

Product Summary

PART NUMBER	$V_{(BR)DS}$ Min (V)	$V_{(GS)th}$ Max (V)	$r_{DS(on)}$ Max (Ω)	C_{rss} Max (pF)	t_{ON} Max (ns)
SD211DE	30	1.5	45 @ $V_{GS}=10V$	0.5	2
SD213DE	10	1.5	45 @ $V_{GS}=10V$	0.5	2
SD215DE	20	1.5	45 @ $V_{GS}=10V$	0.5	2
SST211	30	1.5	50 @ $V_{GS}=10V$	0.5	2
SST213	10	1.5	50 @ $V_{GS}=10V$	0.5	2
SST215	20	1.5	50 @ $V_{GS}=10V$	0.5	2

Features

- Ultra-High Speed Switching— t_{ON} : 1ns
- Ultra-Low Reverse Capacitance: 0.2pF
- Low Guaranteed r_{DS} @5V
- Low Turn-On Threshold Voltage
- N-Channel Enhancement Mode

Benefits

- High-Speed System Performance
- Low Insertion Loss at High Frequencies
- Low Transfer Signal Loss
- Simple Driver Requirement
- Single Supply Operation

Applications

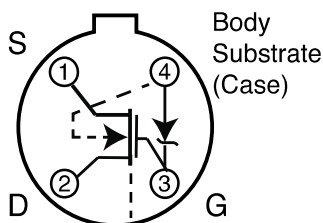
- Fast Analog Switch
- Fast Sample-and-Holds
- Pixel-Rate Switching
- DAC Deglitchers
- High-Speed Driver

Description

The SD211DE/SST211 series consists of enhancement-mode MOSFETs designed for high-speed low-glitch switching in audio, video and high-frequency applications. The SD211 may be used for a ± 5 -V analog switching or as a high-speed driver of the SD214. The SD214 is normally used for ± 10 -V analog switching. These MOSFETs utilize lateral construction to achieve low capacitance and ultra-fast switching speeds. An integrated ZENER diode provides ESD protection. These devices feature a poly-silicon gate for manufacturing reliability.

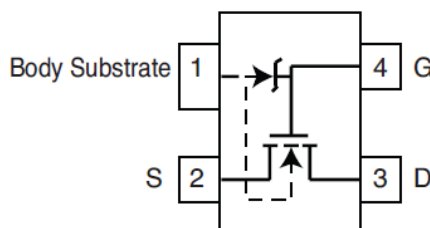
For similar products see: quad array—SD5000/5400 series, non-Zener protection—SD210DE/214DE.

TO-206AF (TO-72 4L)



Top View
SD211DE, SD213DE, SD215DE

TO-253 (SOT-143 4L)



Top View
SST211, SST213, SST215

SD-SST211/213/215

N-Channel Lateral DMOS Switch, Zener Protected

Absolute Maximum Ratings ($T_A = 25^\circ\text{C}$ unless otherwise noted)

Gate Drain, Gate Source Voltage	(SD211DE/SST211).....-30/25V (SD213DE/SST213).....-15/25V (SD215DE/SST215).....-25/30V	Drain-Substrate Voltage	(SD211DE/SST211).....30V (SD213DE/SST213).....15V (SD215DE/SST215).....25V
Gate-Substrate Voltage ^a	(SD211DE/SST211).....-0.3/25V (SD213DE/SST213).....-0.3/25V (SD215DE/SST215).....-0.3/30V	Source-Substrate Voltage	(SD211DE/SST211).....15V (SD213DE/SST213).....15V (SD215DE/SST215).....25V
Drain-Source Voltage	(SD211DE/SST211).....30V (SD213DE/SST213).....10V (SD215DE/SST215).....20V	Drain Current	50mA
Voltage	(SD211DE/SST211).....10V (SD213DE/SST213).....10V (SD215DE/SST215).....20V	Lead Temperature (1/16" from case for 10 seconds)	300°C
		Storage Temperature	-65 to 150°C
		Operating Junction Temperature	-55 to 125°C
		Power Dissipation	300mW

Notes:

