Elektronische Bauelemente

SSN3043-C

255mA , 20V , $R_{DS(ON)}$ 3.4Ω

N-Channel Enhancement Mode Power MOSFET

RoHS Compliant Product

A Suffix of "-C" specifies halogen & lead-free

DESCRIPTION

These miniature surface mount MOSFETs reduce power loss conserve energy, making this device ideal for use in small power management circuitry.

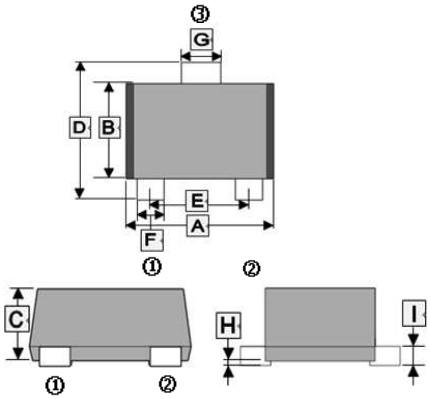
FEATURES

- Energy Efficient

APPLICATION

DC-DC converters, load switching, power management in portable and battery–powered products such as computers, printers, cellular and cordless telephones.

SOT-723



REF.	Millimeter		REF.	Millimeter	
	Min.	Max.		Min.	Max.
A	1.150	1.250	F	0.170	0.270
B	0.750	0.850	G	0.270	0.370
C	-	0.500	H	0	0.050
D	1.150	1.250	I	-	0.150
E	0.800TYP.				

MARKING

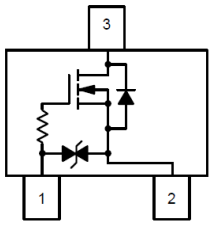
PACKAGE INFORMATION

Package	MPQ	Leader Size
SOT-723	8K	7 inch

ORDER INFORMATION

Part Number	Type
SSN3043-C	Lead (Pb)-free and Halogen-free

Top View



THERMAL CHARACTERISTICS

Parameter			Symbol	Rating	Unit
Drain – Source Voltage			V_{DS}	20	V
Gate – Source Voltage - Continuous			V_{GS}	±10	V
Continuous Drain Current [1]	Steady State	T_A=25℃	I_D	255	mA
		T_A=85℃		185	
	t≤5s, T_A=25℃			285	
Power Dissipation [1]	Steady State ,T_A=25℃		P_D	440	mW
	t≤5s, T_A=25℃			545	
Continuous Drain Current [2]	Steady State	T_A=25℃	I_D	210	mA
		T_A=85℃		155	
Power Dissipation [2]	Steady State ,T_A=25℃		P_D	310	mW
Pulsed Drain Current (tp≤10μs)			I_{DM}	400	mA
Source Current (Body Diode) [2]			I_S	286	mA
Maximum Lead Temperature for Soldering Purposes (1/8" from case for 10 seconds)			T_L	260	℃
Junction & Storage Temperature			T_J, T_{STG}	-55~150	℃

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MAXIMUM RATINGS (T_A=25℃ unless otherwise specified)

Parameter		Symbol	Rating	Unit
Maximum Junction–Ambient	Steady State [1]	$R_{\theta JA}$	280	℃/W
	t=5s [1]		228	
	Steady State Minimum Pad [2]		400	

ELECTRICAL CHARACTERISTICS (T_A=25℃ unless otherwise specified)

