

LVD SCSI 27线稳压器

DS2129

概述

DS2129是一款三输出稳压器，在使用LVD终端网络的SPI-2和SPI-3应用中，用于27线低电压差分(LVD) SCSI终端匹配。该器件为LVD匹配电阻 π 型网络提供基准电压和偏置电流。使用 π 型网络(475 Ω 、121 Ω 、475 Ω)时，DS2129可以满足SPI-2 (Ultra2)和SPI-3 (Ultra3)的共模偏置、差分偏置以及终端阻抗的要求。该器件还为DIFFSENSE信号提供1.3V输出，并具有保护功能，如热关断和有效电流限制。

特性

- ◆ 与SPI-2和SPI-3完全兼容
- ◆ 2.7V至5.25V工作
- ◆ 差分失效保护偏置

应用

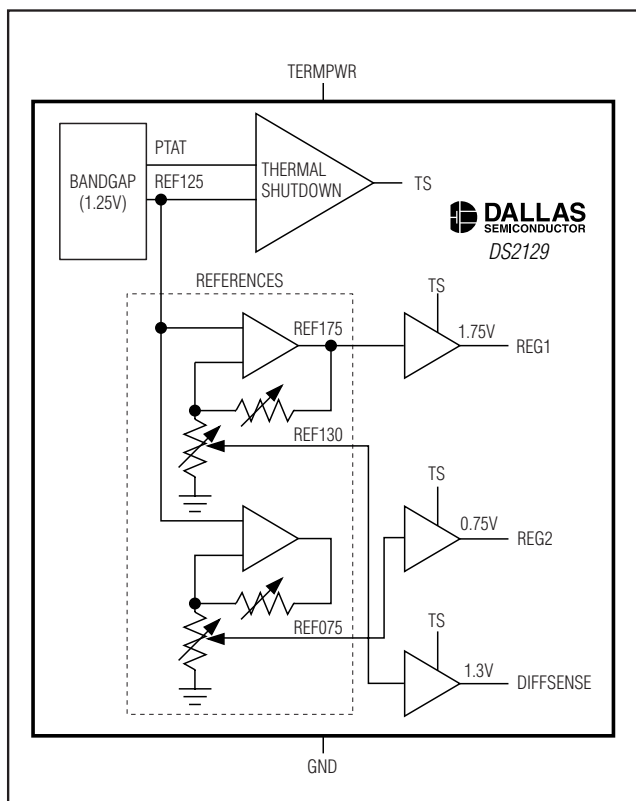
- SCSI矩阵背板
- SCSI线缆

订购信息

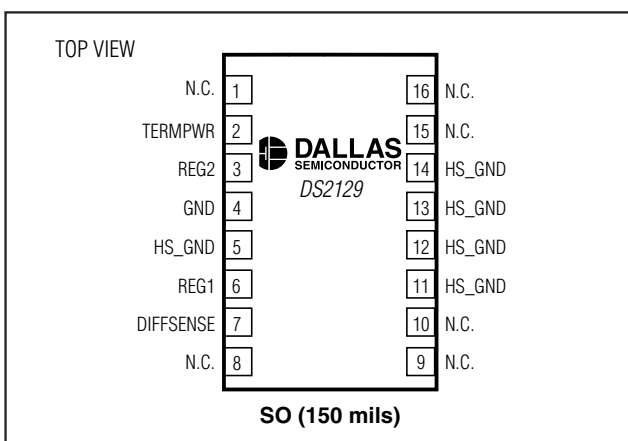
PART*	VOLTAGE (V)	PIN-PACKAGE	TOP MARK**
DS2129S	5	16 SO	DS2129
DS2129S+	5	16 SO	DS2129
DS2129S/T&R	5	16 SO	DS2129
DS2129S+T&R	5	16 SO	DS2129

+表示无铅封装。
 *所有器件额定工作在商业级温度范围(0°C至+70°C)。
 **顶标任何位置的“+”号表示无铅封装。

原理框图



引脚配置



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ABSOLUTE MAXIMUM RATINGS

TERMPWR, DIFFSENSE, REG1, REG2-0.3V, +6.0V
 REG1, REG2 Continuous Output Current.....±200mA
 Continuous Power Dissipation (T_A = +70°C)
 16-Pin SO (derate 13mW/°C above +70°C).....1W

Operating Temperature Range.....0°C to +70°C
 Junction Temperature+150°C
 Storage Temperature Range-65°C to +150°C
 Soldering TemperatureSee IPC/JEDEC
 J-STD-020A Specification

Stresses beyond those listed under "Absolute Maximum Ratings" may cause permanent damage to the device. These are stress ratings only, and functional operation of the device at these or any other conditions beyond those indicated in the operational sections of the specifications is not implied. Exposure to absolute maximum rating conditions for extended periods may affect device reliability.

