

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

SOP-8

DESCRIPTION

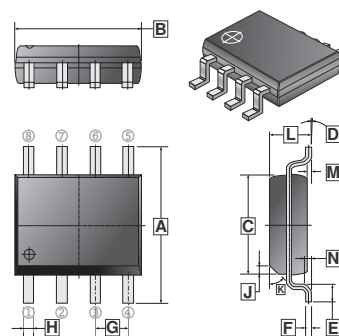
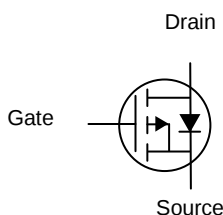
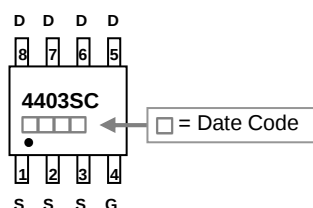
The SSG4403 uses advanced trench technology to provide excellent on-resistance, low gate charge and operation with gate voltages as low as 2.5V.

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 =-250μA
Gate Threshold Voltage	V _{GS(th)}	-0.7	-	-1.3	V	V _{DS} =V _{GS} , I _D =-250μA
Forward Transconductance	g _{fs}	-	11	-	S	V _{DS} =-5V, I _D =-5A
Gate-Source Leakage Current	I _{GSS}	-	-	±100	nA	V _{GS} = ±12V
Drain-Source Leakage Current(T _J =25℃)	I _{DSS}	-	-	-1	μA	V _{DS} =-30V, V _{GS} =0
Drain-Source Leakage Current(T _J =55℃)		-	-	-5	μA	V _{DS} =-24V, V _{GS} =0
Static Drain-Source On-Resistance ²	R _{DS(ON)}	-	-	50	mΩ	V _{GS} =-10V, I _D =-6.1A
		-	-	61		V _{GS} =-4.5V, I _D =-5A
		-	-	117		V _{GS} =-2.5 V, I _D =-1 A
Total Gate Charge ²	Q _g	-	9.4	-	nC	I _D =-5 A
Gate-Source Charge	Q _{gs}	-	2	-		V _{DS} =-15 V
Gate-Drain ("Miller") Change	Q _{gd}	-	3	-		V _{GS} =-4.5 V
Turn-on Delay Time ²	T _{d(on)}	-	7.6	-	ns	V _{DS} =-15 V
Rise Time	T _r	-	8.6	-		I _D =-10 V
Turn-off Delay Time	T _{d(off)}	-	44.7	-		R _G =6 Ω
Fall Time	T _f	-	16.5	-		R _L =2.4 Ω
Input Capacitance	C _{iss}	-	940	-	pF	V _{GS} =0 V
Output Capacitance	C _{oss}	-	104	-		V _{DS} =-15 V
Reverse Transfer Capacitance	C _{rss}	-	73	-		f=1.0 MHz
SOURCE-DRAIN DIODE						
Forward On Voltage ²	V _{SD}	-	-	-1.0	V	I _S =-1A, V _{GS} =0 V
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	dl/dt = 100A/μs

