UC1834-DIE High Efficiency Linear Regulator

1 Features

- Equally Usable for Either Positive or Negative Regulator Design
- Adjustable Low Threshold Current Sense Amplifier
- Undervoltage and Overvoltage Fault Alert With Programmable Delay

2 Applications

- Wireless LAN
- Programmable Logic Controller
- Motor Control and Drives
- Solar Energy Systems
- Sonar, Ultrasound

3 Description

The UC1834-DIE integrated circuit is optimized for the design of low input-output differential linear regulator. A high-gain amplifier and sink or source drive outputs facilitate high-output current designs, which use an external pass device. With both positive and negative precision references, either polarity of regulator can be implemented. A current sense amplifier with a low, adjustable threshold can be used to sense and limit currents in either the positive or negative supply lines.

In addition, the UC1834-DIE has a fault monitoring circuit which senses both undervoltage and overvoltage fault conditions. After a user defined delay for transient rejection, this circuitry provides a fault alert output for either fault condition. In the overvoltage case, a crowbar output is activated. An overvoltage latch maintains the crowbar output and can be used to shutdown the driver outputs. System control to the device can be accommodated at a single input, which will act as both a supply reset and remote shutdown terminal. These die are protected against excessive power dissipation by an internal thermal shutdown function.

Ordering Information(1)

PRODUCT	PACKAGE DESIGNATOR	PACKAGE	ORDERABLE PART NUMBER	PACKAGE QUANTITY
UC1834	TD	Bare die in waffle pack(2)	UC1834VTD1	80
			UC1834VTD2	10

(1) For the most current package and ordering information, see the Package Option Addendum at the end of this document, or see the TI website at www.ti.com.

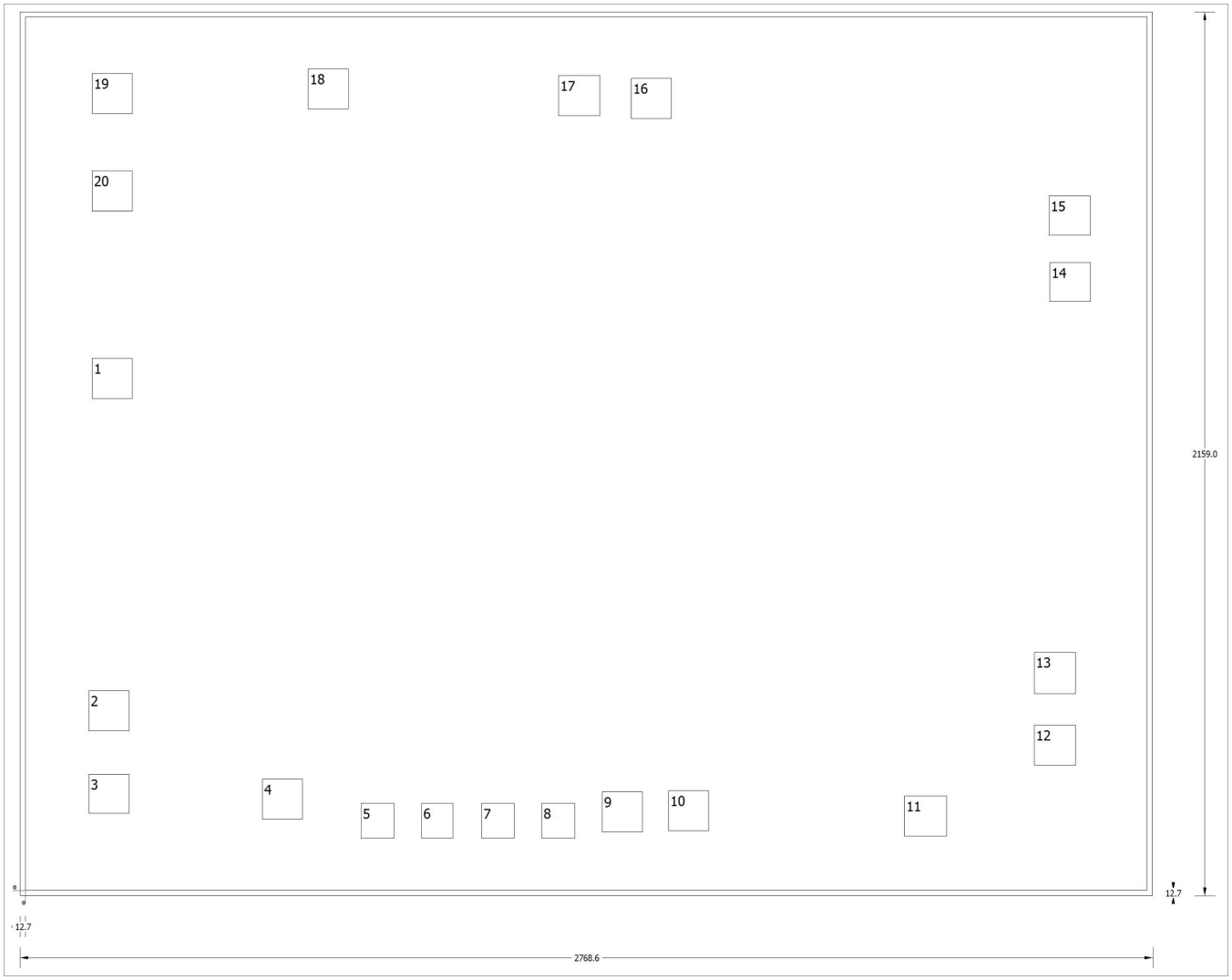
(2) Processing is per the Texas Instruments space production baseline and is in compliance with the Texas Instruments Quality Control System in effect at the time of manufacture. Electrical screening consists of DC parametric and functional testing at room temperature only. Unless otherwise specified by Texas Instruments AC performance and performance over temperature is not warranted. Visual Inspection is performed in accordance with MIL-STD-883 Test Method 2010 Condition B at 75X minimum.

