



查询LX8941供应商

# LINFINTY

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捷多邦, 专业PCB打样工厂, 24小时加急出货 Doc #: 8941

## LX8941

### ADJUSTABLE LOW DROPOUT REGULATOR

#### PRELIMINARY DATA SHEET

#### DESCRIPTION

The LX8941 is an adjustable, low dropout regulator rated for more than 1A of output current. It can regulate with as low as 0.8V headroom between the input and output voltages, at 1A output current, thus minimizing power dissipation. In addition, it can be used in applications where worst case supplies require a low input-output

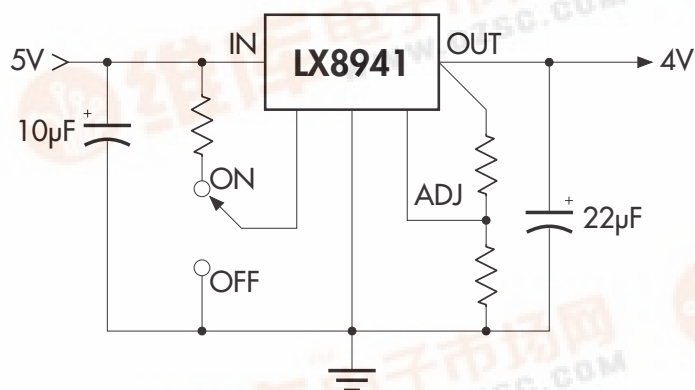
differential to maintain regulation. This feature makes it ideal for some processor applications that require 4V operation from a 5V supply. In addition, the LX8941 provides an on/off switch that reduces the IC quiescent current when activated, making it ideal for battery operated applications.

#### KEY FEATURES

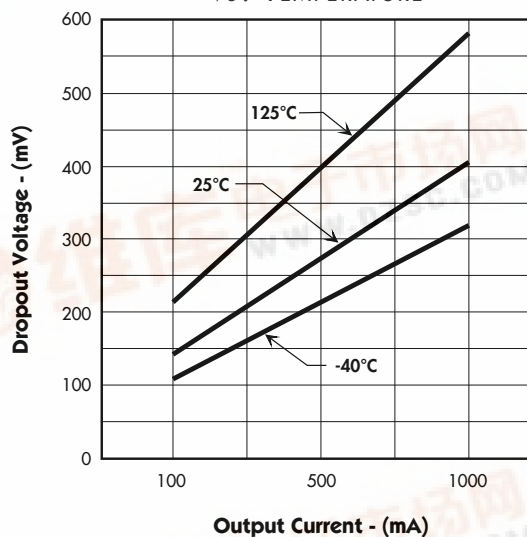
- 2% Internally Trimmed Output
- Output Current In Excess Of 1A
- Input-Output Differential Less Than 0.8V At 1A
- Reverse Battery Protection
- Short Circuit Protection
- Internal Thermal Overload Protection
- Available In 5-Lead Plastic TO-220 And Surface-Mount TO-263

**NOTE:** For current data & package dimensions, visit our web site: <http://www.linfinity.com>.

#### PRODUCT HIGHLIGHT



DROPOUT VOLTAGE VS. OUTPUT CURRENT  
VS. TEMPERATURE



#### PACKAGE ORDER INFORMATION

| T <sub>A</sub> (°C) | P Plastic TO-220<br>5-pin | DD Plastic TO-263<br>5-pin |
|---------------------|---------------------------|----------------------------|
| 0 to 70             | LX8941CP                  | LX8941CDD                  |

Note: All surface-mount packages are available in Tape & Reel.  
Append the letter "T" to part number. (i.e. LX8941CDDT)



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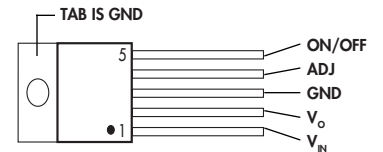
### PRELIMINARY DATA SHEET

#### ABSOLUTE MAXIMUM RATINGS (Note 1)

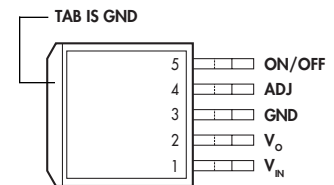
|                                          |                |
|------------------------------------------|----------------|
| Input Voltage ( $V_{IN}$ )               | 26V            |
| Operating Junction Temperature           |                |
| Plastic (P, DD Package)                  | 150°C          |
| Storage Temperature Range                | -65°C to 150°C |
| Lead Temperature (Soldering, 10 seconds) | 300°C          |

Note 1. Exceeding these ratings could cause damage to the device. All voltages are with respect to Ground. Currents are positive into, negative out of the specified terminal.