ELECTRICAL CHARACTERISTICS

(TERMPWR = 3.3V, T_A = 0°C to +70°C, unless otherwise noted.) (Note 1)

PARAMETER	SYMBOL	CONDITIONS	MIN	TYP	MAX	UNITS
TERMPWR						
TERMPWR Supply Current	I _{TERM}	No load			40	mA
TERMPWR Voltage	V _{TERM}		2.7		5.25	V
V_{REF} REGULATOR						
0.75V Regulator Output Voltage, REG2	V ₀₇₅	I _{OUT} = ±125mA	0.7	0.75	0.8	V
0.75V Regulator Source Current, REG2	I _{SRC_075}	V _{OUT} = 0.25V			-200	mA
0.75V Regulator Sink Current, REG2	I _{SINK_075}	V _{OUT} = 1.25V	+200			mA
0.75V Regulator Source Current Limit	I _{SACL_075}	V _{OUT} = 0V	-700			mA
0.75V Regulator Sink Current Limit	I _{SINKL_075}	V _{OUT} = 3.3V			+700	mA
1.75V Regulator Output Voltage, REG1	V ₁₇₅	I _{OUT} = ±125mA	1.7	1.75	1.8	V
1.75V Regulator Source Current, REG1	I _{SRC_175}	V _{OUT} = 1.25V			-200	mA
1.75V Regulator Sink Current, REG1	I _{SINK_175}	V _{OUT} = 2.25V	+200			mA
1.75V Regulator Source Current Limit	I _{SACL_175}	V _{REF} = 0V	-700			mA
1.75V Regulator Sink Current Limit	I _{SINKL_175}	V _{REF} = 3.3V			+700	mA
DIFFSENSE OUTPUT						
DIFFSENSE Driver Output Voltage	V _{DSO}	-5mA ≤ I _{DIFFSENSE} ≤ 50μA	1.2	1.3	1.4	V
DIFFSENSE Driver Source Current	I _{DSH}	V _{DIFFSENSE} = 0V	-5		-15	mA
DIFFSENSE Driver Sink Current	I _{DSL}	V _{DIFFSENSE} = 2.4V	100		200	μA

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ELECTRICAL CHARACTERISTICS (continued)

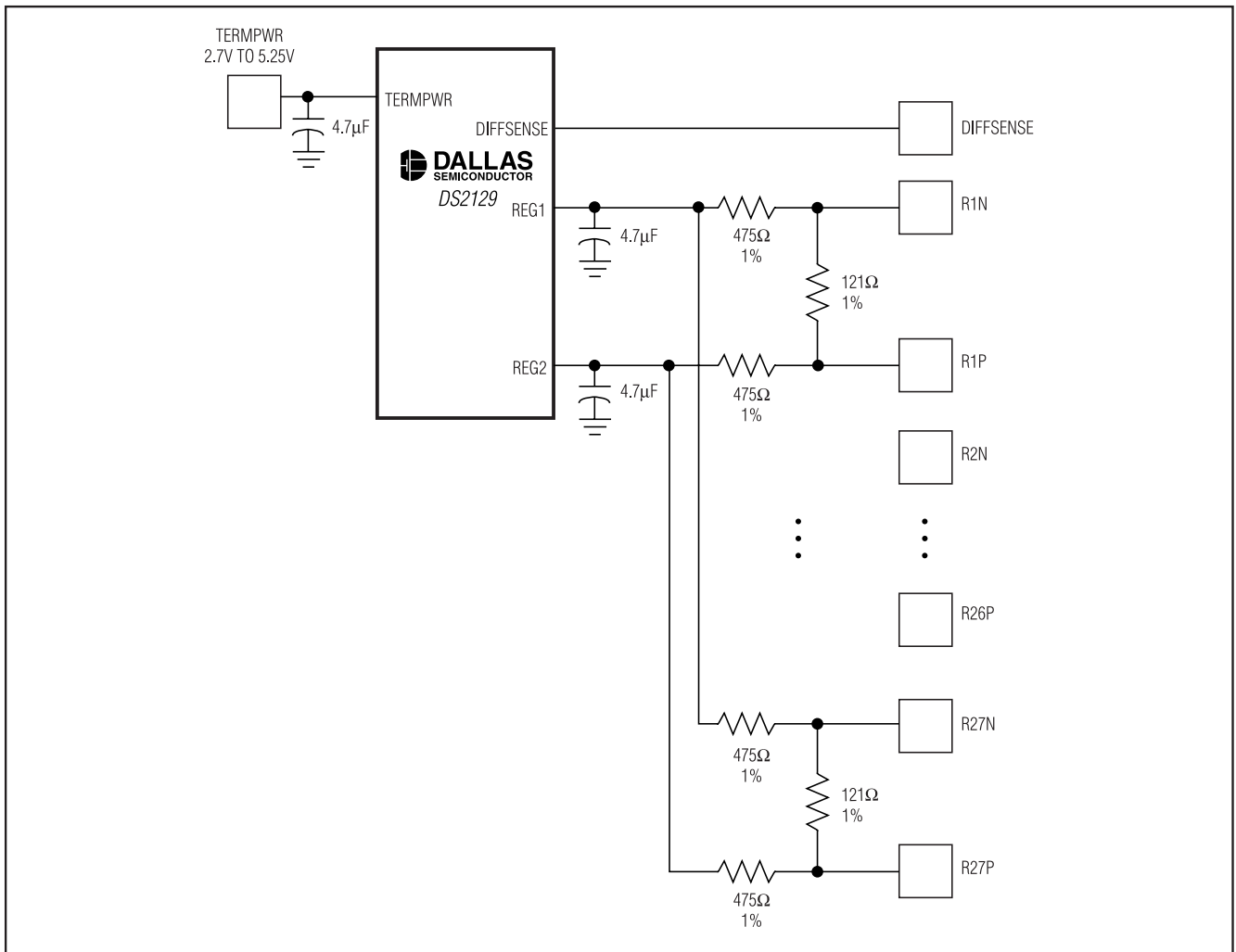
(TERMPWR = 3.3V, T_A = 0°C to +70°C, unless otherwise noted.) (Note 1)