Parameter	Symbol	Min.	Typ.	Max.	Unit	Test Conditions
Drain-Source Breakdown Voltage	$V_{(BR)DSS}$	20	-	-	V	V_{GS}=0, I_D=100μA
Drain−Source Breakdown Voltage Temperature Coefficient	$V_{(BR)DSS}/T_J$	-	27	-	mV/℃	I_D=100μA, Reference to 25℃
Gate-Source Leakage Current	I_{GSS}	-	-	1	μA	V_{GS}=±5V, V_{DS}=0
Zero Gate Voltage Drain Current	I_{DSS}	-	-	1	μA	V_{DS}=16V, V_{GS}=0, T_J=25℃
		-	-	10		V_{DS} =16V, V_{GS}=0, T_J=125℃
Gate Threshold Voltage [1]	$V_{GS(TH)}$	0.4	-	1.3	V	V_{DS}=V_{GS}, I_D=250μA
Gate Threshold Temperature Coefficient [1]	$V_{GS(TH)}/T_J$	-	-2.4	-	mV/℃	
Forward Transconductance [1]	g_{FS}	-	0.275	-	S	V_{DS}=5V, I_D=100mA
Drain-Source On Resistance [1]	$R_{DS(ON)}$	-	1.5	3.4	Ω	V_{GS}=4.5V, I_D=10mA
		-	1.6	3.8		V_{GS}=4.5V, I_D=255mA
		-	2.4	4.5		V_{GS}=2.5V, I_D=1mA
		-	5.1	10		V_{GS}=1.8V, I_D=1mA
		-	6.8	15		V_{GS}=1.65V, I_D=1mA
Turn-on Delay Time	$T_{d(on)}$	-	13	-	nS	V_{GS}=4.5V V_{DD}=5V I_D=10mA R_G=6Ω
Rise Time	T_r	-	15	-		
Turn-off Delay Time	$T_{d(off)}$	-	94	-		
Fall Time [2]	T_f	-	55	-		
Input Capacitance [2]	C_{iss}	-	11	-	pF	V_{DS}=10V, V_{GS}=0, f=1MHz
Output Capacitance [2]	C_{oss}	-	8.3	-		
Reverse Transfer Capacitance [2]	C_{rss}	-	2.7	-		
Source-Drain Diode						
Forward Diode Voltage	V_{SD}	-	0.83	1.2	V	V_{GS}=0, I_S=286mA, T_J=25°C
		-	0.69	-		V_{GS}=0, I_S=286mA, T_J=125°C
Reverse Recovery Time	T_{rr}	-	9.1	-	nS	V_{GS}=0 V_{DD}=20V dISD/dt=100A/μS I_S=286mA
Charge Time	T_a	-	7.1	-		
Discharge Time	T_b	-	2	-		
Reverse Recovery Charge [2]	Q_{rr}	-	3.7	-	nC	

Notes:
1. Surface−mounted on FR4 board using 1 in sq pad size (Cu area=1.127 in sq [1 oz] including traces).
2. Surface−mounted on FR4 board using the minimum recommended pad size.
3. Pulse Test: Pulse Width≦300μs, Duty cycle≦2%.
4. Switching characteristics are independent of operating junction temperature.

