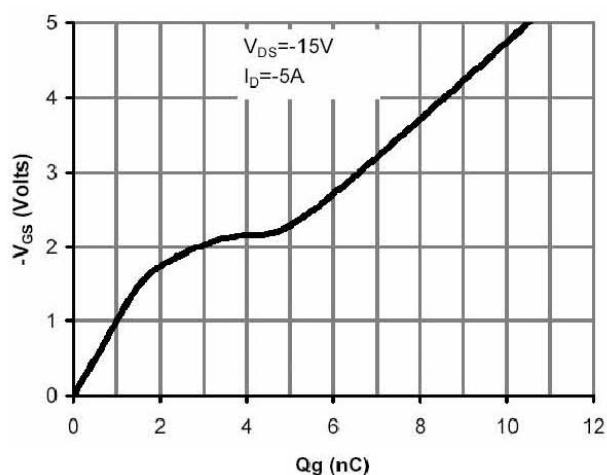


Fig 9. Gate Charge Characteristics

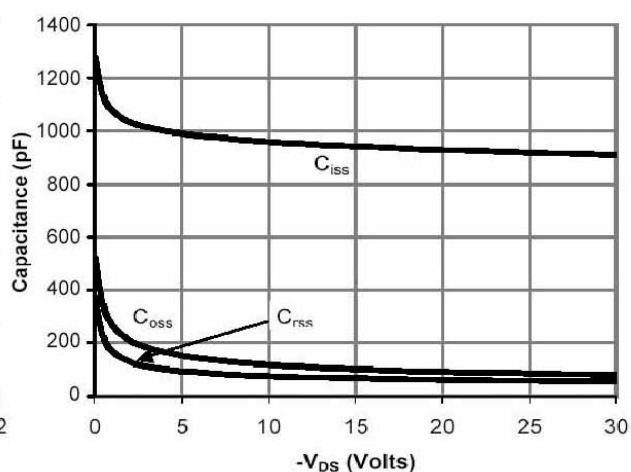


Fig 10. Typical Capacitance Characteristics

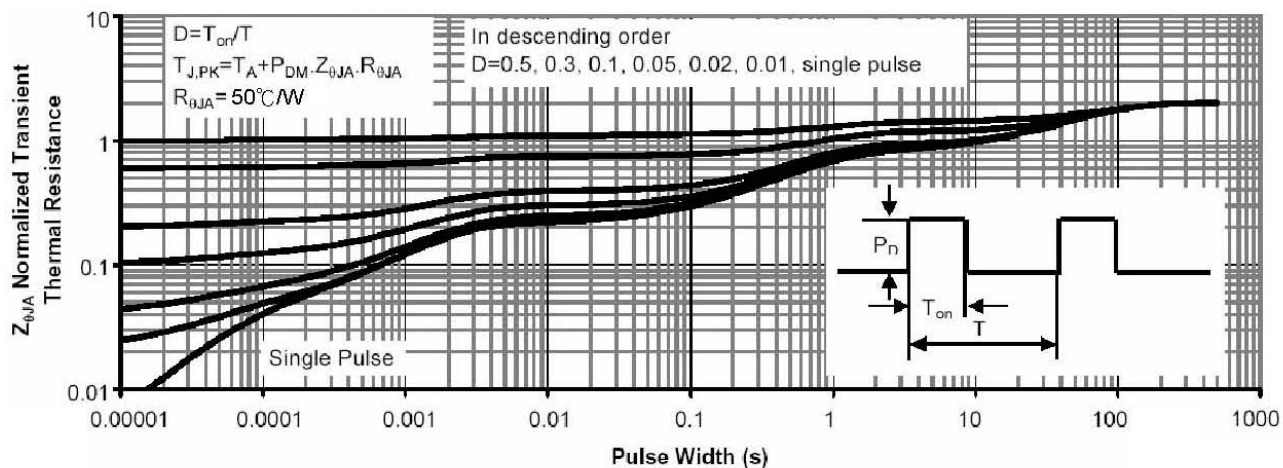


Fig 11. Normalized Maximum Transient Thermal Impedance