

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

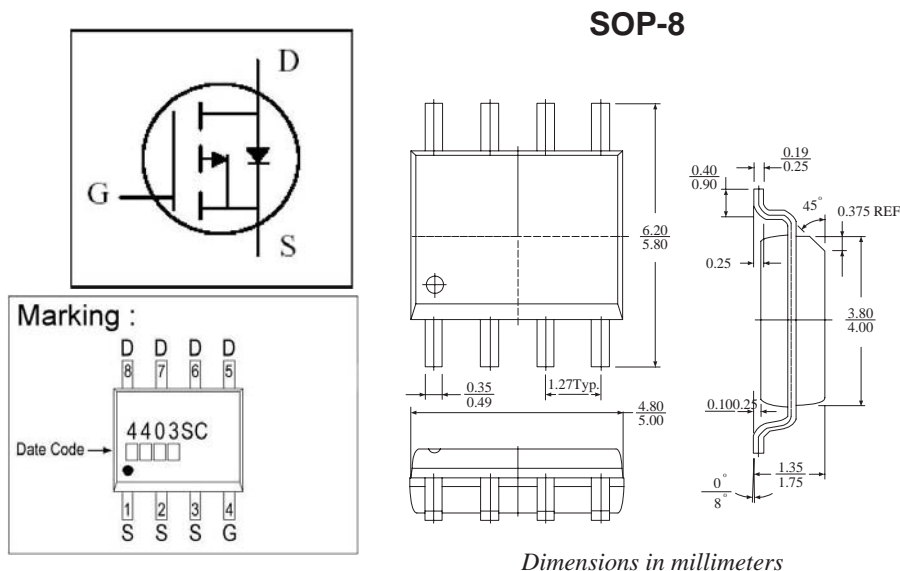
DESCRIPTION

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



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	$I_D @ Ta=25^\circ C$	-6.1	A
Continuous Drain Current ³	$I_D @ Ta=70^\circ C$	-5.1	A
Pulsed Drain Current ¹	I_{DM}	-60	A
Total Power Dissipation	$P_D @ Ta=25^\circ C$	2.5	W
Operating Junction and Storage Temperature Range	T_j, T_{stg}	-55 ~ +150	$^\circ C$
Linear Derating Factor		0.02	W/ $^\circ C$

THERMAL DATA

Parameter	Symbol	Value	Unit
Thermal Resistance Junction-ambient ³ Max.	$R_{\theta j-amb}$	50	$^\circ C/W$

P-CHANNEL ELECTRICAL CHARACTERISTICS (T_j = 25°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 =-250uA
Gate Threshold Voltage	V _{GS(th)}	-0.7	-	-1.3	V	V _{DS} =V _{GS} , I _D =-250uA
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°C)	I _{DSS}	-	-	-1	uA	V _{DS} =-30V, V _{GS} =0
Drain-Source Leakage Current(T _j =55°C)		-	-	-5	uA	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 V _{DS} =-15 V V _{GS} =-4.5 V
Gate-Source Charge	Q _{gs}	-	2	-		
Gate-Drain ("Miller") Charge	Q _{gd}	-	3	-		
Turn-on Delay Time ²	T _{d(on)}	-	7.6	-	ns	V _{DS} =-15 V I _D =-10 V R _G =6 Ω R _L =2.4 Ω
Rise Time	T _r	-	8.6	-		
Turn-off Delay Time	T _{d(off)}	-	44.7	-		
Fall Time	T _f	-	16.5	-		
Input Capacitance	C _{iss}	-	940	-	pF	V _{GS} =0 V V _{DS} =-15 V f=1.0 MHz
Output Capacitance	C _{oss}	-	104	-		
Reverse Transfer Capacitance	C _{rss}	-	73	-		

SOURCE-DRAIN DIODE

Parameter	Symbol	Min.	Typ.	Max.	Unit	Test Conditions
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, T _j =25°C di/dt = 100A/us
Reverse Recovery Charge	Q _{rr}	-	15.9	-	nC	

- Notes:
1. Pulse width limited by Max. junction temperature.
 2. Pulse width ≤ 300us, duty cycle ≤ 2%.
 3. Mounted on 1 in² copper pad of FR4 board; 125 °C/W when mounted on Min. copper pad.