CHARACTERISTIC CURVES

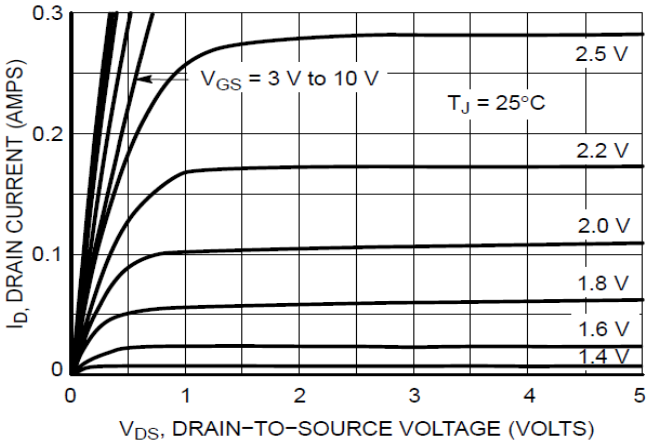

Figure 1. On−Region Characteristics

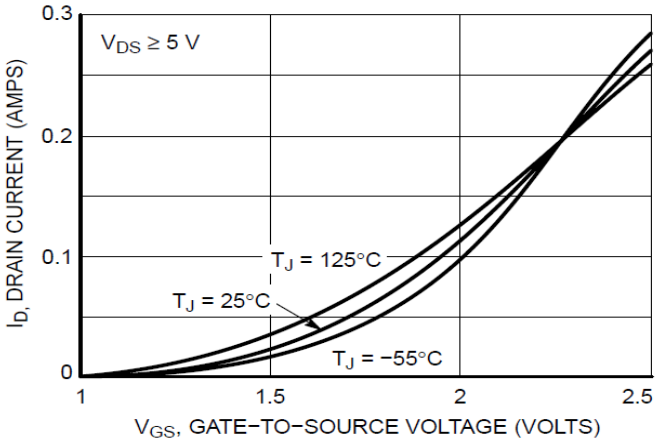

Figure 2. Transfer Characteristics

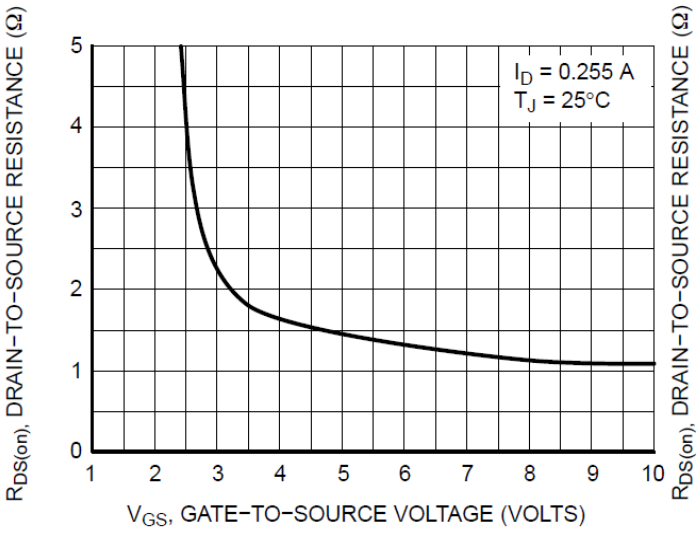

Figure 3. On−Resistance vs. Gate−to−Source Voltage

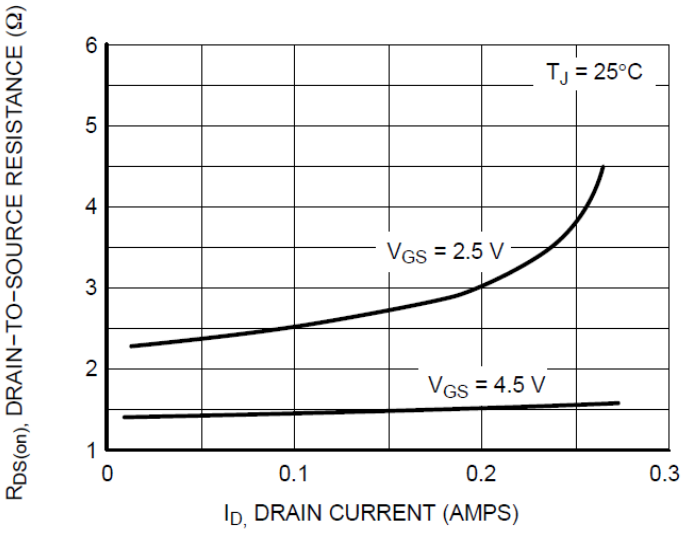

Figure 4. On−Resistance vs. Drain Current and Gate Voltage

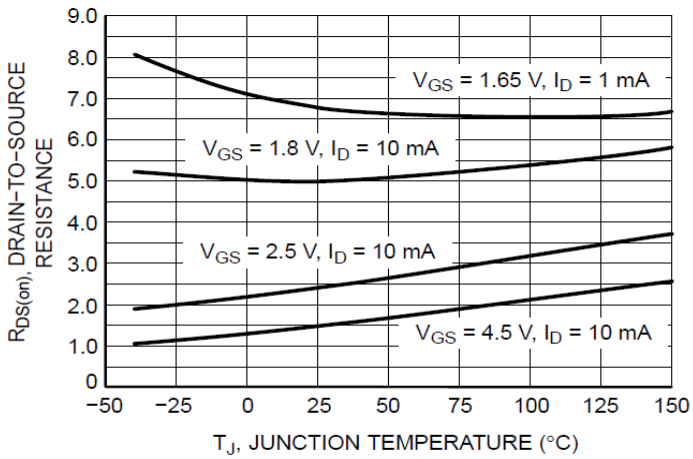

