CISSOID The SOI design Specialists

CHT-LD-100

Preliminary datasheet
Version 0.0 (09/2004)

High-Temperature, 10V, 1A, Low-Dropout SOI-CMOS Voltage Regulator.

General Description

The CHT-LD-100 is a 1A, low-dropout linear voltage regulator compatible with high-temperature environments. Typical operation temperature range extends from -30°C to 225°C.

The circuit is stable throughout the whole temperature range and with a large choice of capacitive loads.

The minimum dropout voltage is 2V with a 1A load and 1V for load currents lower than 100mA. The input voltage may span from 11 Volts to 25 Volts.

The circuit is a one-die solution.

CHT-LD-100 is available in die and packages (currently TO-3 and TO-220) on demand.

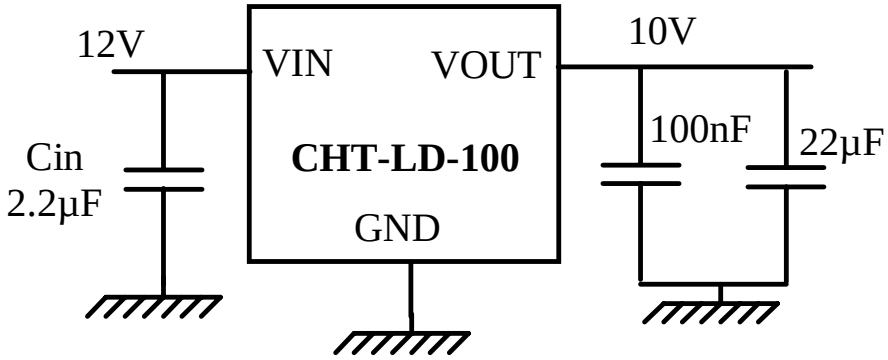
Applications

Power supplies for high-temperature electronic systems used in Well logging, Automotive, Aeronautics or Aerospace applications.

Features

- 11V to 25V input Voltage @100mA
- 12V to 25V input Voltage @1A
- Max 1A output current @ 225°C
- 60dB input ripple rejection (0-100Hz)
- C_{load} from 100nF to 1000µF, large ESR range
- Available on die or in custom package on demand. (3-pins compatible)
- Stand-by mode available. (4-pins)
- Tungsten interconnects for long-term reliability
- The start-up is operative over the whole temperature range
- Latch-up free

Typical application



Absolute Maximum Ratings

Supply Voltage Vin	40V
Junction Temperature[1] (Tj)	315°C
Power dissipation [2]	

ESD Rating (expected)

Human Body Model	>1kV

Operating Conditions

Supply Voltage	11V to 25V
Junction temperature	-30°C to 225°C
Power Dissipation [2]	

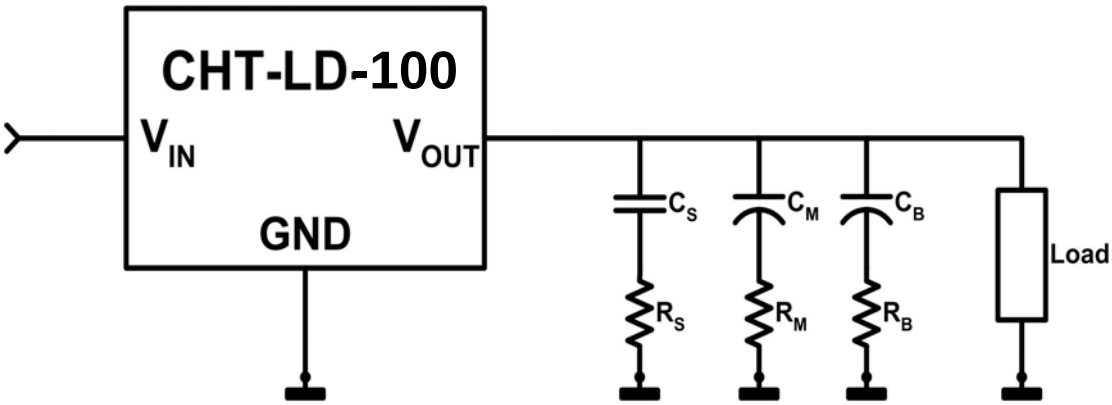
Electrical Characteristics

Vin= Vout+2V, T=25°C (unless otherwise stated)

Parameter	Condition	Min	Typ	Max	Units
Output voltage accuracy	I_L=10mA	9.9 -1	10	10.1 1	V %
Output voltage accuracy	I_L=10mA -30°C <Tj <225°C	9.8 -2	10	12.2 2	V %
Output voltage line regulation	Vin=Vout+2V to Vout + 15V I_L=60mA, -30°C <Tj <225°C	-1		1	mV/V
Output voltage load regulation (i.e. R_{out})	I_L=10mA to 1A Vin=Vout+2V -30°C <Tj <225°C		0.05	0.1	V/A
(Vin-Vout) *(droupout)*	I_L=100mA, -30°C <Tj <225°C	1			V
	I_L=1A, -30°C <Tj <225°C	2			V
Quiescent Ground Pin current	0 < I_L <1A T_j= -30°C T_j= 225°C			 10 9.5	mA
Power supply rejection ratio	f=0Hz ..200Hz I_{load}=100mA	>60			dB
Foldback current				tbd	A
Short-circuit current	20°C <Tj <225°C Tj =-20°C			tbd tbd	mA
Output noise	10Hz-10kHz I_L=100mA, -30°C <Tj <225°C		200		μV_{RMS}

Notes:
(1) Above 225°C, a minimum load current of few mA (<10 mA) could be required.
(2) Power dissipation depends on packaging. For a package with 5°C/W (R_{th}), Pmax=(Max junction temperature – Environment temperature)/R_{th}.

Output Load, recommended specifications



Resistances in series with capacitors represent the internal ESR of these capacitors.

For large capacitors:
- C_B= 0 to 1000µF
- R_B= 0.2 to ∞ Ω

For medium capacitors:
- C_M= 0 to 6µF
- R_M=0.1 to 1 Ω

For small Capacitors:
- C_S= 100n to 220nF
- R_S=10m to 50m Ω

Fast load current transients

tbd

Contact & Ordering

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