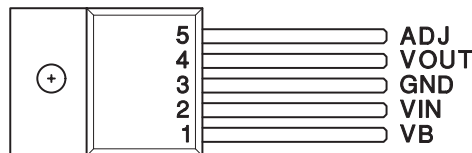


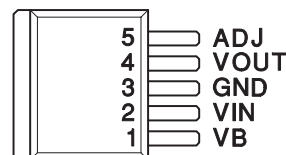


- Fast Transient Response
- 10-mA to 5-A Load Current
- Short Circuit Protection
- Maximum Dropout of 500-mV at 5-A Load Current
- Separate Bias (VB) and VIN Pins
- Available in Adjustable or Fixed Output Voltages
- 5-Pin Package Allows Kelvin Sensing of Load Voltage
- Reverse Current Protection

5-PIN TO-220  
T PACKAGE (TOP VIEW)



5-PIN TO-263  
TD PACKAGE  
(TOP VIEW)



Note: Tab = Ground

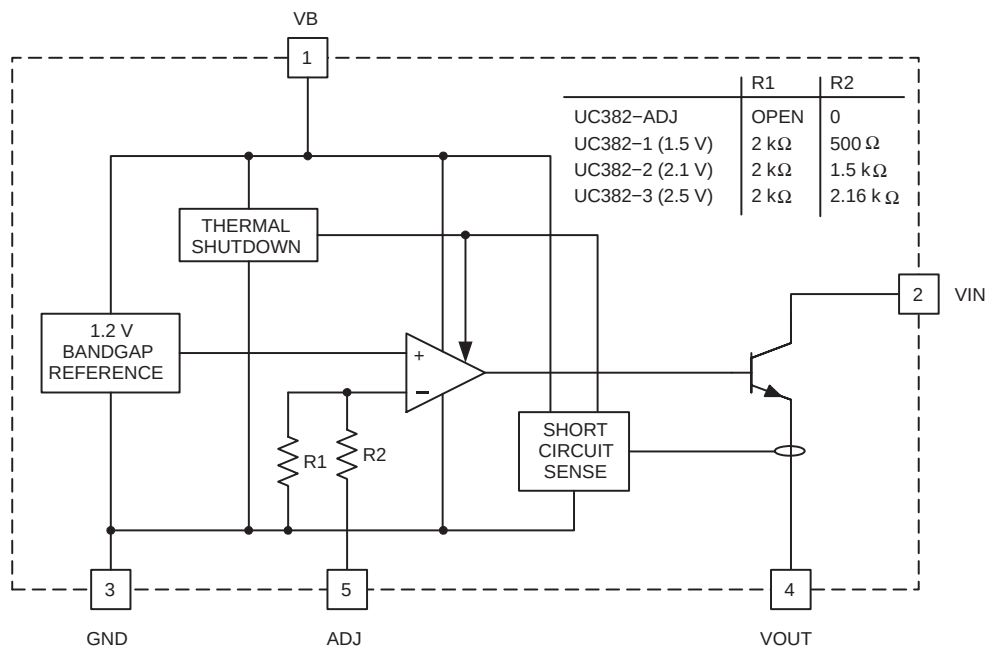
## description

The UC385 is a low dropout linear regulator providing a quick response to fast load changes. Combined with its precision onboard reference, the UC385 excels at driving GTL and BTL buses. Due to its fast response to load transients, the total capacitance required to decouple the regulator's output can be significantly decreased when compared to standard LDO linear regulators.

Dropout voltage (VIN to VOUT) is only 490 mV maximum and 350 mV typical at 5-A load (0°C to 100°C).

The onboard bandgap reference is stable with temperature and scaled for a 1.2 V input to the internal power amplifier. The UC385 is available in fixed output voltages of 1.5 V, 2.1 V, or 2.5 V. The output voltage of the adjustable version can be set with two external resistors. If the external resistors are omitted, the output voltage defaults to 1.2 V.

## block diagram



UDG-00084



Please be aware that an important notice concerning availability, standard warranty, and use in critical applications of Texas Instruments semiconductor products and disclaimers thereto appears at the end of this data sheet.

All trademarks are the property of their respective owners.

PRODUCTION DATA information is current as of publication date. Products conform to specifications per the terms of Texas Instruments standard warranty. Production processing does not necessarily include testing of all parameters.

**TEXAS**  
**INSTRUMENTS**

POST OFFICE BOX 655303 • DALLAS, TEXAS 75265

Copyright © 1998–2004, Texas Instruments Incorporated

# UC285-1, UC285-2, UC285-3, UC285-ADJ, UC385-1, UC385-2, UC385-3, UC385-ADJ

## FAST TRANSIENT RESPONSE 5-A

## LOW-DROPOUT REGULATOR

SLUS212E – NOVEMBER 1999 – REVISED FEBRUARY 2004

### absolute maximum ratings over operating free-air temperature (unless otherwise noted)<sup>†</sup>

|                                          |                 |
|------------------------------------------|-----------------|
| V <sub>IN</sub>                          | 7.5 V           |
| Output voltage                           | 1.2 V to –6.0 V |
| Storage temperature                      | –65°C to 150°C  |
| Junction temperature                     | –55°C to 150°C  |
| Lead temperature (soldering, 10 seconds) | 300°C           |

<sup>†</sup> Stresses beyond those listed under “absolute maximum ratings” may cause permanent damage to the device. These are stress ratings only, and functional operation of the device at these or any other conditions beyond those indicated under “recommended operating conditions” is not implied. Exposure to absolute-maximum-rated conditions for extended periods may affect device reliability.

### AVAILABLE OPTIONS(1)

| T <sub>J</sub> | PACKAGED DEVICES |        |        |              |                |         |         |              |
|----------------|------------------|--------|--------|--------------|----------------|---------|---------|--------------|
|                | TO-220 (T)       |        |        |              | TO-263 (TD)(2) |         |         |              |
|                | OUTPUT VOLTAGE   |        |        |              | OUTPUT VOLTAGE |         |         |              |
|                | 1.5 V            | 2.1 V  | 2.5 V  | 1.2 V or ADJ | 1.5 V          | 2.1 V   | 2.5 V   | 1.2 V or ADJ |
| –40°C to 100°C | 285T-1           | 285T-2 | 285T-3 | 285T-ADJ     | 285TD-1        | 285TD-2 | 285TD-3 | 285TD-ADJ    |
| 0°C to 100°C   | 385T-1           | 385T-2 | 385T-3 | 385T-ADJ     | 385TD-1        | 385TD-2 | 385TD-3 | 385TD-ADJ    |

- For more package and ordering information, see the Package Option Addendum located at the end of this data sheet.
- For 50 piece reel, add KTTT (e.g., UC285TDKTTT–1); for 500 piece reel, add TR (e.g., UC285TDTR–1).