Figure 5. On−Resistance Variation with Temperature

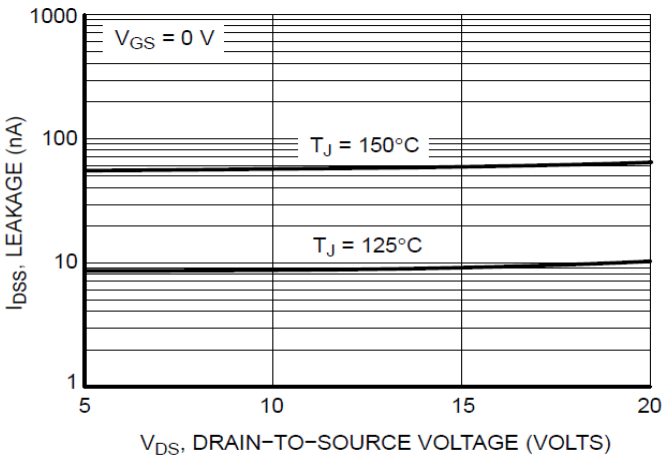

Figure 6. Drain−to−Source Leakage Current vs. Voltage

CHARACTERISTIC CURVES

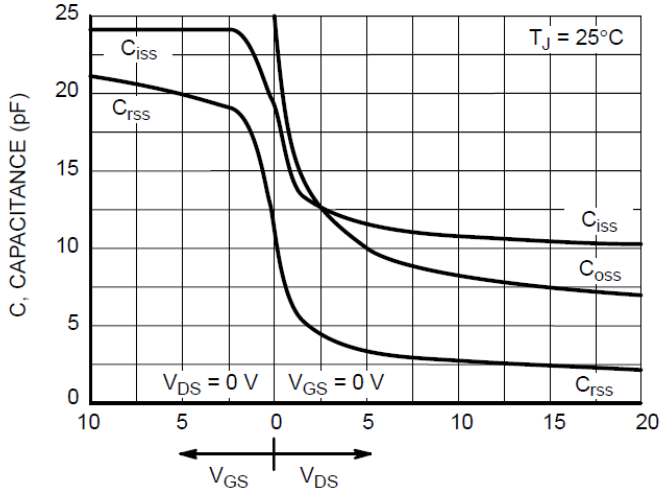

Figure 7. Capacitance Variation

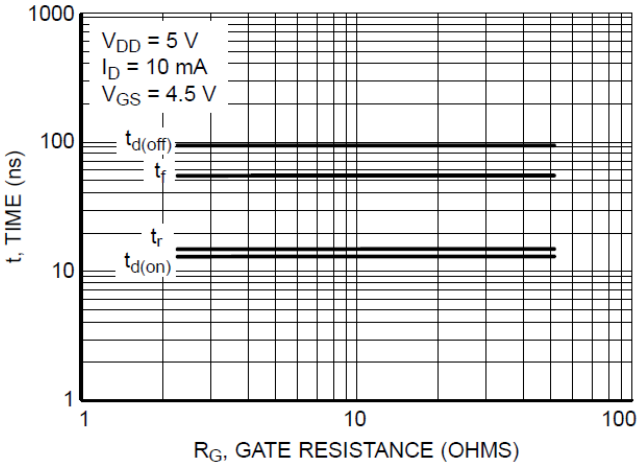

Figure 8. Resistive Switching Time Variation vs. Gate Resistance

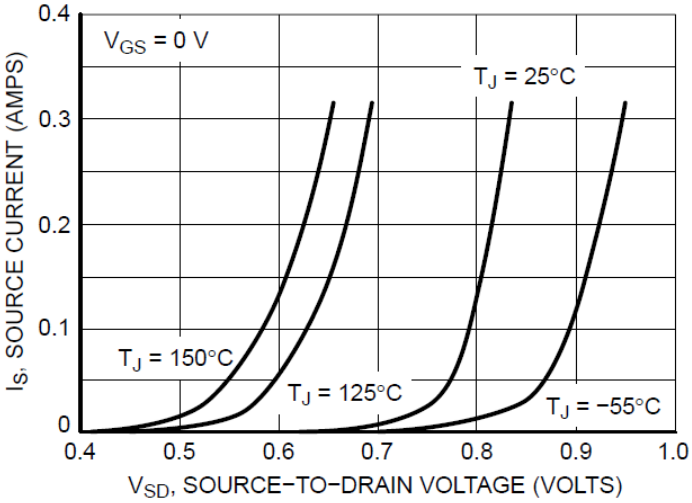

Figure 9. Diode Forward Voltage vs. Current