Elektronische Bauelemente

SSG4403

P-Ch Enhancement Mode Power MOSFET

-6.1 A, -30 V, $R_{DS(ON)}$ 50 mΩ

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

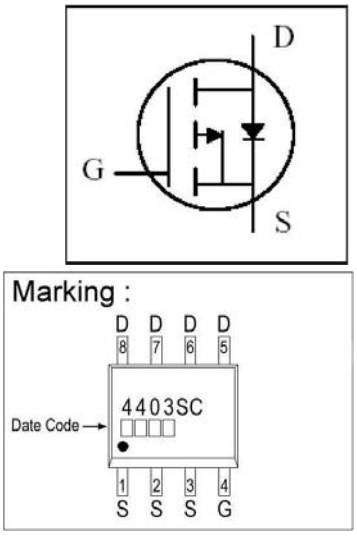
DESCRIPTION

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.

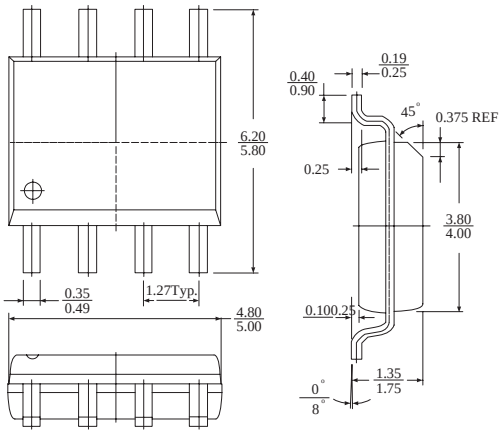
FEATURES

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

PACKAGE DIMENSIONS



SOP-8



Dimensions in millimeters

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℃	-6.1	A
Continuous Drain Current[3]	I_D @Ta=70℃	-5.1	A
Pulsed Drain Current[1]	I_{DM}	-60	A
Total Power Dissipation	P_D @Ta=25℃	2.5	W
Operating Junction and Storage Temperature Range	Tj, Tstg	-55 ~ +150	℃
Linear Derating Factor		0.02	W/℃

THERMAL DATA

Parameter	Symbol	Value	Unit
Thermal Resistance Junction-ambient[3] Max.	Rθj-amb	50	℃/W

P-CHANNEL ELECTRICAL CHARACTERISTICS (Tj = 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(Tj=25℃)	I_{DSS}	-	-	-1	uA	V_{DS}=-30V, V_{GS}=0
Drain-Source Leakage Current(Tj=55℃)		-	-	-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") Change	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, Tj=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 in^2 copper pad of FR4 board; 125 °C/W when mounted on Min. copper pad.

