

Linear Voltage Regulator - SiS1085L-ADJ

Positive Adjustable Output 3A Low Dropout Voltage Regulator in bare die form

Rev 1.0 05/07/19

Description

The SiS1085L is a positive adjustable regulator providing 3A output current with high efficiency. The device accepts input voltages up to 7V and is optimised for smallest die size. Voltage dropout is guaranteed at 1.5V maximum at 3A. This device also features on-chip trimming for current limit + reference voltage and includes thermal shutdown for rugged performance. Adjustment of output voltage is simple and set by two resistors.

Ordering Information

The following part suffixes apply:

- No suffix MIL-STD-883 /2010B Visual Inspection.
- "H" MIL-STD-883 /2010B Visual Inspection+ MIL-PRF-38534 Class H LAT
- "K" MIL-STD-883 /2010A Visual Inspection (Space)
 + MIL-PRF-38534 Class K_AT

LAT = Lot Acceptance Test.

For further information on LAT places flows see below.

www.siliconsupplies.com\quality\bare-die-lot-qualification

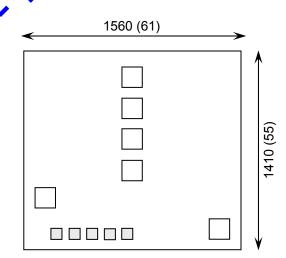
Supply Formats:

- Defaut Die in Waffle Pack (100 per tray capacity)
- Sawn Wafer on Tape On request
- Un-sawn Wafer On request
- In Metal or Ceramic package On request

Features:

- 7V input capability with optimised dispize
- 1.5V dropout voltage maximum at 3.
- Internal current limiting & response trimming
- Thermal shutdown
- Line & Load Regulation: 0.3% maximum
- Full military temperature range.

Die Din ensions in µm (mils)



Mechanical Specification

Die Size (Unsawn)	1560 x 1410 61 x 55	µm mils	
Minimum Bond Pad Size	130 x 130 5.11 x 5.11	μm mils	
Die Thickness	350 (±20) 13.78 (±0.79)	μm mils	
Top Metal Composition	Al 1%Si 1.4μm		
Back Metal Composition	Ti/Ni/Ag		

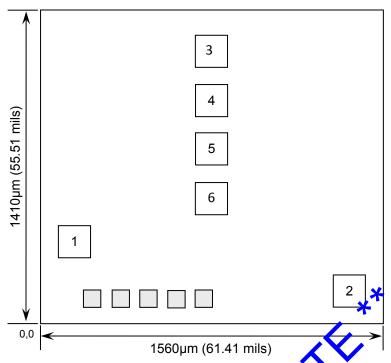




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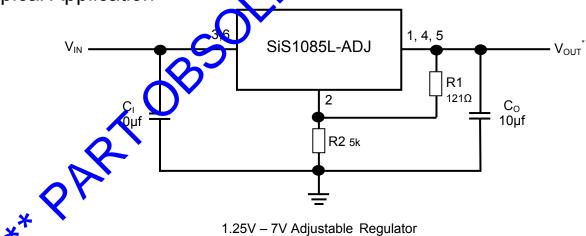
Rev 1.0 05/07/19

Pad Layout and Functions



PAD	FUNCTION	COORDINATES (µm)			
ו אם	1011011011	Х	Υ		
1	OUTPUT	80	296		
2	ADJUST	1216	80		
3	INPUT	713	1160		
4	OUTPUT	713	940		
5	CONPUT	713	720		
6	NPUT	713	500		
C	ONNECT CHIP	BACK TO OL	JTPUT		

Typical Application



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 $V_{OUT} = 1.25V (1 + \frac{R2}{R1}) + I_{ADJ} * R2$

Application Notes: I_{ADJ} tolerance <120µA

 C_1 is required if the regulator is located an appreciable distance from power supply filter. C_0 is not required for stability; however it does improve transient response. For optimum stability and transient response locate C_1 C_0 as close as possible to the regulator.

The device can operate with up to 7V input voltage supply. This input supply must be well regulated. Additional low ESR input capacitance improves the output noise performance if the input supply is noisy.





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Rev 1.0 05/07/19

Absolute Maximum Ratings¹ T_J = 25°C unless otherwise stated

PARAMETER	SYMBOL	VALUE	UNIZ	
Input-to-Output Voltage Differential	V _{DIFF}	7	//	
Power Dissipation ²	P _D	Internally limited	m V	
Operating Temperature Range	T _J	-55 to 150	C	
Storage Temperature	T _{STG}	-65 to 150	°C	

Operating Conditions T_J = 25°C unless otherwise stated

PARAMETER	SYMBOL	MIN	N'AX	UNIT
Input Voltage	V _{IN}	0	7	V
Output Current	I _{OUT}		3	Α
Operating Temperature Range	T _J	-55	+125	°C

DC Electrical Characteristics T_J = 25°C unless otherwise specified

PARAMETER	SYMBOL	TEST CONDITIONS		MIN	TYP	MAX	UNITS
Reference Voltage	V _{REF}	I _{OUT} = 10mA, V _{IN} =4.25V	T _J = 25°C	1.237	1.250	1.263	V
		0 ≤ I _{OUT} ≤ I _{FULL L} AD	T _J = 25°C	1.232	1.250	1.268	V
		2.75V ≤ V _{IN} ≤ X	Full range ³	1.225	1.250	1.275	
Line Regulation	ΔV _{OUT}	I _{OUT} = 10mA,	$T_J = 25^{\circ}C$	-	0.015	0.3	%
Line Regulation	A V 001	2.75V≤V _{IN} ≤ 7V	Full range ³	-	0.035	0.4	
Load Regulation	ΔV _{OUT}	V _{IN} = 1.25V,	$T_J = 25^{\circ}C$	-	0.1	0.3	%
Load Regulation	A V 001	1 ≤ I _{OJT} ≤ I _{FULL LOAD}	Full range ³	-	0.2	0.4	/0
Dropout Voltage	V _{IN} - V _{OUT}	$I_{OUT} = 3A$	Full range ³	-	1.3	1.5	V
Minimum Load Current		V _{IN} = 7V	Full range ³	-	5	10	mA
Output Current Limit	I _{LIMIT}	V _{IN} = V _{OUT} +2V	Full range ³	3.5	-	-	А
Adjust Pin Current	I _{ADJ}	$V_{IN} = 2.75V \le 7V,$ $I_{OUT} = 10mA$	Full range ³	-	-	120	
Adjust Pir C rrent Change	Δ_{ADJ}	$10\text{mA} \le I_{\text{OUT}} \le I_{\text{FULL LOAD.}}$ $2.75\text{V} \le V_{\text{IN}} \le 7\text{V}$	Full range ³	-	0.2	5	μΑ
Ripple Rejection	RR	I_{OUT} = 3A, V_{IN} = V_{OUT} +2V, f_{RIPPLE} = 120Hz, C_{OUT} =25 μ F	Full range ³	60	-	-	dB
Temperature Stability	-		Full range ³	-	0.5	-	%

^{1.} Operation above the absolute maximum rating may cause device failure. Operation at the absolute maximum ratings, for extended periods, may reduce device reliability. 2. Results in die form are dependent on die attach and assembly method 3. $-55^{\circ}C \le T_{J} \le 125^{\circ}C$





Linear Voltage Regulator - SiS1085L-ADJ

Rev 1.0 05/07/199

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