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

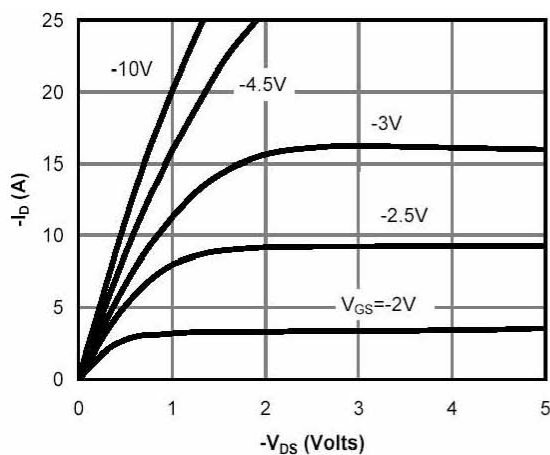


Fig 1. Typical Output Characteristics

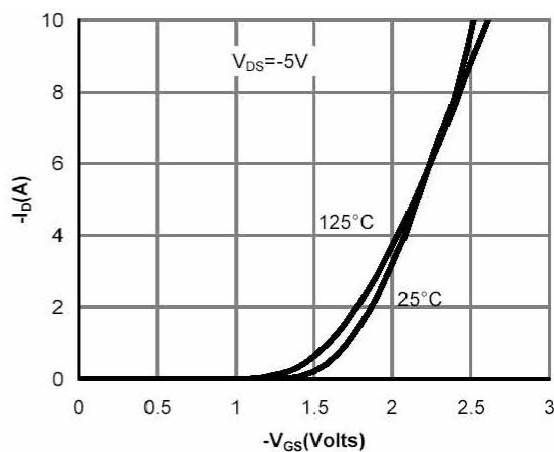


Fig 2. Transfer Characteristics

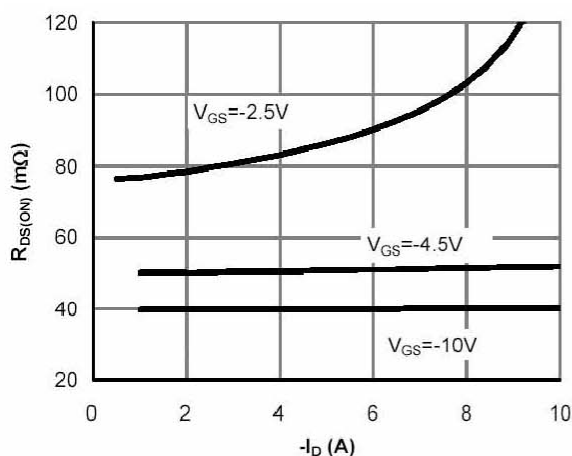


Fig 3. On-Resistance vs. Drain Current and Gate Voltage

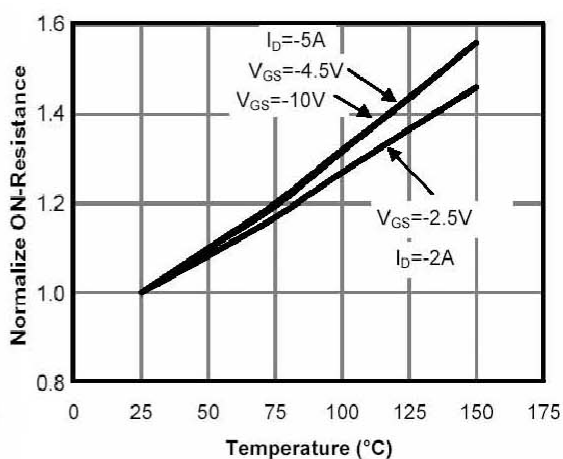


Fig 4. On-Resistance vs. Junction Temperature

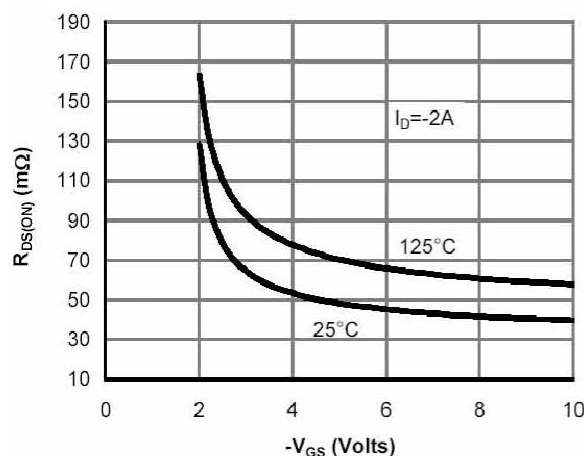


Fig 5. On-Resistance vs. Gate-Source Voltage

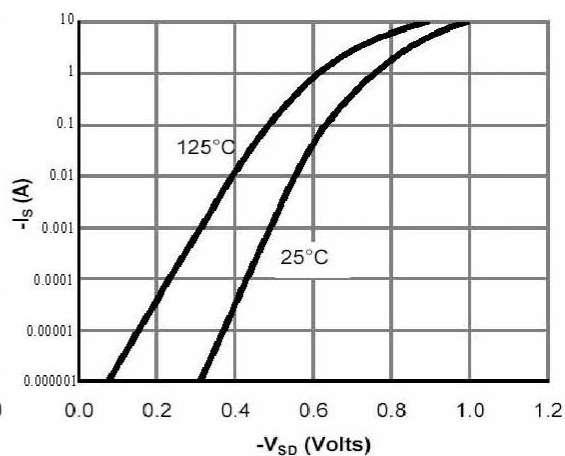


Fig 6. Body Diode Characteristics

CHARACTERISTIC CURVE (cont'd)