CHARACTERISTIC CURVE

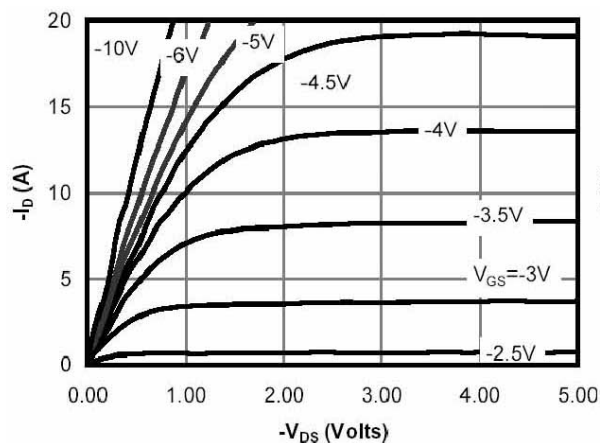


Fig 1. Typical Output Characteristics

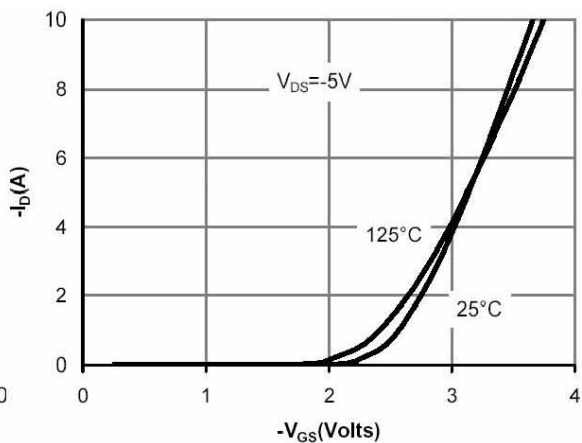


Fig 2. Transfer Characteristics

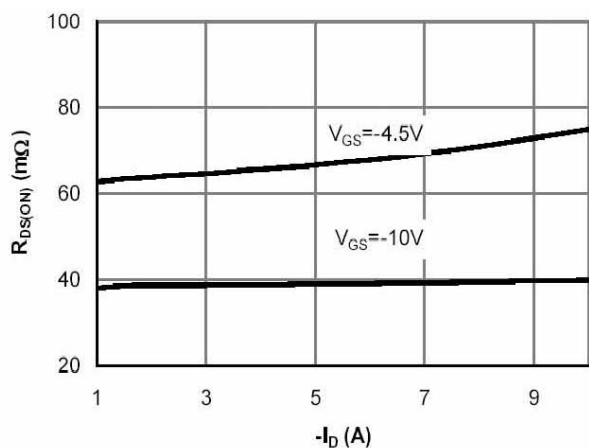


Fig 3. On-Resistance vs. Drain Current and Gate Voltage

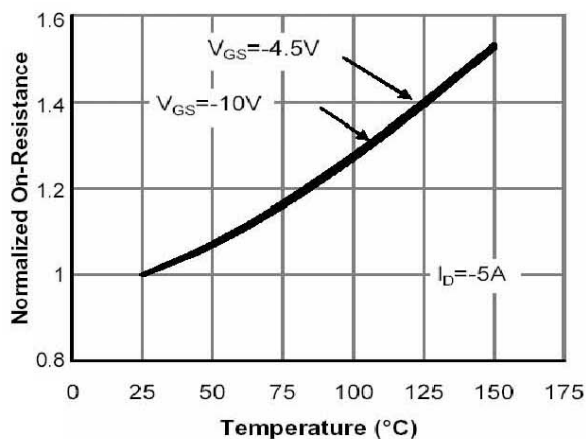


