

*SD200 / SD201 / SD202 / SD203 / SSTSD201 / SSTSD203*

**FEATURES**

- High gain ..... 8.0 dB min @ 1 GHz
- Low Noise ..... 5.0 dB max @ 1 GHz (SD202, SD203, SSTSD203)
- Low Interelectrode Capacitances

**APPLICATIONS**

- High Gain VHF/UHF Amplifiers
- Oscillators
- Mixers

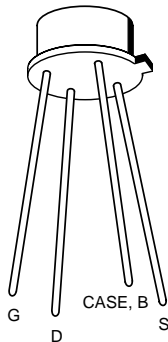
**DESCRIPTION**

The SD200 series is manufactured utilizing Calogic's proprietary DMOS design and processing techniques. The device is designed to operate well through 1 GHz while maintaining excellent frequency response, power gain, and low noise. The DMOS structure is an inherently low capacitance and very high speed design resulting in a device that bridges JFETS and GaAs products in performance characteristics.

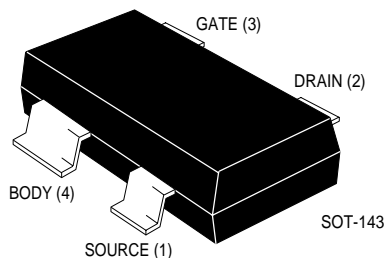
**ORDERING INFORMATION**

Part	Package	Temperature Range
SD200DC	4 Lead TO-52 Package	-55°C to +125°C
SD201DC	4 Lead TO-52 Package	-55°C to +125°C
SD202DC	4 Lead TO-52 Package	-55°C to +125°C
SD203DC	4 Lead TO-52 Package	-55°C to +125°C
SSTSD201	Surface Mount SOT-143	-55°C to +125°C
SSTSD203	Surface Mount SOT-143	-55°C to +125°C
XSD200	Sorted Chips in Carriers	-55°C to +125°C
XSD201	Sorted Chips in Carriers	-55°C to +125°C
XSD202	Sorted Chips in Carriers	-55°C to +125°C
XSD203	Sorted Chips in Carriers	-55°C to +125°C

**PIN CONFIGURATION**

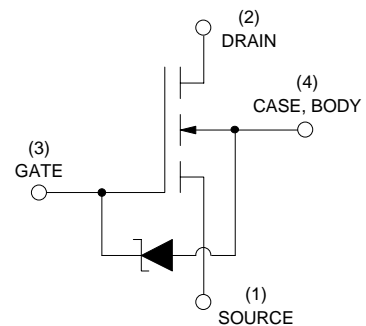


CD10-1 SD201, SD203, zener protected  
CD10-2 SD202, SD204, non-zener



PART MARKINGS (SOT-143)	
P/N	MARKING
SSTSD201	201
SSTSD203	203

**SCHEMATIC DIAGRAM**



BODY INTERNALLY CONNECTED TO CASE.  
DIODE PROTECTION ON SD201/SD203 ONLY.

**ABSOLUTE MAXIMUM RATING** ( $T_A = +25^{\circ}\text{C}$  unless otherwise noted)

PARAMETER	SD200	SD201	SD202	SD203	UNIT
<b>Breakdown Voltages</b>					
$V_{DS}$	+25	+25	+20	+20	V
$V_{DB}$	+25	+25	+20	+20	V
$V_{GS}$	$\pm 40$	-0.3	$\pm 40$	-0.3	V
		+20		+20	V
$V_{GB}$	$\pm 40$	-0.3	$\pm 40$	-0.3	V
		+20		+20	V
$V_{GD}$	$\pm 40$	-0.3	$\pm 40$	-0.3	V
		+20		+20	V

$I_D$	Continuous Drain Current	50 mA
$P_T$	Power Dissipation (at or below $T_C = +25^{\circ}\text{C}$ )	1.8 W
	Linear Derating Factor	18 mW/ $^{\circ}\text{C}$
$P_D$	Power Dissipation (at or below $T_A = +25^{\circ}\text{C}$ )	360 mW
	Linear Derating Factor	3.6 mW/ $^{\circ}\text{C}$
$T_j$	Operating Junction	
	Temperature Range	$-55^{\circ}\text{C}$ to $+125^{\circ}\text{C}$
$T_s$	Storage Temperature Range	$-65^{\circ}\text{C}$ to $+175^{\circ}\text{C}$

**ELECTRICAL CHARACTERISTICS** ( $T_A = +25^{\circ}\text{C}$  unless otherwise noted)

SYMBOL	PARAMETER	200, 201			202, 203			UNIT	TEST CONDITIONS
		MIN	TYP	MAX	MIN	TYP	MAX		
<b>STATIC</b>									
$BV_{DS}$	Drain-Source Breakdown Voltage	25	30		20	25		V	$I_D = 1.0\mu\text{A}$ , $V_{GS} = V_{BS} = 0$
$BV_{DB}$	Drain-Body Breakdown Voltage	25			20			V	$I_D = 1.0\mu\text{A}$ , $V_{GB} = 0$ Source OPEN
$I_{D(OFF)}$	Drain-Source OFF Current			1.0				$\mu\text{A}$	$V_{DS} = 25\text{ V}$ $V_{DS} = 20\text{ V}$ $V_{GS} = V_{BS} = 0$
$I_{GBS}$	Gate-Body Leakage Current	SD200		$\pm 0.1$				nA	$V_{DB} = V_{SB} = 0$ $V_{GV} = \pm 40\text{ V}$ $V_{GB} = 20\text{ V}$
		SD202					$\pm 0.1$		
		SD201			1.0			$\mu\text{A}$	
		SD203						1.0	
$V_{GS(th)}$	Gate Threshold Voltage	0.1	1.0	2.0	0.1	1.0	2.0	V	$V_{DS} = V_{GS}$ , $I_D = 1\mu\text{A}$ , $V_{SB} = 0$
$r_{DS(ON)}$	Drain-Source ON Resistance		40	70		35	50	ohms	$V_{GS} = 5\text{ V}$ , $I_D = 1\text{ mA}$ , $V_{SB} = 0$
<b>DYNAMIC</b>									
$g_{fs}$	Common-Source Forward Transconductance	13	14		17	20		mS	$I_D = 20\text{ mA}$ , $V_{DS} = 15\text{ V}$ $f = 1\text{ KHz}$ , $V_{SB} = 0$
$C_{iss}$	Common-Source Input Capacitance		2.4	3.0		3.0	3.6	pF	$I_D = 20\text{ mA}$ $V_{GS} = 0$ $V_{DS} = 15\text{ V}$ $f = 1\text{ MHz}$ $V_{SB} = 0$
$C_{oss}$	Common-Source Output Capacitance		1.0	1.2		1.0	1.2		
$C_{rss}$	Common-Source Reverse Transfer Capacitance		0.2	0.3		0.2	0.3		
$G_{ps}$	Common-Source Power Gain	8.0	10		8.0	10		dB	$V_{DS} = 15\text{ V}$ $f = 1\text{ GHz}$ $I_D = 20\text{ mA}$ $V_{SB} = 0$
NF	Noise Figure		4.5	6.0		4.0	5.0		
$P_1$	Intercept Point		29			29			