**electrical characteristics unless otherwise stated, these parameters apply for T<sub>A</sub> = –40°C to 100°C for the UC285-x series and 0°C to 100°C for the UC385-x, V<sub>B</sub> = 5 V; V<sub>IN</sub> = 3.3 V, V<sub>OUT</sub> = 2.5 V, T<sub>A</sub> = T<sub>J</sub>.**

| PARAMETER                                                             |         | TEST CONDITION                                  | MIN   | TYP  | MAX   | UNIT |
|-----------------------------------------------------------------------|---------|-------------------------------------------------|-------|------|-------|------|
| <b>UC385-3 Fixed 2.5 V, 5-A Family</b>                                |         |                                                 |       |      |       |      |
| Output voltage                                                        | UC385-3 | I <sub>VO</sub> UT = 100 mA                     | 2.475 | 2.5  | 2.525 | V    |
|                                                                       | UC285-3 | I <sub>VO</sub> UT = 100 mA                     | 2.45  | 2.5  | 2.525 | V    |
| Load regulation                                                       |         | I <sub>VO</sub> UT = 10 mA to 5 A               |       | 0.5  | 4     | mV   |
| V <sub>IN</sub> PSRR                                                  |         |                                                 | 80    | 110  |       | dB   |
| V <sub>B</sub> PSRR                                                   |         |                                                 | 50    | 65   |       | dB   |
| V <sub>IN</sub> dropout voltage (V <sub>IN</sub> - V <sub>OUT</sub> ) |         | I <sub>VO</sub> UT = 5 A, T <sub>J</sub> = 25°C |       | 350  | 425   | mV   |
|                                                                       | UC385-3 | I <sub>VO</sub> UT = 5 A                        |       | 350  | 490   | mV   |
|                                                                       | UC285-3 | I <sub>VO</sub> UT = 5 A                        |       | 350  | 500   | mV   |
| V <sub>B</sub> dropout (V <sub>B</sub> - V <sub>OUT</sub> )           | UC385-3 | I <sub>VO</sub> UT = 5 A                        |       | 1.8  | 2.1   | V    |
|                                                                       | UC285-3 | I <sub>VO</sub> UT = 5 A                        |       | 1.8  | 2.2   | V    |
| Short circuit current limit                                           |         |                                                 | 5.1   |      | 7.5   | A    |
| V <sub>B</sub> current                                                |         | I <sub>VO</sub> UT = 10 mA                      |       | 8    | 15    | mA   |
|                                                                       |         | I <sub>VO</sub> UT = 5 A                        |       | 40   | 100   | mA   |
| V <sub>IN</sub> current                                               |         | I <sub>VO</sub> UT = 5 A                        | 4.9   | 4.96 |       | A    |
| <b>UC385-2 Fixed 2.1 V, 5-A Family</b>                                |         |                                                 |       |      |       |      |
| Output voltage                                                        | UC385-2 | I <sub>VO</sub> UT = 100 mA                     | 2.079 | 2.1  | 2.121 | V    |
|                                                                       | UC285-2 | I <sub>VO</sub> UT = 100 mA                     | 2.058 | 2.1  | 2.121 | V    |
| Load regulation                                                       |         | I <sub>VO</sub> UT = 10 mA to 5 A               |       | 0.5  | 4     | mV   |
| V <sub>IN</sub> PSRR                                                  |         |                                                 | 80    | 110  |       | dB   |
| V <sub>B</sub> PSRR                                                   |         |                                                 | 50    | 67   |       | dB   |



# UC285-1, UC285-2, UC285-3, UC285-ADJ, UC385-1, UC385-2, UC385-3, UC385-ADJ

## FAST TRANSIENT RESPONSE 5-A

### LOW-DROPOUT REGULATOR

SLUS212E – NOVEMBER 1999 – REVISED FEBRUARY 2004

electrical characteristics unless otherwise stated, these parameters apply for  $T_A = -40^{\circ}\text{C}$  to  $100^{\circ}\text{C}$  for the UC285-x series and  $0^{\circ}\text{C}$  to  $100^{\circ}\text{C}$  for the UC385-x,  $V_B = 5\text{ V}$ ;  $V_{IN} = 3.3\text{ V}$ ,  $V_{OUT} = 2.5\text{ V}$ ,  $T_A = T_J$ .