a. Derate 3mW/°C above 25°C

Specifications^a

PARAMETER	SYMBOL ^b	TEST CONDITIONS ^b		TYP ^b	LIMITS						UNIT
					211 Series		213 Series		215 Series		
					Min	Max	Min	Max	Min	Max	
Static											
Drain - Source Breakdown Voltage	V _{(BR)DS}	V _{GS} = V _{BS} = 0V, I _D = 10 μA		35	30						V
		V _{GS} = V _{BS} = -5V, I _D = 10 nA		30	10		10		20		
Source - Drain Breakdown Voltage	V _{(BR)SD}	V _{GS} = V _{BD} = -5V, I _S = 10 nA		22	10		10		20		
Drain - Substrate Breakdown Voltage	V _{(BR)DBO}	V _{GB} = 0V, I _D = 10 nA Source Open		35	15		15		25		
Source - Substrate Breakdown Voltage	V _{(BR)SBO}	V _{GB} = 0V, I _S = 10 μA Drain Open		35	15		15		25		
Drain – Source Leakage	I _{DS(off)}	V _{GS} = V _{BS} = -5V	V _{DS} = 10V	0.4		10		10			nA
			V _{DS} = 20V	0.9					10		
Source - Drain Leakage	I _{SD(off)}	V _{GD} = V _{BD} = -5V	V _{SD} = 10V	0.5		10		10			
			V _{SD} = 20V						10		
Gate Leakage	I _{GBS}	V _{DB} = V _{SB} = 0V, V _{GB} = 30V		0.01		100		100		100	
Threshold Voltage	V _{GS(th)}	V _{DS} = V _{GS} , I _D = 1 μA , V _{SB} = 0V		0.8	0.5	1.5	0.1	1.5	0.1	1.5	V
Drain – Source On-Resistance	r _{DS(on)}	V _{SB} = 0V I _D = 1mA	V _{GS} = 5V (SD Series)	58		70		70		70	Ω
			V _{GS} = 5V (SST Series)	60		75		75		75	
			V _{GS} = 10V (SD Series)	38		45		45		45	
			V _{GS} = 10V (SST Series)	40		50		50		50	
			V _{GS} = 15V	30							
			V _{GS} = 20V	26							
			V _{GS} = 25V	24							

SD-SST211/213/215

N-Channel Lateral DMOS Switch, Zener Protected

Specifications^a

PARAMETER	SYMBOL ^b	TEST CONDITIONS ^b	TYP ^c	LIMITS						UNIT	
				211 Series		213 Series		215 Series			
				Min	Max	Min	Max				
Dynamic											
Forward Transconductance	g _{fs}	V _{DS} = 10V, V _{SB} = 0V, , I _D = 20mA, f = 1kHz	SD Series	11	10		10		10		mS
	g _{os}		SST Series	10.5	9		9		9		
			All	0.9							
Gate Node Capacitance	C _(GS+GD+GB)	V _{DS} = 10V, f = 1MHz V _{GS} = V _{BS} = -15V	SD Series	2.5		3.5		3.5		3.5	pF
Drain Node Capacitance	C _(GD+DB)			1.1		1.5		1.5		1.5	
Source Node Capacitance	C _(GS+SB)			3.7		5.5		5.5		5.5	
Reverse Transfer Capacitance	C _{rss}		SST Series	4.2							
			SD Series	0.2		0.5		0.5		0.5	
Switching											
Turn-On Time	t _{D(on)}	SD Series Only V _{SB} = 0V, V _{IN} 0 to 5V, R _G = 25Ω V _{DD} = 5V, R _L = 680Ω	0.5		1		1		1	ns	
	t _r		0.6		1		1		1		
Turn-Off Time	t _{D(off)}		2								
	t _f		6								

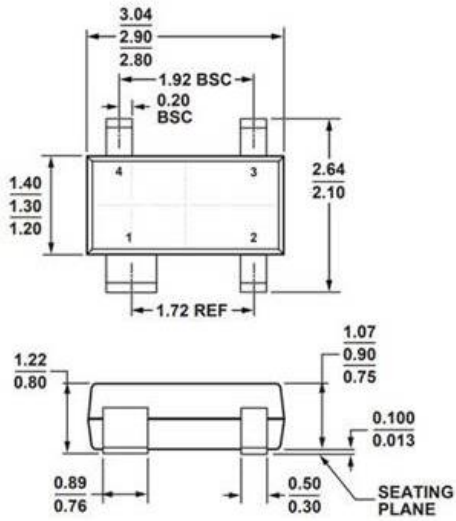
Notes:

- $T_A = 25^\circ C$ unless otherwise notes.
- B is the body (substrate) and $V_{(BR)}$ is breakdown voltage.
- Typical values are for DESIGN AID ONLY, not guaranteed nor subject to production testing.

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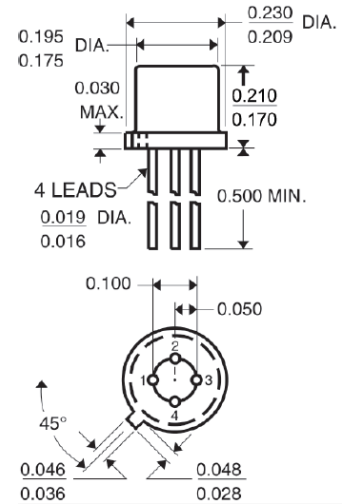
Package Dimensions:

**TO-253
(SOT-143 4L)**



Dimensions Shown in Millimeters

**TO-206AF
(TO-72 4L)**



Dimensions Shown in Inches

Ordering Information:

Standard Part Call-Out	Custom Part Call-Out (Custom Parts Include SEL + 4 Digit Numeric Code)
SD211DE TO-72 4L RoHS	SD211DE TO-72 4L RoHS SELXXX
SD213DE TO-72 4L RoHS	SD213DE TO-72 4L RoHS SELXXX
SD215DE TO-72 4L RoHS	SD215DE TO-72 4L RoHS SELXXX
SST211 SOT-143 4L RoHS	SST211 SOT-143 4L RoHS SELXXX
SST213 SOT-143 4L RoHS	SST213 SOT-143 4L RoHS SELXXX
SST215 SOT-143 4L RoHS	SST215 SOT-143 4L RoHS SELXXX