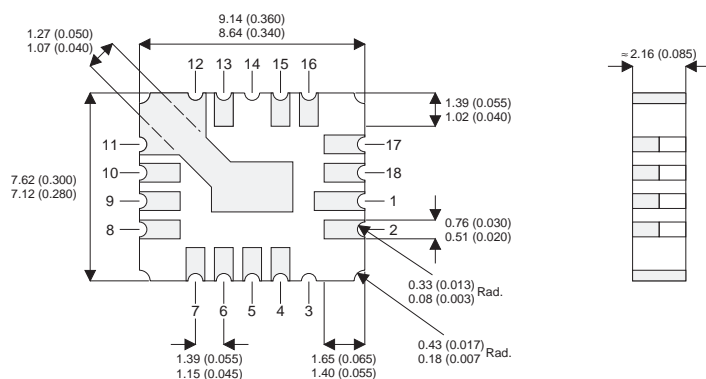
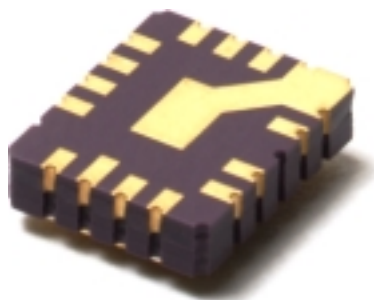


MECHANICAL DATA

Dimensions in mm (inches)



LCC4

Pads 5,4 = adjust

Pads 6,7,8,9,10,11,13 = V_{IN}

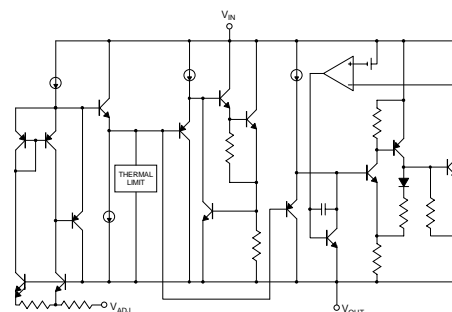
Pads 1,2,15,16,17,18 = V_{OUT}

CERAMIC SURFACE MOUNT LOW DROPOUT POSITIVE ADJUSTABLE VOLTAGE REGULATOR FOR HI-REL APPLICATIONS

FEATURES

- Ceramic Surface Mount Hermetic Package
- Low Dropout Performance
- Output Current 3A
- Line Regulation 0.015% / V Typical.
- Load Regulation 0.1% Typical.
- Full Temperature Range (–55 to +150°C)

BLOCK DIAGRAM



ABSOLUTE MAXIMUM RATINGS ($T_{case} = 25^{\circ}\text{C}$ unless otherwise stated)

V_{IO}	Input–Output Differential Voltage	30V
P_D	Power Dissipation	Internally limited
V_{IN}	Operating Input Voltage	25V
T_J	Operating Junction Temperature Range	–55 to 150°C
T_{STG}	Storage Temperature Range	–55 to 200°C
θ_{JC}	Thermal Resistance (junction to case)	–65 to 150°C
		13°C/W

* Although the devices' maximum operating voltage is limited to 25V the devices are guaranteed to withstand transient input voltages up to 30V. For input voltages greater than the maximum operating input voltage, some degradation of specifications will occur.

Semelab Plc reserves the right to change test conditions, parameter limits and package dimensions without notice. Information furnished by Semelab is believed to be both accurate and reliable at the time of going to press. However Semelab assumes no responsibility for any errors or omissions discovered in its use. Semelab encourages customers to verify that datasheets are current before placing orders.

DESCRIPTION

The LT1085 is designed to provide 3A with higher efficiency than currently available devices. All internal circuitry is designed to operate down to 1V input to output differential and the dropout voltage is fully specified as a function of load current. Dropout is guaranteed at a maximum of 1.5V at maximum output current, decreasing at lower load currents. On-chip trimming adjusts the reference output voltage to 1%. Current limit is also trimmed, minimising the stress on both the regulator and power source circuitry under overload conditions.