| PARAMETER                                          |           | TEST CONDITION                                       | MIN   | TYP  | MAX   | UNIT |
|----------------------------------------------------|-----------|------------------------------------------------------|-------|------|-------|------|
| <b>UC385-2 Fixed 2.1 V, 5-A Family (continued)</b> |           |                                                      |       |      |       |      |
| VIN dropout voltage ( $V_{IN} - V_{OUT}$ )         |           | $I_{VOUT} = 5\text{ A}$ , $T_J = 25^{\circ}\text{C}$ |       | 350  | 425   | mV   |
|                                                    | UC385-2   | $I_{VOUT} = 5\text{ A}$                              |       | 350  | 490   | mV   |
|                                                    | UC285-2   | $I_{VOUT} = 5\text{ A}$                              |       | 350  | 500   | mV   |
| VB dropout ( $V_B - V_{OUT}$ )                     | UC385-2   | $I_{VOUT} = 5\text{ A}$                              |       | 1.8  | 2.1   | V    |
|                                                    | UC285-2   | $I_{VOUT} = 5\text{ A}$                              |       | 1.8  | 2.2   | V    |
| Short circuit current limit                        |           |                                                      | 5.1   |      | 7.5   | A    |
| VB current                                         |           | $I_{VOUT} = 10\text{ mA}$                            |       | 8    | 15    | mA   |
|                                                    |           | $I_{VOUT} = 5\text{ A}$                              |       | 40   | 100   | mA   |
| VIN current                                        |           | $I_{VOUT} = 5\text{ A}$                              | 4.9   | 4.96 |       | A    |
| <b>UC385-1 Fixed 1.5 V, 5-A Family</b>             |           |                                                      |       |      |       |      |
| Output voltage                                     | UC385-1   | $I_{VOUT} = 100\text{ mA}$                           | 1.485 | 1.5  | 1.515 | V    |
|                                                    | UC285-1   | $I_{VOUT} = 100\text{ mA}$                           | 1.470 | 1.5  | 1.515 | V    |
| Load regulation                                    |           | $I_{VOUT} = 10\text{ mA}$ to $5\text{ A}$            |       | 0.5  | 4     | mV   |
| VIN PSRR                                           |           |                                                      | 80    | 110  |       | dB   |
| VB PSRR                                            |           |                                                      | 50    | 65   |       | dB   |
| VIN dropout voltage ( $V_{IN} - V_{OUT}$ )         |           | $I_{VOUT} = 5\text{ A}$ , $T_J = 25^{\circ}\text{C}$ |       | 350  | 425   | mV   |
|                                                    | UC285-1   | $I_{VOUT} = 5\text{ A}$                              |       | 350  | 490   | mV   |
|                                                    | UC285-2   | $I_{VOUT} = 5\text{ A}$                              |       | 350  | 500   | mV   |
| VB dropout ( $V_B - V_{OUT}$ )                     | UC385-1   | $I_{VOUT} = 5\text{ A}$                              |       | 1.8  | 2.1   | V    |
|                                                    | UC285-1   | $I_{VOUT} = 5\text{ A}$                              |       | 1.8  | 2.2   | V    |
| Short circuit current limit                        |           |                                                      | 5.1   |      | 7.5   | A    |
| VB current                                         |           | $I_{VOUT} = 10\text{ mA}$                            |       | 8    | 15    | mA   |
|                                                    |           | $I_{VOUT} = 5\text{ A}$                              |       | 40   | 100   | mA   |
| VIN = current                                      |           | $I_{VOUT} = 5\text{ A}$                              | 4.9   | 4.96 |       | A    |
| <b>UC385-ADJ Adjustable, 5-A Family</b>            |           |                                                      |       |      |       |      |
| ADJ voltage                                        | UC385-ADJ | $I_{VOUT} = 100\text{ mA}$                           | 1.188 | 1.2  | 1.212 | V    |
|                                                    | UC285-ADJ | $I_{VOUT} = 100\text{ mA}$                           | 1.176 | 1.2  | 1.212 | V    |
| Load regulation                                    |           | $I_{VOUT} = 10\text{ mA}$ to $5\text{ A}$            |       | 0.5  | 4     | mV   |
| VIN PSRR                                           |           | $V_{OUT}$ programmed for $2.5\text{ V}$              | 80    | 110  |       | dB   |
| VB PSRR $V_{OUT}$                                  |           | Programmed for $2.5\text{ V}$                        | 50    | 65   |       | dB   |
| VIN dropout voltage ( $V_{IN} - V_{OUT}$ )         |           | $I_{VOUT} = 5\text{ A}$ , $T_J = 25^{\circ}\text{C}$ |       | 350  | 425   | mV   |
|                                                    | UC385-ADJ | $I_{VOUT} = 5\text{ A}$                              |       | 350  | 490   | mV   |
|                                                    | UC285-ADJ | $I_{VOUT} = 5\text{ A}$                              |       | 350  | 500   | mV   |
| VB dropout ( $V_B - V_{OUT}$ )                     | UC385-ADJ | $I_{VOUT} = 5\text{ A}$                              |       | 1.8  | 2.1   | V    |
|                                                    | UC285-ADJ | $I_{VOUT} = 5\text{ A}$                              |       | 1.8  | 2.2   | V    |
| Short circuit current limit                        |           |                                                      | 5.1   |      | 7.5   | A    |
| VB current                                         |           | $I_{VOUT} = 10\text{ mA}$                            |       | 8    | 15    | mA   |
|                                                    |           | $I_{VOUT} = 5\text{ A}$                              |       | 40   | 100   | mA   |
| VIN current                                        |           | $I_{VOUT} = 5\text{ A}$                              | 4.9   | 4.96 |       | A    |

# UC285-1, UC285-2, UC285-3, UC285-ADJ, UC385-1, UC385-2, UC385-3, UC385-ADJ

## FAST TRANSIENT RESPONSE 5-A

### LOW-DROPOUT REGULATOR

SLUS212E – NOVEMBER 1999 – REVISED FEBRUARY 2004

#### pin descriptions

**ADJ:** In the adjustable version, the user programs the output voltage with two external resistors. The resistors should be 0.1% for high accuracy. The output amplifier is configured as a noninverting operational amplifier. The resistors should meet the criteria of  $R3 \parallel R4 < 100 \Omega$ . Connect ADJ to VOUT for an output voltage of 1.2 V. Note that the point at which the feedback network is connected to the output is the Kelvin sense point.

**GND:** For accurate results, the GND pin should be referenced to the load ground.

**VB:** Supplies power to all circuits of the regulator except the output power transistor. The 2-V headroom from VB to VOUT allows the use of a Darlington output stage for inherently low output impedance and fast response. (Dropout is derated for junction temperatures below 0°C.)

**VIN:** Supplies the current to the collector of the output power transistor only. The dropout ( $V_{IN}-V_{OUT}$ ) is under 100 mV for light loads; maximum dropout is 490 mV at 5 A for  $T_J = 0^\circ\text{C}$  to  $100^\circ\text{C}$ . (Dropout is derated for junction temperatures over  $100^\circ\text{C}$ .)

**VOUT:** This pin should be connected to the load via a low impedance path. Avoid connectors which add significant inductance and resistance. Note that even though a Kelvin sense is available through a 5-pin package, care must be taken since voltage drops along wire traces add to the dropout voltage.

