

SST211/SST213/SST215

FAST DMOS FET Switches N-Channel Enhancement-Mode

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

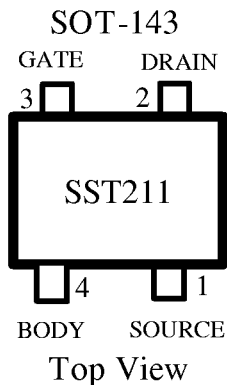
PRODUCT DESCRIPTION

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

ORDERING INFORMATION

Part Number	Temperature Range	Package Type
SST211Y	-55 to +125°C	SOT-143 Surface Mount
SST213Y	-55 to +125°C	SOT-143 Surface Mount
SST215Y	-55 to +125°C	SOT-143 Surface Mount
SST211X	-55 to +125°C	Sorted Chips in Carriers
SST213X	-55 to +125°C	Sorted Chips in Carriers
SST215X	-55 to +125°C	Sorted Chips in Carriers

Pin Connections



SST211/SST213/SST215

ABSOLUTE MAXIMUM RATINGS (T_C = +25°C unless otherwise specified.)

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 _{GS}	+15	+15	+25	V
V _{SB}	-15	-15	-25	V
V _{GS}	+25	+25	+30	V
	-0.3	-0.3	-0.3	V
V _{GB}	+25	+25	+30	V
	-30	-15	-25	V
V _{GD}	+25	+25	+30	V

Continuous Drain Current 50mA

Power Dissipation (at or below T_C = +25°C) 360mW

Linear Derating Factor 3.6mW/°C

Operating Junction Temperature Range -55 to 125°C

Storage Temperature Range -55 to 150°C

ELECTRICAL CHARACTERISTICS (T_C = +25°C unless otherwise specified.)

Parameter	Conditions	SST211			SST213			SST215			Unit
		Min	Typ	Max	Min	Typ	Max	Min	Typ	Max	
STATIC											
Drain-Source Breakdown Voltage	$I_D = 10\mu A, V_{GS} = V_{BS} = 0$	30 10	35 25			10 25			20 25		V
Source-Drain Breakdown Current	$I_D = 10nA, V_{GS} = V_{BS} = -5V$	10			10	25		20			V
Drain-Body Breakdown Voltage	$I_S = 10nA, V_{GD} = V_{BD} = -5V$	15			15			25			V
Source-Body Breakdown Voltage	$I_D = 10nA, V_{GB} = 0$ Source OPEN	15			15			25			V
Drain-Source OFF Current	$I_S = 10\mu A, V_{GB} = 0$ Drain OPEN		0.2	10		0.2	10		0.2	10	nA
Source-Drain OFF Current	$V_{DS} = 10V \quad V_{GS} = V_{BS} = -5V$ $V_{DS} = 20V$		0.6	10		0.6	10		0.6	10	nA
Gate-Body Leakage Current	$V_{GB} = 25V \quad V_{GD} = V_{BD} = -5V$ $V_{GB} = 30V$			10			10				μA
Gate Threshold Voltage	$V_{DS} = V_{GS}, I_D = 1\mu A, V_{SB} = 0$	0.5	1.0	2.0	0.1		2.0	0.1	1.0	2.0	V
Drain-Source ¹ ON Resistance	$V_{GS} = 5V \quad I_D = 1mA$ $V_{GS} = 10V \quad V_{SB} = 0$		50 30	70 45		50 30	70 45		50 30	70 45	ohms

DYNAMIC											
Common-Source ¹ Forward Transconductance	$V_{DS} = 10V$, $I_D = 20mA$ $f = 1KHz$, $V_{SB} = 0$	10	12		10	12		10	12		mS
Gate Node Capacitance	$V_{DS} = 10V$ $V_{GS} = V_{BS} = -15V$ $f = 1MHz$		2.4	3.5		2.4	3.5		2.4	3.5	pF
Drain Node Capacitance	$V_{DS} = 10V$ $V_{GS} = V_{BS} = -15V$ $f = 1MHz$		1.3	1.5		1.3	1.5		1.3	1.5	pF
Source Node Capacitance	$V_{DS} = 10V$ $V_{GS} = V_{BS} = -15V$ $f = 1MHz$		3.5	4.0		3.5	4.0		3.5	4.0	pF
Reverse Transfer Capacitance	$V_{DS} = 10V$ $V_{GS} = V_{BS} = -15V$ $f = 1MHz$		0.3	0.5		0.3	0.5		0.3	0.5	pF
Turn ON Delay Time	$V_{DD} = 5V$, $V_{G(ON)} = 10V$ $R_L = 680$, $R_G = 51$		0.7	1.0		0.7	1.0		0.7	1.0	ns
Rise Time	$V_{DD} = 5V$, $V_{G(ON)} = 10V$ $R_L = 680$, $R_G = 51$		0.8	1.0		0.8	1.0		0.8	1.0	ns
Turn OFF Time	$V_{DD} = 5V$, $V_{G(ON)} = 10V$ $R_L = 680$, $R_G = 51$		10			10			10		ns

Note 1: Pulse Test, 80 Sec, 1% Duty Cycle
Typical Performance Characteristics: See SST211-215 Series