ELECTRICAL CHARACTERISTICS (Pre Irradiation) ($T_J = 25^\circ\text{C}$ unless otherwise stated)

Parameter	Test Conditions	Min.	Typ.	Max.	Unit
V_{REF} Reference Voltage	$V_{\text{IN}} - V_{\text{OUT}} = 3\text{V}$ $I_O = 10\text{mA}$	1.238	1.250	1.252	V
	$V_{\text{IN}} - V_{\text{OUT}} = 1.5 \text{ to } 15\text{V}$ $I_O = 10\text{mA to } 3\text{A}$ $T_J = -55 \text{ to } 125^\circ\text{C}$	1.225	1.25	1.270	
$\text{REG}_{(\text{LINE})}$ Line Regulation	$I_O = 10\text{mA}$ $(V_{\text{IN}} - V_{\text{OUT}}) = 1.5 \text{ to } 15\text{V}$ $T_J = -55 \text{ to } 125^\circ\text{C}$		0.015	0.2	%
	$I_O = 10\text{mA}$ $(V_{\text{IN}} - V_{\text{OUT}}) = 15 \text{ to } 30\text{V}$ $T_J = -55 \text{ to } 125^\circ\text{C}$			0.5	
$\text{REG}_{(\text{LOAD})}$ Load Regulation See notes 1,2	$V_{\text{IN}} - V_{\text{OUT}} = 3\text{V}$ $I_O = 10\text{mA to } 3\text{A}$ $T_J = -55 \text{ to } 125^\circ\text{C}$		0.1 0.2	0.3 0.4	%
V_D Dropout Voltage See note 3	$\Delta V_{\text{REF}} = 1\%$ $I_{\text{OUT}} = 3\text{A}$ $T_J = -55 \text{ to } 125^\circ\text{C}$		1.3	1.5	V
I_{CL} Current Limit	$V_{\text{IN}} - V_{\text{OUT}} = 5\text{V}$ $T_J = -55 \text{ to } 125^\circ\text{C}$	3.2	4		A
	$V_{\text{IN}} - V_{\text{OUT}} = 25\text{V}$ $T_J = -55 \text{ to } 125^\circ\text{C}$	0.2	0.5		
I_Q Quiescent Current Minimum Load Current 4	$V_{\text{IN}} - V_{\text{OUT}} = 5\text{V}$ $T_J = -55 \text{ to } 125^\circ\text{C}$		5	10	mA
$\text{REG}_{(\text{THERM})}$ Thermal Regulation	$T_P = 30\text{ms}$ $T_A = 25^\circ\text{C}$		0.004	0.04	%/W
R_A Ripple Rejection	$f = 120\text{Hz}$ $V_{\text{IN}} - V_{\text{OUT}} = 3\text{V}$ $I_O = 3\text{A}$ $C_{\text{ADJ}} = 25\mu\text{F}$	60	75		dB
I_{PIN} Adjust Pin Current	$T_J = -55 \text{ to } 125^\circ\text{C}$		55	120	μA
ΔI_{PIN} Adjust Pin Current Change	$V_{\text{IN}} - V_{\text{OUT}} = 1.5 \text{ to } 15\text{V}$ $I_O = 10\text{mA to } 3\text{A}$ $T_J = -55 \text{ to } 125^\circ\text{C}$		0.2	5	μA
T_S Temperature Stability	$T_J = -55 \text{ to } 125^\circ\text{C}$		0.5		%
Long Term Stability	$T_A = 125^\circ\text{C}$ $T = 1000 \text{ Hrs}$		0.3		%
V_N RMS Output Noise	$f = 10\text{Hz to } 10\text{kHz}$ $T_A = 25^\circ\text{C}$		0.003		%

Notes:

- 1 Load and line regulation are measured at a constant junction temperature by low duty cycle pulse testing.
- 2 Power dissipation is determined by the input - output differential and the output current. Guaranteed maximum power dissipation will not be available over the full input - output voltage range.
- 3 Dropout voltage is specified over the full output current range of the device.

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