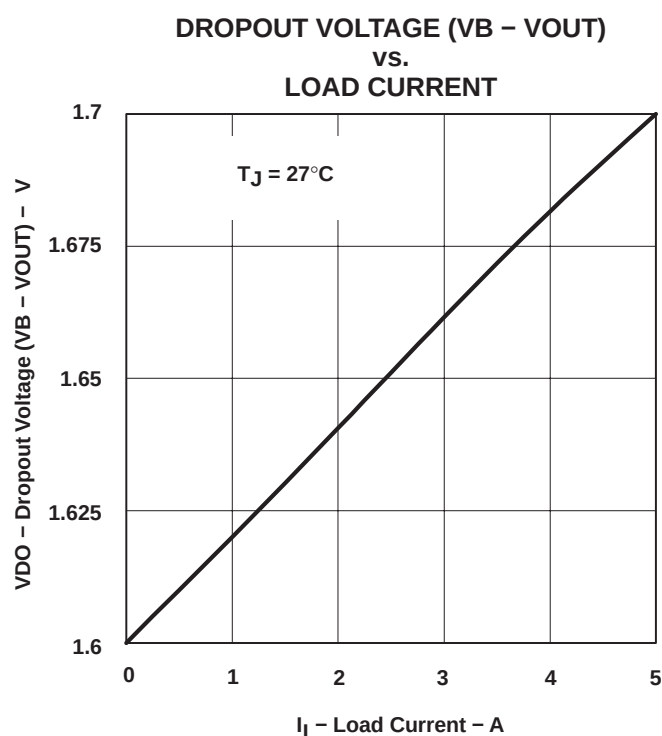


Figure 1

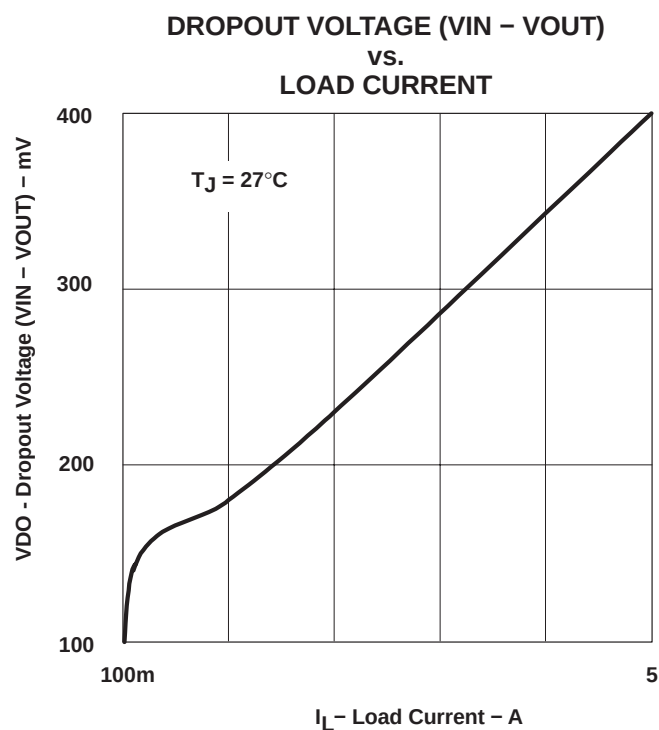


Figure 2

# UC285-1, UC285-2, UC285-3, UC285-ADJ, UC385-1, UC385-2, UC385-3, UC385-ADJ FAST TRANSIENT RESPONSE 5-A LOW-DROPOUT REGULATOR

SLUS212E – NOVEMBER 1999 – REVISED FEBRUARY 2004

## APPLICATION INFORMATION

The UC385 is easy to use. The adjustable version requires two resistors to set the output voltage. The fixed versions of the UC385 require no external resistors. All versions of the UC385 require decoupling capacitors on the input and output. In a typical application,  $V_B$  and  $V_{IN}$  are driven from switching power supplies which may have large filter capacitors at their outputs. If the UC385 is further than 12 inches from the power supply, it is recommended to add local decoupling as close as possible to the linear regulator.

Decouple the output of the UC385 with at least 100  $\mu\text{F}$  of high quality tantalum or Sanyo OSCON capacitors close to the  $V_{OUT}$  pin for maximum stability. Many applications involving ultrafast GTL or BTL applications require additional capacitance close to the load. The exact amount will vary according to speed and magnitude of the load transients and the tolerance allowed for transients on  $V_{OUT}$ . When specifying the decoupling capacitors, the series resistance of the capacitor bank is an important factor in its ability to filter load transients.

The UC385 allows for Kelvin sensing the voltage at the load. This improves regulation performance and eliminates the voltage drops due to wire trace resistance. This voltage drop must be added to the headroom ( $V_{IN}$  to  $V_{OUT}$  and  $V_B$  to  $V_{OUT}$ ). The dropout of 350 mV is measured at the pins and does not include additional drops due to trace resistance.

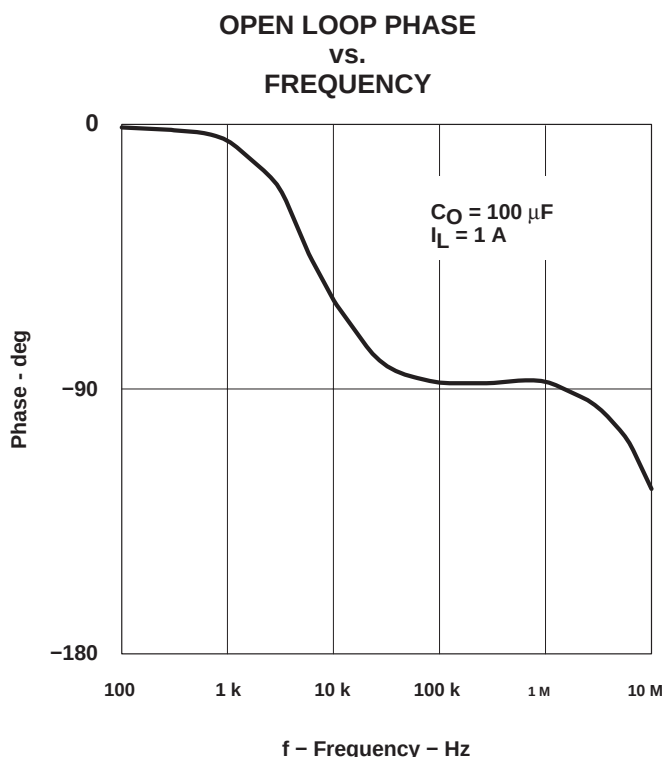


Figure 3

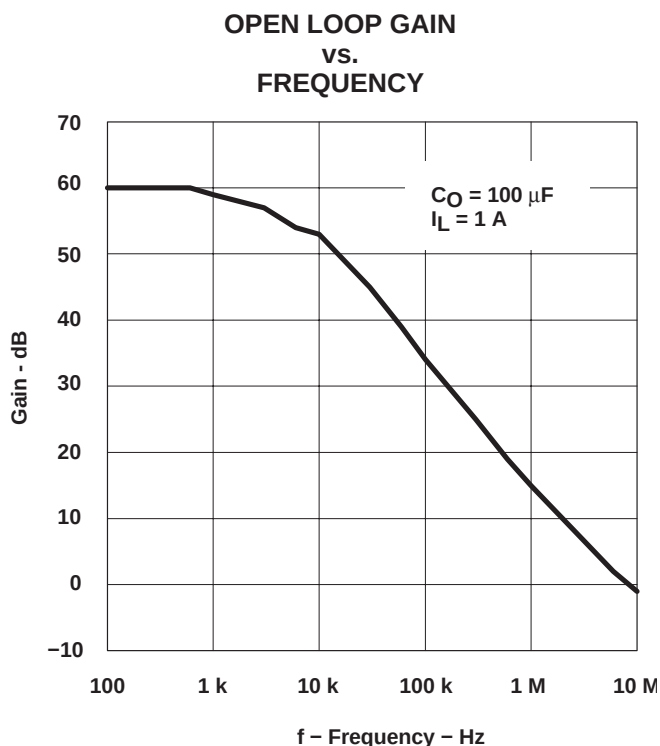


Figure 4

UC285-1, UC285-2, UC285-3, UC285-ADJ, UC385-1, UC385-2, UC385-3, UC385-ADJ  
FAST TRANSIENT RESPONSE 5-A  
LOW-DROPOUT REGULATOR

