FAST DMOS FET Switches
N-Channel Enhancement-Mode

SST211 / SST213 / SST215

FEATURES

- **High Speed Switching . . . . . $t_{d(ON)}$ 1ns**
- **Low Capacitance . . . . . 2.4pF typical**
- **Low ON Resistance . . . . . 50Ω typycal**
- **High Gain**
- **Surface Mount Package**

APPLICATIONS

- **Ultra High Speed Analog Switching**
- **Sample and Hold**
- **Multiplexers**
- **High Gain Amplifiers**

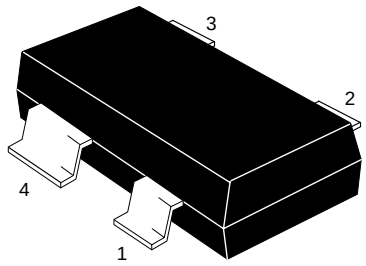
DESCRIPTION

Designed for audio, video and high frequency applications, the SST211 Series is a high speed, ultra low capacitance SPST analog switch. Utilizing Calogic's proprietary DMOS processing the SST211 Series features an integrated zener diode designed to protect the gate from electrical over stress.

ORDERING INFORMATION

Part	Package	Temperature Range
SST211	SOT-143 Surface Mount	-55°C to +125°C
SST213	SOT-143 Surface Mount	-55°C to +125°C
SST215	SOT-143 Surface Mount	-55°C to +125°C
XSST211	Sorted Chips in Carriers	-55°C to +125°C
XSST213	Sorted Chips in Carriers	-55°C to +125°C
XSST215	Sorted Chips in Carriers	-55°C to +125°C

PIN CONFIGURATION



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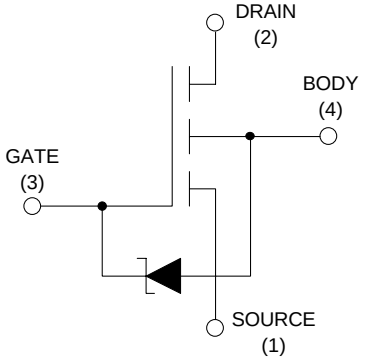
PRODUCT MARKING	
SST211	211
SST213	213
SST215	215

SCHEMATIC DIAGRAM



ABSOLUTE MAXIMUM RATINGS (T_c = +25°C unless otherwise noted)

Parameter Breakdown Voltages	SST211	SST213	SST215	Unit
V_{DS}	+30	+10	+20	V
V_{SD}	+10	+10	+20	V
V_{DB}	+30	+15	+25	V
V_{SB}	+15	+15	+25	V
V_{GS}	-15	-15	-25	V
	+25	+25	+30	V
V_{GB}	-0.3	-0.3	-0.3	V
	+25	+25	+30	V
V_{GD}	-30	-15	-25	V
	+25	+25	+30	V

I_D Continous Drain Current 50mA
P_T Power Dissipation (at or below Tc = +25°C) 360mW
Linear Derating Factor3.6mW/ °

T_j Operating Junction Temperature Range . . -55 to +125°C
T_S Storage Temperature Range . . . . . -55 to +150°C

ELECTRICAL CHARACTERISTICS (T_c = +25°C unless otherwise noted)

SYMBOL	CHARACTERISTICS	SST211			SST213			SST215			UNIT	TEST CONDITIONS	
		MIN	TYP	MAX	MIN	TYP	MAX	MIN	TYP	MAX			
STATIC													
B_{VDS}	Drain-Source Breakdown Voltage	30	35								V	I_D = 10µA, V_{GS} = V_{BS} = 0	
		10	25		10	25		20	25			I_D = 10nA, V_{GS} = V_{BS} = -5V	
B_{VSD}	Source-Drain Breakdown Voltage	10			10			20				I_S = 10nA, V_{GD} = V_{BD} = -5V	
B_{VDB}	Drain-Body Breakdown Voltage	15			15			25				I_D = 10nA, V_{GB} = 0 Source OPEN	
B_{VSB}	Source-Body Breakdown Voltage	15			15			25				I_S = 10µA, V_{GB} = 0 Drain OPEN	
$I_{D(OFF)}$	Drain-Source OFF Current		0.2	10		0.2	10				nA	V_{DS} = 10V	V_{GS} = V_{BS} = -5V
									0.2	10		V_{DS} = 20V	
$I_{S(OFF)}$	Source-Drain OFF Current		0.6	10		0.6	10					V_{SD} = 10V	V_{GD} = V_{BD} = -5V
									0.6	10		V_{SD} = 20V	
I_{GBS}	Gate-Body Leakage Current			10			10				µA	V_{GB} = 25V	V_{DB} = V_{SB} = 0
										10		V_{GB} = 30V	
$V_{GS(th)}$	Gate Threshold Voltage	0.5	1.0	2.0	0.1		2.0	0.1	1.0	2.0	V	V_{DS} = V_{GS}, I_D = 1µA, V_{SB} = 0	
$r_{ds(on)}$	Drain-Source [1] ON Resistance		50	70		50	70		50	70	ohms	V_{GS} = 5V	I_D = 1mA V_{SB} = 0
			30	45		30	45		30	45		V_{GS} = 10V	
DYNAMIC													
g_{fs}	Common-Source [1] Foward Transcond.	10	12		10	12		10	12		mS	V_{DS} = 10V, I_D = 20mA f = 1KHz, V_{SB} = 0	
$C_{(gs + gd + gb)}$	Gate Node Capacitance		2.4	3.5		2.4	3.5		2.4	3.5	pF	V_{DS} = 10V V_{GS} = V_{BS} = -15V f = 1MHz	
$C_{(gd + db)}$	Drain Node Capacitance		1.3	1.5		1.3	1.5		1.3	1.5			
$C_{(gs + sb)}$	Source Node Capacitance		3.5	4.0		3.5	4.0		3.5	4.0			
$C_{(dg)}$	Reverse Transfer Capacitance		0.3	0.5		0.3	0.5		0.3	0.5			
$t_{d(ON)}$	Turn ON Delay Time		0.7	1.0		0.7	1.0		0.7	1.0	ns	V_{DD} = 5V, $V_{G(ON)}$ = 10V R_L = 680, R_G = 51	
t_r	Rise Time		0.8	1.0		0.8	1.0		0.8	1.0			
$t_{(OFF)}$	Turn OFF Time		10			10			10				

NOTE 1: Pulse Test, 80 Sec, 1% Duty Cycle
Typical Performance Characteristics: See SD211-215 Series