

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 typical
- High Gain
- Surface Mount Package

APPLICATIONS

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

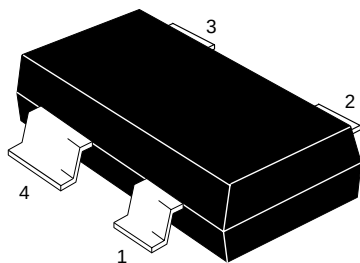
DESCRIPTION

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

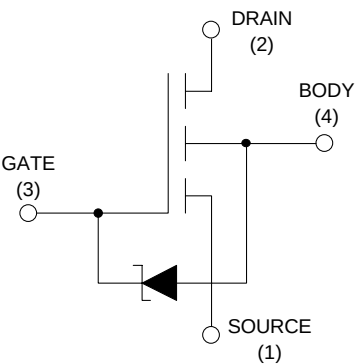
PIN CONFIGURATION



CD1-1

PRODUCT MARKING	
SST211	211
SST213	213
SST215	215

SCHEMATIC DIAGRAM



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

Parameter	SST211	SST213	SST215	Unit
Breakdown Voltages				
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 T_c = +25°C) 360mW
Linear Derating Factor 3.6mW/°

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													
BVDS	Drain-Source Breakdown Voltage	30	35								V	ID = 10μA, VGS = VBS = 0	
		10	25		10	25		20	25			ID = 10nA, VGS = VBS = -5V	
BVSD	Source-Drain Breakdown Voltage	10			10			20				IS = 10nA, VGD = VBD = -5V	
BVDB	Drain-Body Breakdown Voltage	15			15			25				ID = 10nA, VGB = 0 Source OPEN	
BVSB	Source-Body Breakdown Voltage	15			15			25				IS = 10μA, VGB = 0 Drain OPEN	
ID(OFF)	Drain-Source OFF Current		0.2	10		0.2	10				nA	VDS = 10V	VGS = VBS = -5V
									0.2	10		VDS = 20V	
IS(OFF)	Source-Drain OFF Current		0.6	10		0.6	10					VSD = 10V	VGD = VBD = -5V
									0.6	10		VSD = 20V	
IGBS	Gate-Body Leakage Current			10			10				μA	VGB = 25V	VDB = VSB = 0
										10		VGB = 30V	
VGS(th)	Gate Threshold Voltage	0.5	1.0	2.0	0.1		2.0	0.1	1.0	2.0	V	VDS = VGS, ID = 1μA, VSB = 0	
rds(on)	Drain-Source ¹ ON Resistance		50	70		50	70		50	70	ohms	VGS = 5V	ID = 1mA
			30	45		30	45		30	45		VGS = 10V	VSB = 0
DYNAMIC													
gfs	Common-Source ¹ Foward Transcond.	10	12		10	12		10	12		mS	VDS = 10V, ID = 20mA f = 1KHz, VSB = 0	
C(gs + gd + gb)	Gate Node Capacitance		2.4	3.5		2.4	3.5		2.4	3.5	pF	VDS = 10V VGS = VBS = -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			
td(ON)	Turn ON Delay Time		0.7	1.0		0.7	1.0		0.7	1.0	ns	VDD = 5V, VG(ON) = 10V RL = 680, RG = 51	
tr	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