SLUS212E – NOVEMBER 1999 – REVISED FEBRUARY 2004

APPLICATION INFORMATION

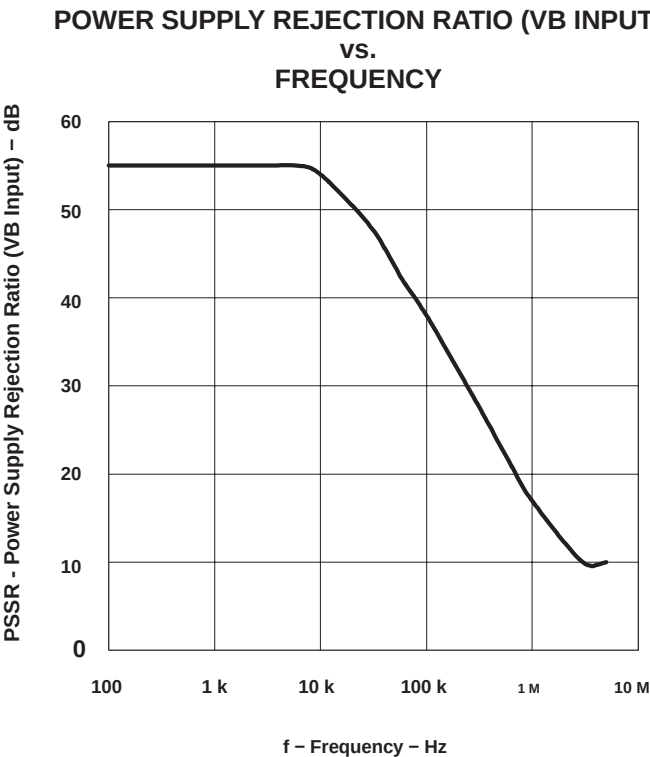
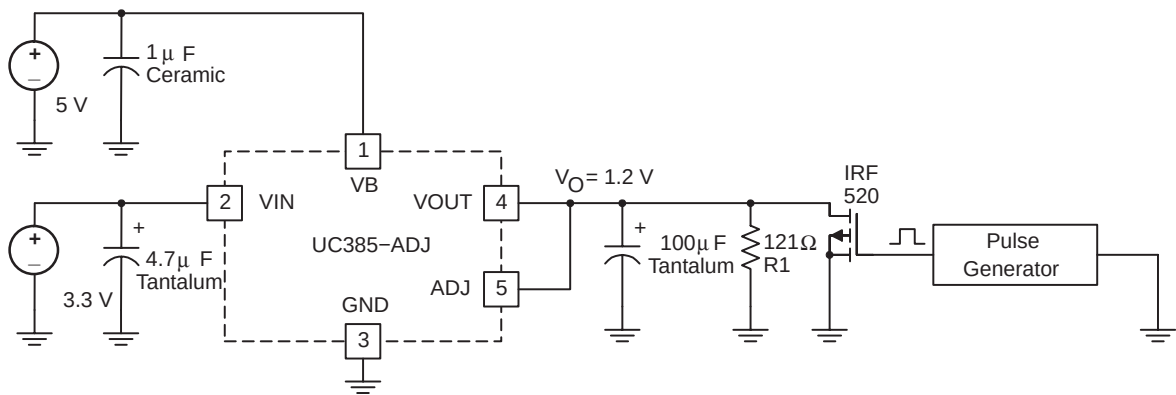


Figure 5



UDG-00085

Figure 6. Transient Test Circuit

## APPLICATION INFORMATION

### 10 mA to 3 A/ $\mu$ s Load Transient Response

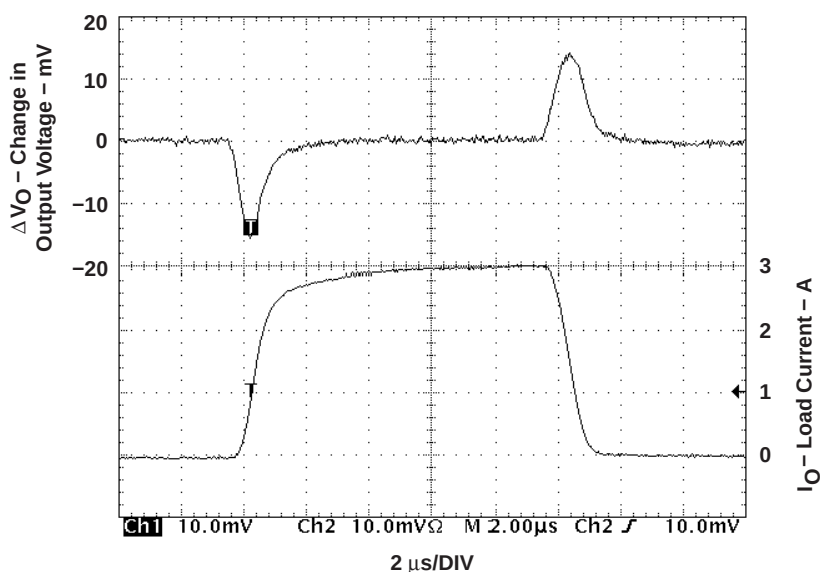
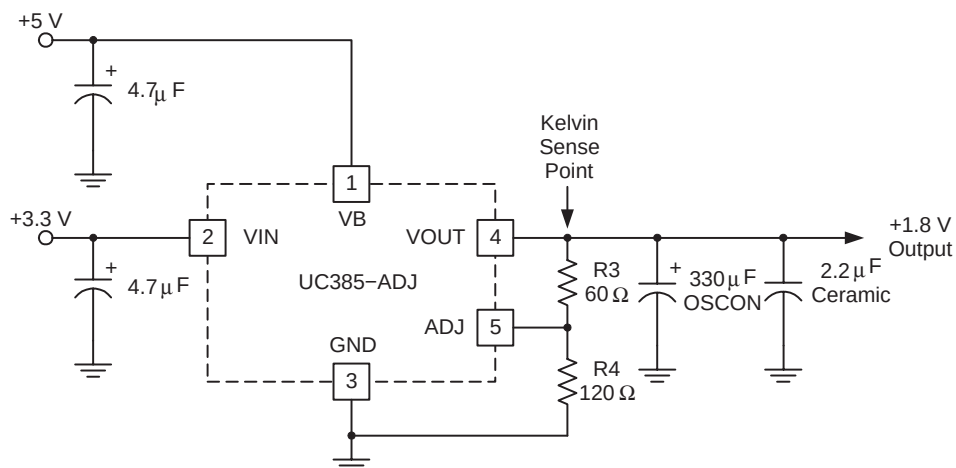