Fig 4. On-Resistance vs. Junction Temperature

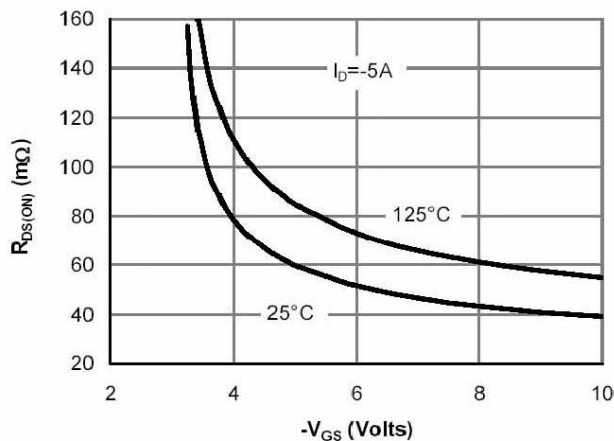


Fig 5. On-Resistance vs. Gate-Source Voltage

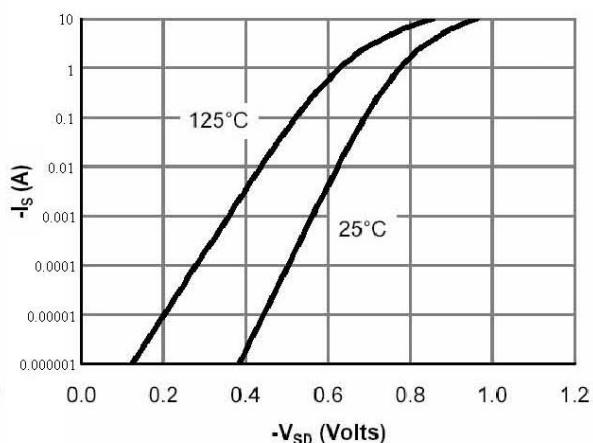


Fig 6. Body Diode Characteristics

CHARACTERISTIC CURVE (cont'd)

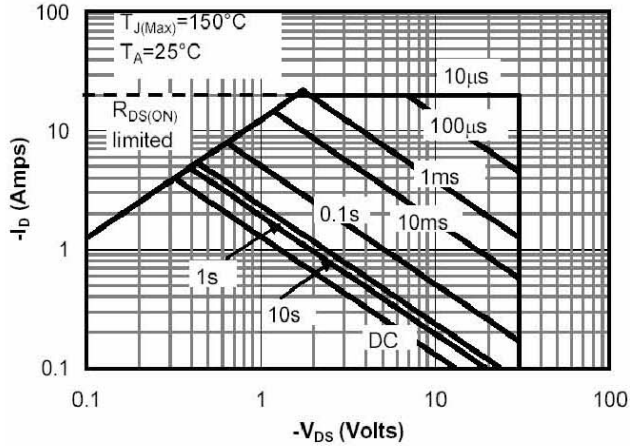
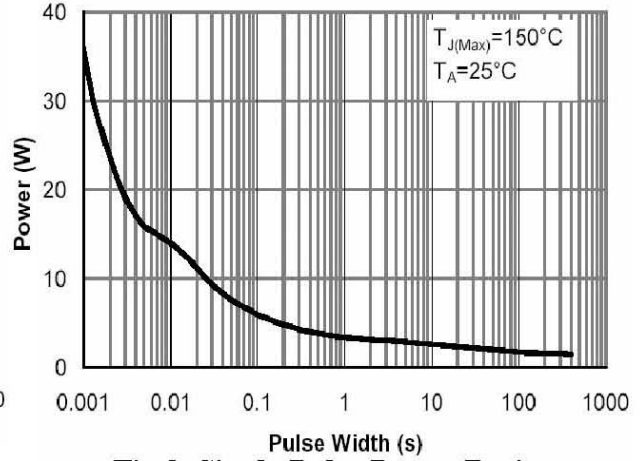