#### PACKAGE PIN OUTS



**P PACKAGE**  
(Top View)



**DD PACKAGE**  
(Top View)

#### THERMAL DATA

##### P PACKAGE:

|                                                       |         |
|-------------------------------------------------------|---------|
| THERMAL RESISTANCE-JUNCTION TO TAB, $\theta_{JT}$     | 4.5°C/W |
| THERMAL RESISTANCE-JUNCTION TO AMBIENT, $\theta_{JA}$ | 60°C/W  |

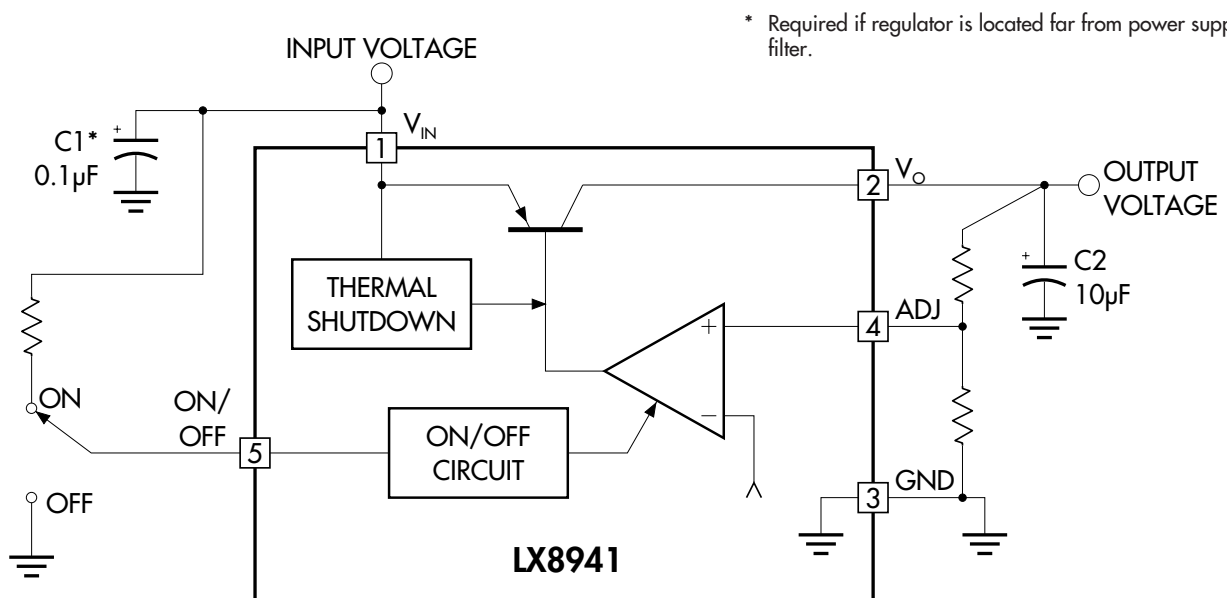
##### DD PACKAGE:

|                                                       |         |
|-------------------------------------------------------|---------|
| THERMAL RESISTANCE-JUNCTION TO TAB, $\theta_{JT}$     | 4.5°C/W |
| THERMAL RESISTANCE-JUNCTION TO AMBIENT, $\theta_{JA}$ | 60°C/W  |

Junction Temperature Calculation:  $T_J = T_A + (P_D \times \theta_{JA})$ .

The  $\theta_{JA}$  numbers are guidelines for the thermal performance of the device/pc-board system. All of the above assume no ambient airflow.