Figure 7



UDG-00086

Figure 8. Typical UC385-ADJ Application

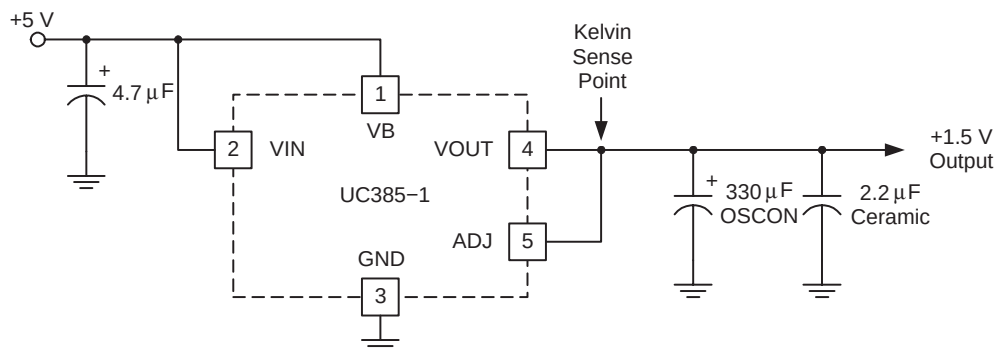
# UC285-1, UC285-2, UC285-3, UC285-ADJ, UC385-1, UC385-2, UC385-3, UC385-ADJ

## FAST TRANSIENT RESPONSE 5-A

### LOW-DROPOUT REGULATOR

SLUS212E – NOVEMBER 1999 – REVISED FEBRUARY 2004

#### APPLICATION INFORMATION



UDG-00087

Figure 9. Typical UC385-1, -2, or -3 Application



**PACKAGING INFORMATION**

| Orderable Device | Status <sup>(1)</sup> | Package Type     | Package Drawing | Pins | Package Qty | Eco Plan <sup>(2)</sup> | Lead/Ball Finish | MSL Peak Temp <sup>(3)</sup> |
|------------------|-----------------------|------------------|-----------------|------|-------------|-------------------------|------------------|------------------------------|
| UC285T-1         | ACTIVE                | TO-220           | KC              | 5    | 50          | None                    | CU SN            | Level-NA-NA-NA               |
| UC285T-2         | ACTIVE                | TO-220           | KC              | 5    | 50          | None                    | CU SN            | Level-NA-NA-NA               |
| UC285T-3         | ACTIVE                | TO-220           | KC              | 5    | 50          | None                    | CU SN            | Level-NA-NA-NA               |
| UC285T-ADJ       | ACTIVE                | TO-220           | KC              | 5    | 50          | None                    | CU SN            | Level-NA-NA-NA               |
| UC285TD-1        | OBSOLETE              | DDPAK/<br>TO-263 | KTT             | 5    |             | None                    | Call TI          | Call TI                      |
| UC285TD-2        | OBSOLETE              | DDPAK/<br>TO-263 | KTT             | 5    |             | None                    | Call TI          | Call TI                      |
| UC285TD-3        | OBSOLETE              | DDPAK/<br>TO-263 | KTT             | 5    |             | None                    | Call TI          | Call TI                      |
| UC285TD-ADJ      | OBSOLETE              | DDPAK/<br>TO-263 | KTT             | 5    |             | None                    | Call TI          | Call TI                      |
| UC285TDKTTT-1    | ACTIVE                | DDPAK/<br>TO-263 | KTT             | 5    | 50          | None                    | CU SN            | Level-2-220C-1 YEAR          |
| UC285TDKTTT-2    | ACTIVE                | DDPAK/<br>TO-263 | KTT             | 5    | 50          | None                    | CU SN            | Level-2-220C-1 YEAR          |
| UC285TDKTTT-3    | ACTIVE                | DDPAK/<br>TO-263 | KTT             | 5    | 50          | None                    | CU SN            | Level-2-220C-1 YEAR          |
| UC285TDKTTT-ADJ  | ACTIVE                | DDPAK/<br>TO-263 | KTT             | 5    | 50          | None                    | CU SN            | Level-2-220C-1 YEAR          |
| UC285TDTR-1      | ACTIVE                | DDPAK/<br>TO-263 | KTT             | 5    | 500         | None                    | Call TI          | Call TI                      |
| UC285TDTR-2      | ACTIVE                | DDPAK/<br>TO-263 | KTT             | 5    | 500         | None                    | Call TI          | Call TI                      |
| UC285TDTR-3      | ACTIVE                | DDPAK/<br>TO-263 | KTT             | 5    | 500         | None                    | Call TI          | Call TI                      |
| UC285TDTR-ADJ    | ACTIVE                | DDPAK/<br>TO-263 | KTT             | 5    | 500         | None                    | CU SN            | Level-2-220C-1 YEAR          |
| UC385T-1         | ACTIVE                | TO-220           | KC              | 5    | 50          | None                    | CU SN            | Level-NA-NA-NA               |
| UC385T-2         | ACTIVE                | TO-220           | KC              | 5    | 50          | None                    | CU SN            | Level-NA-NA-NA               |
| UC385T-3         | ACTIVE                | TO-220           | KC              | 5    | 50          | None                    | CU SN            | Level-NA-NA-NA               |
| UC385T-ADJ       | ACTIVE                | TO-220           | KC              | 5    | 50          | None                    | CU SN            | Level-NA-NA-NA               |
| UC385TD-1        | OBSOLETE              | DDPAK/<br>TO-263 | KTT             | 5    |             | None                    | Call TI          | Call TI                      |
| UC385TD-2        | OBSOLETE              | DDPAK/<br>TO-263 | KTT             | 5    |             | None                    | Call TI          | Call TI                      |
| UC385TD-3        | OBSOLETE              | DDPAK/<br>TO-263 | KTT             | 5    |             | None                    | Call TI          | Call TI                      |
| UC385TD-ADJ      | OBSOLETE              | DDPAK/<br>TO-263 | KTT             | 5    |             | None                    | Call TI          | Call TI                      |
| UC385TDKTTT-1    | ACTIVE                | DDPAK/<br>TO-263 | KTT             | 5    | 50          | None                    | CU SN            | Level-2-220C-1 YEAR          |
| UC385TDKTTT-2    | ACTIVE                | DDPAK/<br>TO-263 | KTT             | 5    | 50          | None                    | CU SN            | Level-2-220C-1 YEAR          |
| UC385TDKTTT-3    | ACTIVE                | DDPAK/<br>TO-263 | KTT             | 5    | 50          | None                    | CU SN            | Level-2-220C-1 YEAR          |
| UC385TDKTTT-ADJ  | ACTIVE                | DDPAK/<br>TO-263 | KTT             | 5    | 50          | None                    | CU SN            | Level-2-220C-1 YEAR          |