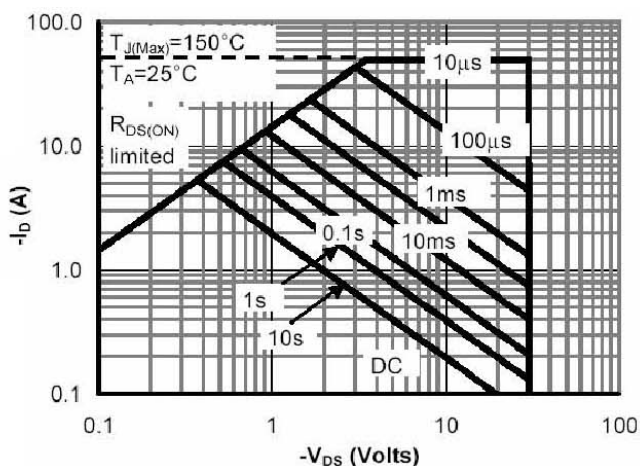


Fig 7. Maximum Safe Operating Area

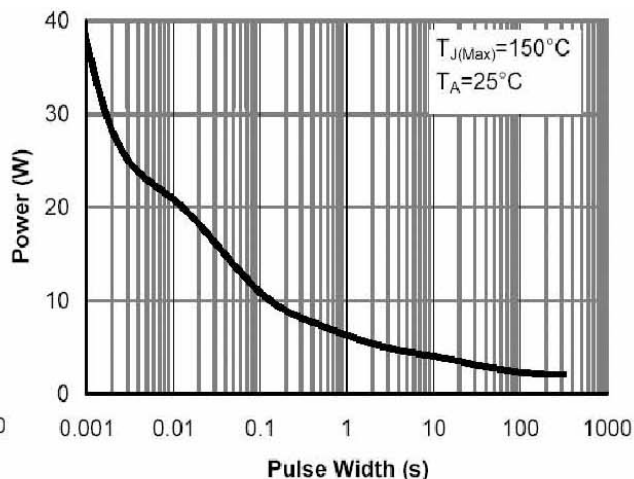


Fig 8. Single Pulse Power Rating
Junction-to-Ambient

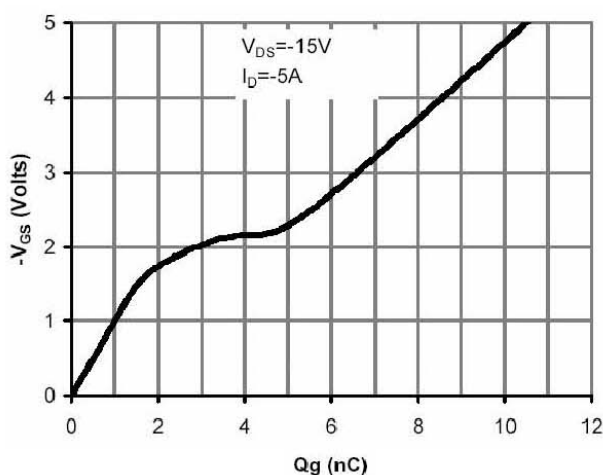


Fig 9. Gate Charge Characteristics

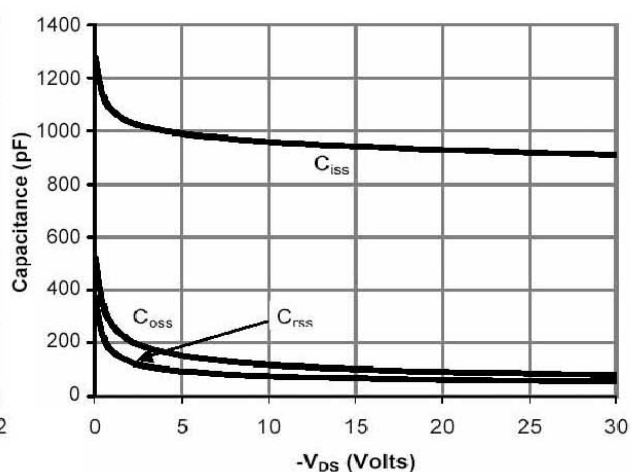


Fig 10. Typical Capacitance Characteristics

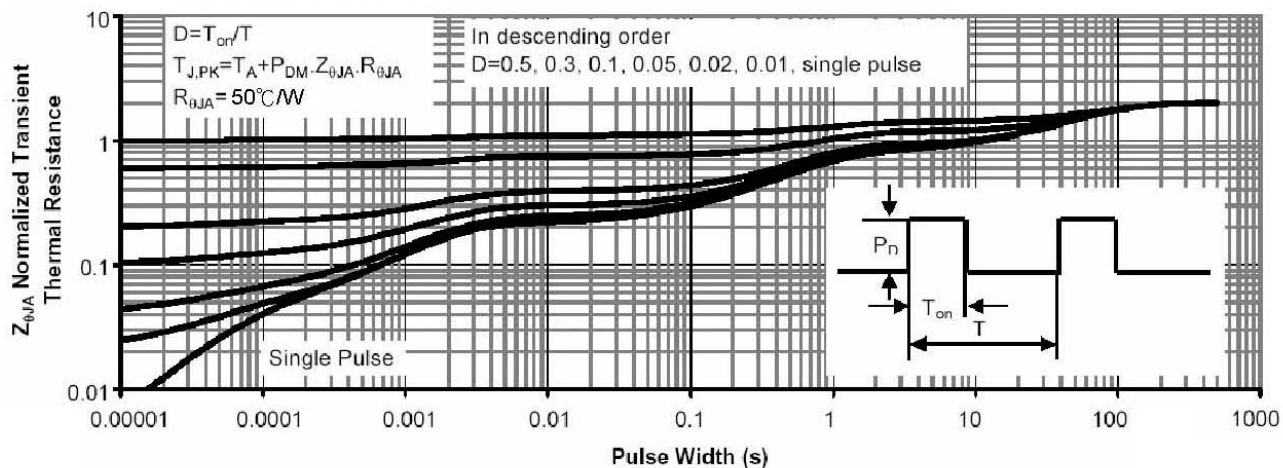


Fig 11. Normalized Maximum Transient Thermal Impedance