CHARACTERISTIC CURVE

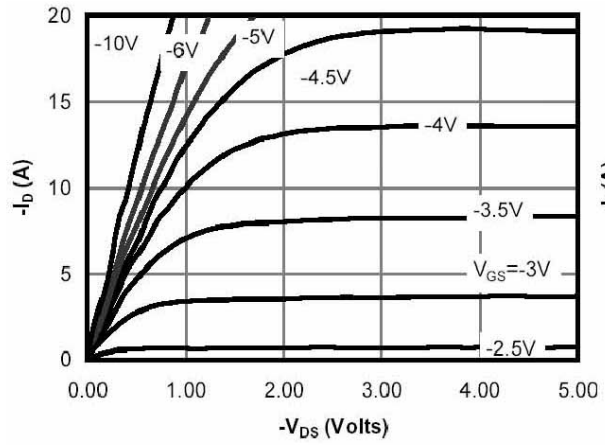


Fig 1. Typical Output Characteristics

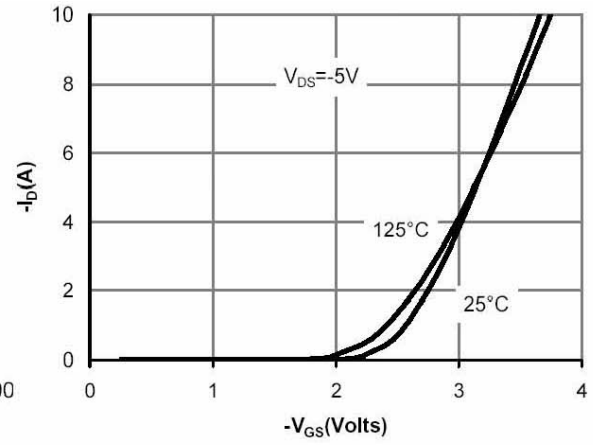


Fig 2. Transfer Characteristics

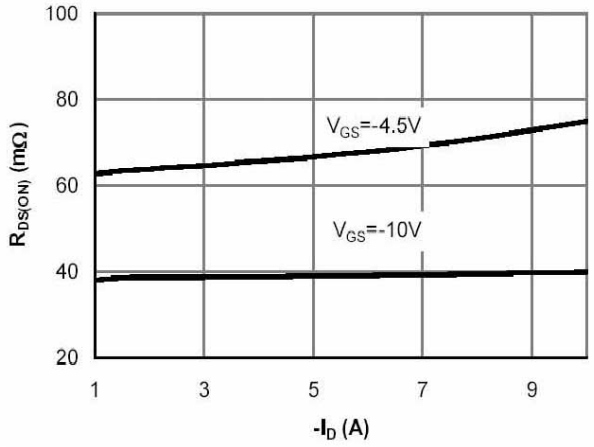


Fig 3. On-Resistance vs. Drain Current and Gate Voltage

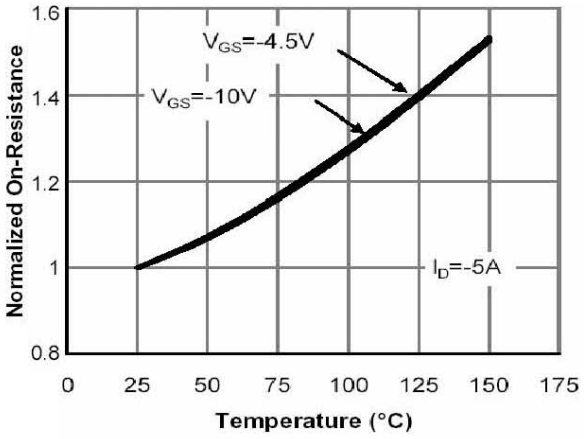


Fig 4. On-Resistance vs. Junction Temperature

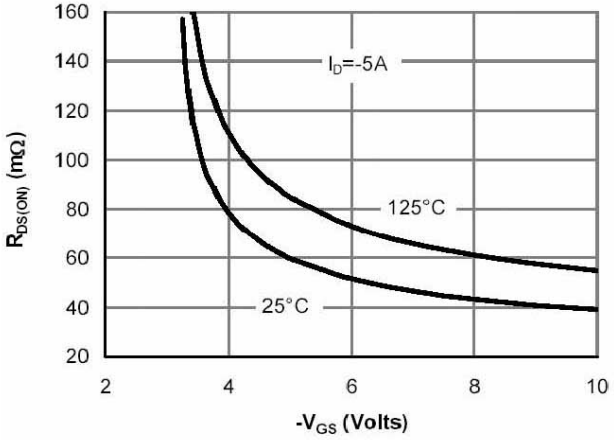


Fig 5. On-Resistance vs. Gate-Source Voltage

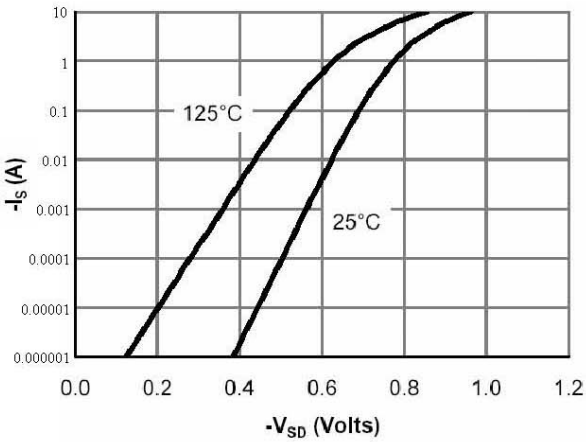


Fig 6. Body Diode Characteristics

CHARACTERISTIC CURVE (cont'd)