| Orderable Device | Status <sup>(1)</sup> | Package Type     | Package Drawing | Pins | Package Qty | Eco Plan <sup>(2)</sup> | Lead/Ball Finish | MSL Peak Temp <sup>(3)</sup> |
|------------------|-----------------------|------------------|-----------------|------|-------------|-------------------------|------------------|------------------------------|
| UC385TDTR-1      | ACTIVE                | DDPAK/<br>TO-263 | KTT             | 5    | 500         | None                    | CU SN            | Level-2-220C-1 YEAR          |
| UC385TDTR-2      | ACTIVE                | DDPAK/<br>TO-263 | KTT             | 5    | 500         | None                    | CU SN            | Level-2-220C-1 YEAR          |
| UC385TDTR-3      | ACTIVE                | DDPAK/<br>TO-263 | KTT             | 5    | 500         | None                    | CU SN            | Level-2-220C-1 YEAR          |
| UC385TDTR-ADJ    | ACTIVE                | DDPAK/<br>TO-263 | KTT             | 5    | 500         | None                    | CU SN            | Level-2-220C-1 YEAR          |
| UC385TH-ADJ      | OBSOLETE              | TO-220           | KC              | 5    |             | None                    | Call TI          | Call TI                      |

<sup>(1)</sup> The marketing status values are defined as follows:

**ACTIVE:** Product device recommended for new designs.

**LIFEBUY:** TI has announced that the device will be discontinued, and a lifetime-buy period is in effect.

**NRND:** Not recommended for new designs. Device is in production to support existing customers, but TI does not recommend using this part in a new design.

**PREVIEW:** Device has been announced but is not in production. Samples may or may not be available.

**OBSOLETE:** TI has discontinued the production of the device.

<sup>(2)</sup> Eco Plan - May not be currently available - please check <http://www.ti.com/productcontent> for the latest availability information and additional product content details.

**None:** Not yet available Lead (Pb-Free).

**Pb-Free (RoHS):** TI's terms "Lead-Free" or "Pb-Free" mean semiconductor products that are compatible with the current RoHS requirements for all 6 substances, including the requirement that lead not exceed 0.1% by weight in homogeneous materials. Where designed to be soldered at high temperatures, TI Pb-Free products are suitable for use in specified lead-free processes.

**Green (RoHS & no Sb/Br):** TI defines "Green" to mean "Pb-Free" and in addition, uses package materials that do not contain halogens, including bromine (Br) or antimony (Sb) above 0.1% of total product weight.

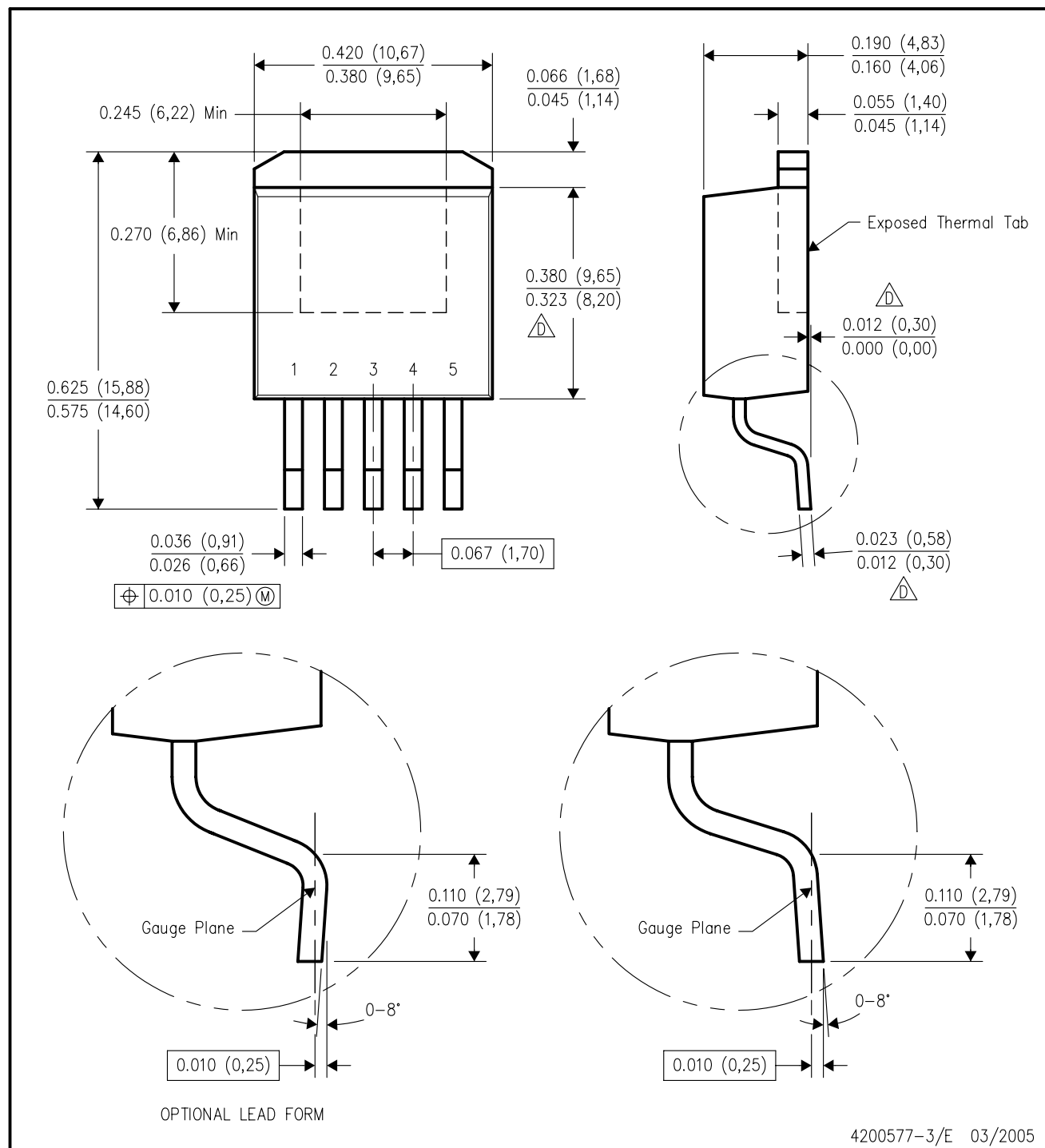
<sup>(3)</sup> MSL, Peak Temp. -- The Moisture Sensitivity Level rating according to the JEDEC industry standard classifications, and peak solder temperature.