Fig 7. Maximum Safe Operating Area



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

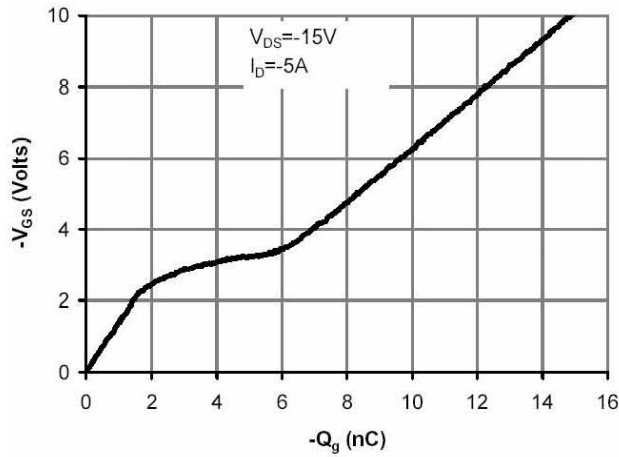


Fig 9. Gate Charge Characteristics

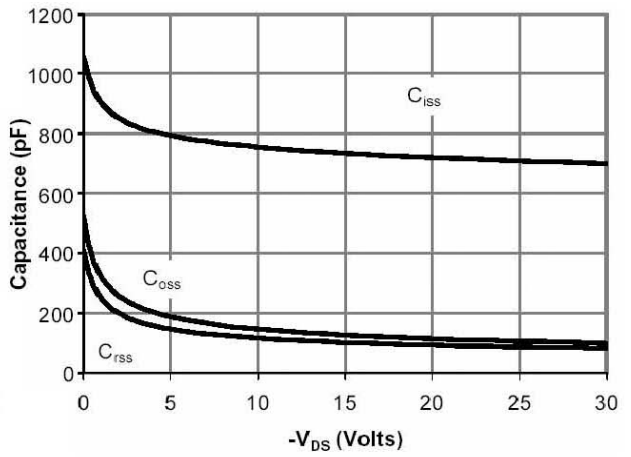


Fig 10. Typical Capacitance Characteristics

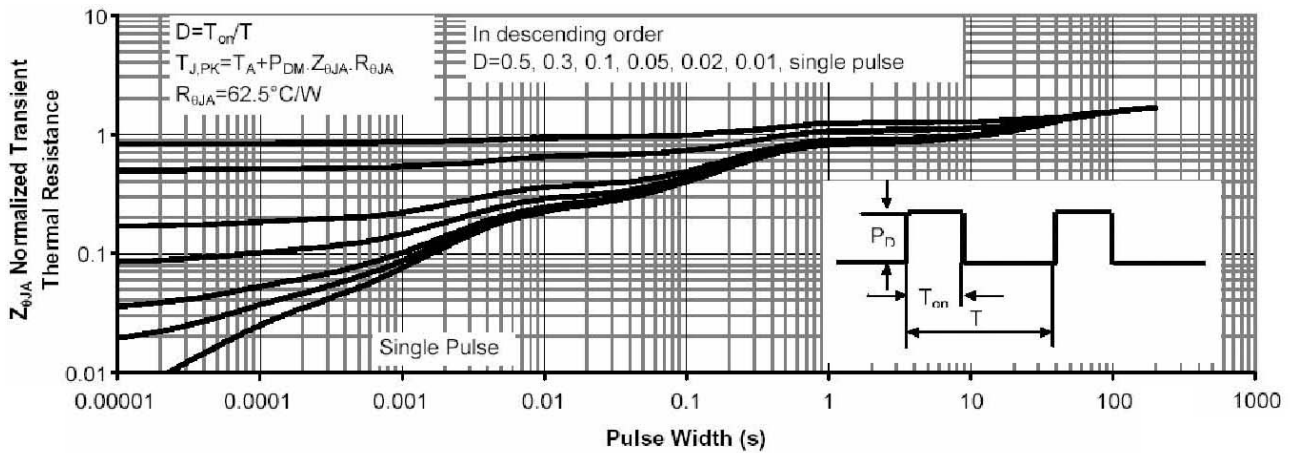


Fig 11. Normalized Maximum Transient Thermal Impedance