This integrated circuit can be damaged by ESD. Texas Instruments recommends that all integrated circuits be handled with appropriate precautions. Failure to observe proper handling and installation procedures can cause damage.

ESD damage can range from subtle performance degradation to complete device failure. Precision integrated circuits may be more susceptible to damage because very small parametric changes could cause the device not to meet its published specifications.

4 Bare Die Information

DIE THICKNESS	BACKSIDE FINISH	BACKSIDE POTENTIAL	BOND PAD METALLIZATION COMPOSITION	BOND PAD THICKNESS
10.5 mils	Silicon with backgrind	Floating	AlCu2%	2000 nm



Bond Pad Coordinates in Microns

DESCRIPTION	PAD NUMBER	X MIN	Y MIN	X MAX	Y MAX
VIN+	1	162.56	1201.42	261.62	1300.48
–2.0-V reference	2	154.94	388.62	254	487.68
1.5-V reference	3	154.94	187.96	254	284.48
Threshold adj.	4	579.12	172.72	678.18	271.78
N/C	5	820.42	127	901.7	213.36
N/C	6	967.74	127	1046.48	213.36
N/C	7	1115.06	127	1196.34	213.36
N/C	8	1262.38	127	1343.66	213.36
VIN–	9	1409.7	142.24	1508.76	241.3
Sense–	10	1572.26	144.78	1671.32	243.84
Sense+	11	2148.84	132.08	2252.98	231.14
Non-inverting input	12	2466.34	304.8	2567.94	403.86
Inverting input	13	2466.34	480.06	2567.94	581.66
Fault alert	14	2504.44	1437.64	2603.5	1534.16
Fault delay	15	2501.9	1600.2	2603.5	1696.72
Driver sink	16	1480.82	1884.68	1579.88	1983.74
Driver source	17	1303.02	1892.3	1404.62	1991.36
Compensation/shutdown	18	690.88	1907.54	789.94	2006.6
Overvoltage latch output/reset	19	162.56	1897.38	261.62	1996.44
Crowbar gate	20	162.56	1658.62	261.62	1757.68

PACKAGING INFORMATION

Orderable part number	Status (1)	Material type (2)	Package | Pins	Package qty | Carrier	RoHS (3)	Lead finish/ Ball material (4)	MSL rating/ Peak reflow (5)	Op temp (°C)	Part marking (6)
UC1834VTD1	Active	Production	null (null) | 0	80 | NOT REQUIRED	-	Call TI	Call TI	25 to 25	
UC1834VTD1.A	Active	Production	null (null) | 0	80 | NOT REQUIRED	-	Call TI	Call TI	25 to 25	
UC1834VTD2	Active	Production	null (null) | 0	10 | NOT REQUIRED	-	Call TI	Call TI	25 to 25	
UC1834VTD2.A	Active	Production	null (null) | 0	10 | NOT REQUIRED	-	Call TI	Call TI	25 to 25	

(1) **Status:** For more details on status, see our product life cycle.

(2) **Material type:** When designated, preproduction parts are prototypes/experimental devices, and are not yet approved or released for full production. Testing and final process, including without limitation quality assurance, reliability performance testing, and/or process qualification, may not yet be complete, and this item is subject to further changes or possible discontinuation. If available for ordering, purchases will be subject to an additional waiver at checkout, and are intended for early internal evaluation purposes only. These items are sold without warranties of any kind.

(3) **RoHS values:** Yes, No, RoHS Exempt. See the TI RoHS Statement for additional information and value definition.

(4) **Lead finish/Ball material:** Parts may have multiple material finish options. Finish options are separated by a vertical ruled line. Lead finish/Ball material values may wrap to two lines if the finish value exceeds the maximum column width.

(5) **MSL rating/Peak reflow:** The moisture sensitivity level ratings and peak solder (reflow) temperatures. In the event that a part has multiple moisture sensitivity ratings, only the lowest level per JEDEC standards is shown. Refer to the shipping label for the actual reflow temperature that will be used to mount the part to the printed circuit board.

(6) **Part marking:** There may be an additional marking, which relates to the logo, the lot trace code information, or the environmental category of the part.

Multiple part markings will be inside parentheses. Only one part marking contained in parentheses and separated by a "~" will appear on a part. If a line is indented then it is a continuation of the previous line and the two combined represent the entire part marking for that device.

OTHER QUALIFIED VERSIONS OF UC1834-DIE :

- Space : UC1834-SP

NOTE: Qualified Version Definitions:

- Space - Radiation tolerant, ceramic packaging and qualified for use in Space-based application

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