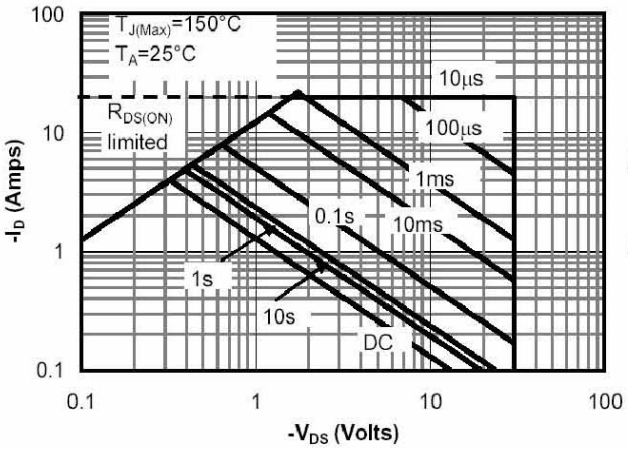


Fig 7. Maximum Safe Operating Area

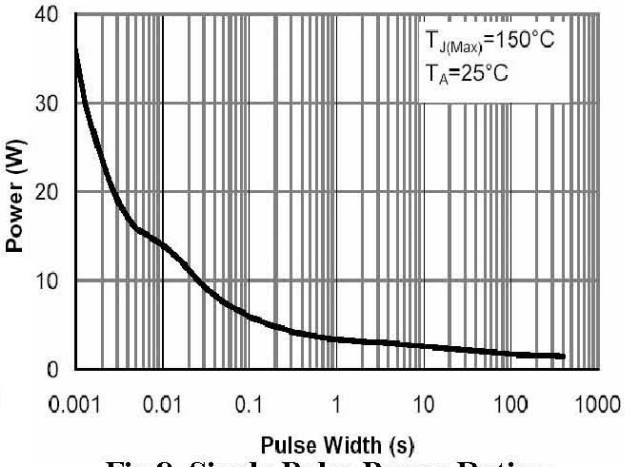


Fig 8. Single Pulse Power Rating Junction-to-Ambient

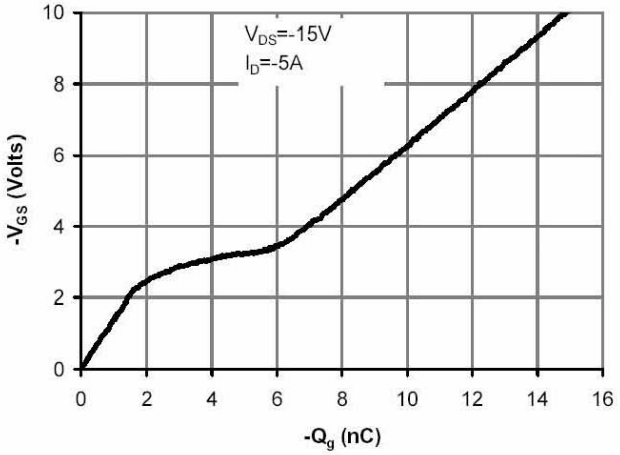


Fig 9. Gate Charge Characteristics

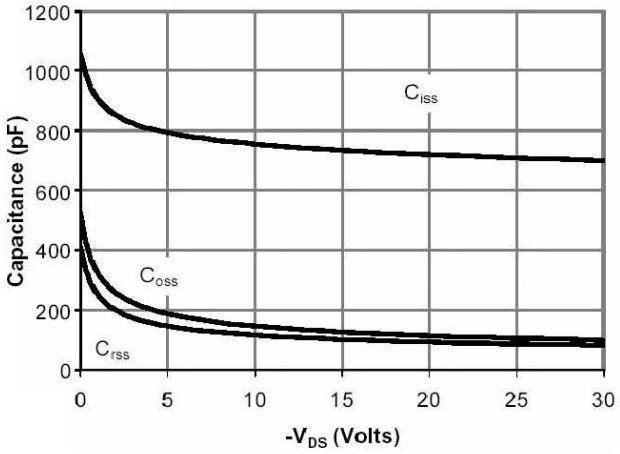


Fig 10. Typical Capacitance Characteristics

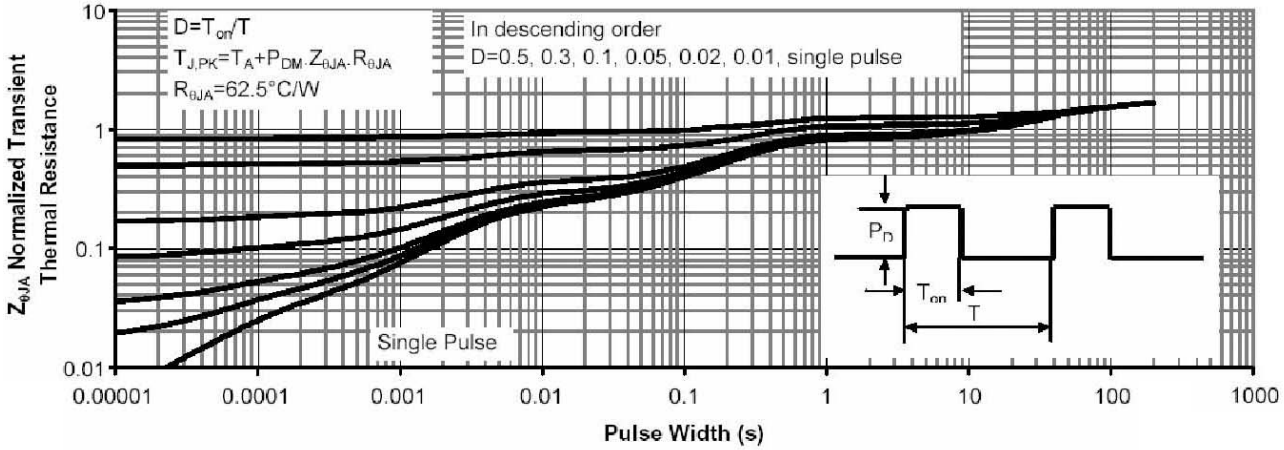


Fig 11. Normalized Maximum Transient Thermal Impedance