#### BLOCK DIAGRAM



## ADJUSTABLE LOW DROPOUT REGULATOR

## PRELIMINARY DATA SHEET

## RECOMMENDED OPERATING CONDITIONS

| Parameter                                                          | Symbol   | Recommended Operating Conditions |      |      | Units   |
|--------------------------------------------------------------------|----------|----------------------------------|------|------|---------|
|                                                                    |          | Min.                             | Typ. | Max. |         |
| Input Voltage (Note 2)                                             | $V_{IN}$ | 3.8                              |      | 26   | V       |
| Load Current (with adequate heatsinking)                           |          | 5                                |      | 1000 | mA      |
| Input Capacitor ( $V_{IN}$ to GND)                                 |          | 0.1                              |      |      | $\mu$ F |
| Output Capacitor with ESR of 10 $\Omega$ max., ( $V_{OUT}$ to GND) |          | 10                               |      |      | $\mu$ F |

Note 2.  $V_{IN(MIN)} = V_{OUT} + 1.2\Delta V_{(MAX)}$ . See Dropout Voltage maximum limit.

## ELECTRICAL CHARACTERISTICS

Unless otherwise specified, these specifications apply over the operating ambient temperature of 0°C to +125°C for LX8941CP;  $V_{IN} = 10V$ ,  $I_O = 1A$ ,  $C_{OUT} = 22\mu F$ , and are for DC characteristics only. (Low duty cycle pulse testing techniques are used which maintains junction and case temperatures equal to the ambient temperature.)

| Parameter                     | Symbol          | Test Conditions                               | LX8941 |      |       | Units         |
|-------------------------------|-----------------|-----------------------------------------------|--------|------|-------|---------------|
|                               |                 |                                               | Min.   | Typ. | Max.  |               |
| ADJ Pin Voltage               | $V_O$           | $I_O = 0A$ , $T_A = 25^\circ C$               | 1.225  | 1.25 | 1.275 | V             |
| Line Regulation               | $\Delta V_{OI}$ | $V_O + 2V \leq V_{IN} \leq 26V$ , $I_O = 5mA$ |        | 1    | 50    | mV            |
| Load Regulation               | $\Delta V_{OL}$ | $50mA \leq I_O \leq 1A$ , $V_O = V_{ADJ}$     |        | 10   | 50    | mV            |
| Dropout Voltage               | $\Delta V$      | $I_O = 100mA$                                 |        | 150  | 300   | mV            |
|                               |                 | $I_O = 500mA$                                 |        | 275  | 500   | mV            |
|                               |                 | $I_O = 1A$                                    |        | 400  | 800   | mV            |
| Quiescent Current             | $I_Q$           | $I_O \leq 5mA$ , $7 \leq V_{IN} \leq 26V$     |        | 3    | 15    | mA            |
|                               |                 | $I_O = 500mA$                                 |        | 30   | 50    | mA            |
|                               |                 | $I_O = 1000mA$                                |        | 115  | 180   | mA            |
| Adjust Pin Current            | $I_{ADJ}$       | $V_{IN} = 10V$ , $I_O = 1A$                   |        | 2    | 20    | $\mu A$       |
| Current Limit                 | $I_{CL}$        | $V_{IN} = 26V$                                | 1      | 1.2  |       | A             |
| Output Noise Voltage (Note 3) | $V_{O(RMS)}$    | 10Hz - 100kHz, $I_O = 5mA$                    |        | 150  |       | $\mu V_{RMS}$ |
| Long Term Stability (Note 3)  |                 |                                               |        | 20   |       | mV/1000hr     |
| Ripple Rejection (Note 3)     | $R_R$           | $f_O = 120Hz$ , $1V_{RMS}$ , $I_O = 100mA$    |        | 66   |       | dB            |

## Enable Logic Section

|                       |  |  |     |  |     |         |
|-----------------------|--|--|-----|--|-----|---------|
| On Threshold Voltage  |  |  | 2   |  |     | V       |
| On Threshold Current  |  |  |     |  | 50  | $\mu A$ |
| Off Threshold Voltage |  |  |     |  | 0.8 | V       |
| Off Threshold Current |  |  | -10 |  |     | $\mu A$ |

Note 3. These parameters, although guaranteed, are not tested in production.