

N-Channel Depletion Mode Lateral DMOS FET



SD2100 / SST2100

FEATURES

- Fast Switching t_{ON} 1.0ns
- Low Capacitance C_{RSS} 2pf
- Low R_{ON} 50Ω

APPLICATIONS

- Analog Switches
- Amplifiers

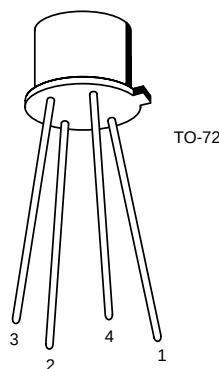
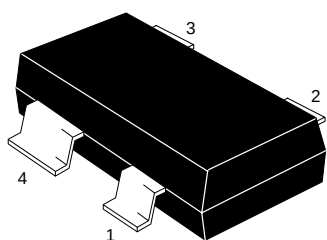
DESCRIPTION

The SD2100/SST2100 is a depletion mode DMOS lateral FET that provides ultra high speed switching with very low capacitance. The product is available in TO-72 and surface mount SOT-143.

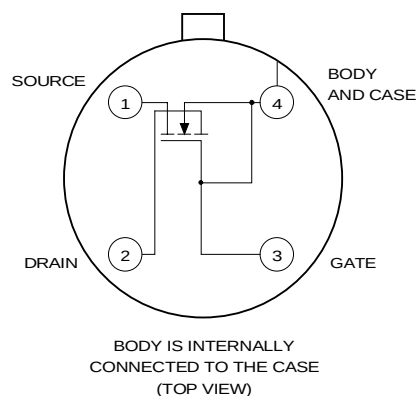
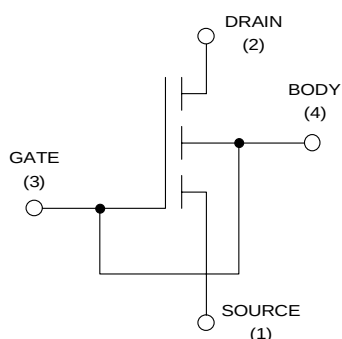
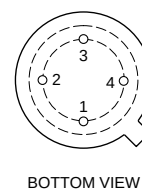
ORDERING INFORMATION

Part	Package	Temperature Range
SD2100	TO-72	-55°C to +125°C
SST2100	SOT-143	-55°C to +125°C
XSD2100	Sorted Chips in Carriers	-55°C to +125°C

CONNECTION DIAGRAMS



- 1 SOURCE
- 2 DRAIN
- 3 GATE
- 4 SUBSTRATE



PART MARKING (SOT-231)

SST2100	D10
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CD1-2

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

SYMBOL	PARAMETERS/TEST CONDITIONS	LIMITS	UNITS
V_{GS}	Gate-Source Voltage	± 25	V
V_{DS}	Drain-Source Voltage	25	
I_D	Drain Current	50	mA
P_D	Power Dissipation	300	mW
	Power Derating	2.4	mW/ $^{\circ}\text{C}$
T_J	Operating Junction Temperature	-55 to 150	$^{\circ}\text{C}$
T_{stg}	Storage Temperature	-55 to 150	
T_L	Lead Temperature (1/16" from case for 10 sec.)	300	

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

SYMBOL	PARAMETER	TYP ¹	MIN	MAX	UNIT	TEST CONDITIONS	
STATIC							
V _{(BR)DS}	Drain-Source Breakdown Voltage	25	15		V	V _{GS} = V _{BS} = -5V, I _D = 1μA	
I _{GSS}	Gate Reverse Current	±0.05		±1	nA	V _{GS} = ±25V, V _{DS} = V _{BS} = 0V	
I _{DSS}	Saturation Drain Current	7	0.5	10	mA	V _{DS} = 10V, V _{GS} = V _{BS} = 0V	
V _{GS(OFF)}	Gate-Source Cutoff	-1.5		-2	V	V _{DS} = 10V, I _D = 1μA, V _{BS} = 0V	
V _{GS}	Gate-Source Voltage	-0.3	-1	1		V _{DG} = 10V V _{BS} = 0V	I _D = 5mA
		0.4	0	1.5			I _D = 10mA
r _{DS(ON)}	Drain-Source On-Resistance	120		200	Ω	I _D = 100μA V _{BS} = 0V	V _{GS} = 0V
		40		50			V _{GS} = 5V
DYNAMIC							
g _{fs}	Forward Transconductance	8000	1000		μS	V _{DS} = 10V, V _{GS} = V _{BS} = 0V, f = 1kHz	
g _{os}	Output Conductance	250		500			
g _{fs}	Forward Transconductance	10000	7000			V _{DG} = 10V, V _{BS} = 0V, I _D = 10mA, f = 1kHz	
g _{os}	Output Conductance	350		500			
C _{iSS}	Common-Source Input Capacitance	5		6	pF	V _{DS} = 10V, f = 1MHz, V _{GS} = V _{BS} = -5V	
C _{rSS}	Reverse Transfer Capacitance	1		2			
SWITCHING							
t _{d(ON)}	Turn-ON Time	0.7			ns	V _{DD} = 5V, R _L = 680Ω, V _{IN} = -4V to -2V	
t _r		0.4					
t _{OFF}	Turn-OFF Time	5					

Note1: For design aid only, not subject to production testing.