PARAMETER	SYMBOL	CONDITIONS	MIN	TYP	MAX	UNITS
THERMAL SHUTDOWN						
Thermal-Shutdown Threshold (Note 2)		For increasing temperature		+150		°C
Thermal-Shutdown Hysteresis (Note 2)				10		°C

Note 1: All voltages are referenced to ground.

Note 2: Guaranteed by design and not production tested.

典型工作电路



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引脚说明

引脚	名称	功能
1, 8, 9, 10, 15, 16	N.C.	未连接。引脚不需连接。
2	TERMPWR	终端电源。连接SCSI的TERMPWR线，并使用4.7 μ F的陶瓷电容去耦。
3	REG2	稳压器2，0.75V输出。使用4.7 μ F的陶瓷电容去耦。
4	GND	信号地。
5, 11-14	HS_GND	散热器地。内部与安装托盘连接。应该与地相连。
6	REG1	稳压器1，1.75V输出。使用4.7 μ F的陶瓷电容去耦。
7	DIFFSENSE	DIFFSENSE输出。驱动SCSI总线的DIFFSENSE线。

详细说明

DS2129提供三路稳压输出。REG1为1.75V，REG2为0.75V，这两个输出均可吸收或供出200mA的电流。稳压器的最大限流为700mA。管芯温度超过+150°C时，热关断电路将禁用输出缓冲器。这两个输出连接 π 型电阻网络(475 Ω 、121 Ω 、475 Ω)时，DS2129可为SCSI系统提供满足SPI-2和SPI-3终端要求的共模偏置、差分偏置、共模阻抗和差分阻抗。第三个稳压器为DIFFSENSE信号提供1.3V输出。

芯片信息

TRANSISTOR COUNT: 3778 CMOS and 80 BIPOLAR
PROCESS: BiCMOS
SUBSTRATE CONNECTED TO GROUND

热特性

热阻(结至周围环境):

$$\theta_{JA} = +77^{\circ}\text{C/W}$$

热阻(结至外壳):

$$\theta_{JC} = +25^{\circ}\text{C/W}$$

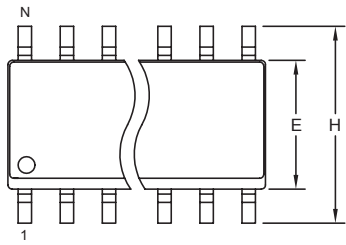
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封装信息

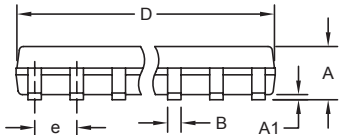
(本数据资料提供的封装图可能不是最近的规格, 如需最近的封装外型信息, 请查询 www.maxim-ic.com.cn/packages.)

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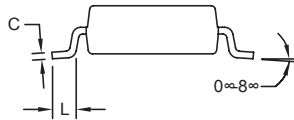
SOICN, EPS



TOP VIEW



FRONT VIEW



SIDE VIEW

DIM	INCHES		MILLIMETERS	
	MIN	MAX	MIN	MAX
A	0.053	0.069	1.35	1.75
A1	0.004	0.010	0.10	0.25
B	0.014	0.019	0.35	0.49
C	0.007	0.010	0.19	0.25
e	0.050 BSC		1.27 BSC	
E	0.150	0.157	3.80	4.00
H	0.228	0.244	5.80	6.20
L	0.016	0.050	0.40	1.27

VARIATIONS:

DIM	INCHES		MILLIMETERS		N	MS012
	MIN	MAX	MIN	MAX		
D	0.189	0.197	4.80	5.00	8	AA
D	0.337	0.344	8.55	8.75	14	AB
D	0.386	0.394	9.80	10.00	16	AC

NOTES:

1. D&E DO NOT INCLUDE MOLD FLASH.
2. MOLD FLASH OR PROTRUSIONS NOT TO EXCEED 0.15mm (.006").
3. LEADS TO BE COPLANAR WITHIN 0.10mm (.004").
4. CONTROLLING DIMENSION: MILLIMETERS.
5. MEETS JEDEC MS012.
6. N = NUMBER OF PINS.

<small>PROPRIETARY INFORMATION</small>	
TITLE: PACKAGE OUTLINE, .150" SOIC	
APPROVAL	DOCUMENT CONTROL NO. 21-0041
REV. B	1/1

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