**Important Information and Disclaimer:** The information provided on this page represents TI's knowledge and belief as of the date that it is provided. TI bases its knowledge and belief on information provided by third parties, and makes no representation or warranty as to the accuracy of such information. Efforts are underway to better integrate information from third parties. TI has taken and continues to take reasonable steps to provide representative and accurate information but may not have conducted destructive testing or chemical analysis on incoming materials and chemicals. TI and TI suppliers consider certain information to be proprietary, and thus CAS numbers and other limited information may not be available for release.

In no event shall TI's liability arising out of such information exceed the total purchase price of the TI part(s) at issue in this document sold by TI to Customer on an annual basis.

## KTT (R-PSFM-G5)

## PLASTIC FLANGE-MOUNT PACKAGE



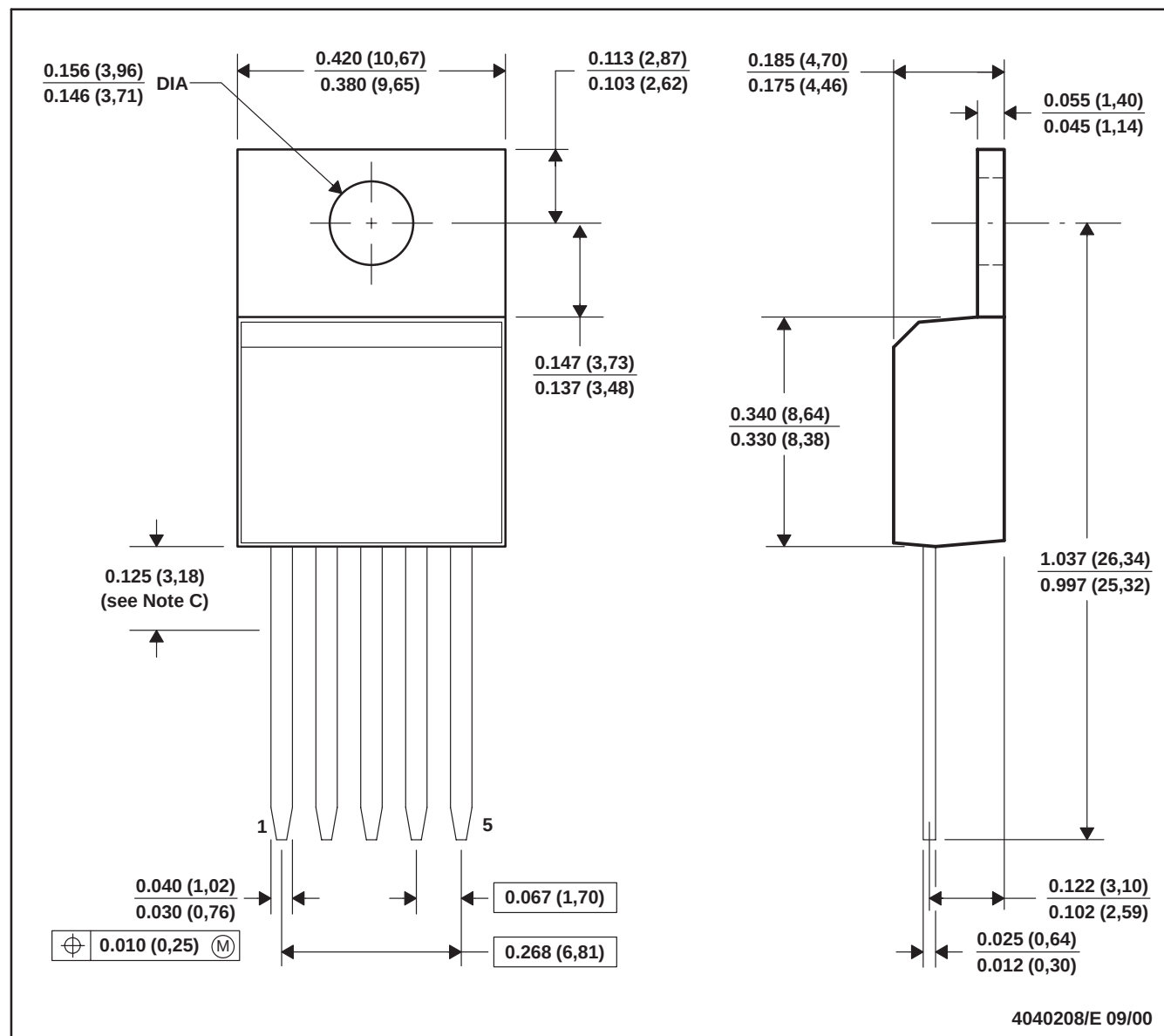
4200577-3/E 03/2005

## NOTES:

- All linear dimensions are in inches (millimeters).
  - This drawing is subject to change without notice.
  - Body dimensions do not include mold flash or protrusion. Mold flash or protrusion not to exceed 0.005 (0,13) per side.
- (D) Falls within JEDEC TO-263 variation BA, except minimum lead thickness, maximum seating height, and minimum body length.

## KC (R-PSFM-T5)

## PLASTIC FLANGE-MOUNT



- NOTES: A. All linear dimensions are in inches (millimeters).  
 B. This drawing is subject to change without notice.  
 C. Lead dimensions are not controlled within this area.  
 D. All lead dimensions apply before solder dip.  
 E. The center lead is in electrical contact with the mounting tab.

## IMPORTANT NOTICE

Texas Instruments Incorporated and its subsidiaries (TI) reserve the right to make corrections, modifications, enhancements, improvements, and other changes to its products and services at any time and to discontinue any product or service without notice. Customers should obtain the latest relevant information before placing orders and should verify that such information is current and complete. All products are sold subject to TI's terms and conditions of sale supplied at the time of order acknowledgment.

TI warrants performance of its hardware products to the specifications applicable at the time of sale in accordance with TI's standard warranty. Testing and other quality control techniques are used to the extent TI deems necessary to support this warranty. Except where mandated by government requirements, testing of all parameters of each product is not necessarily performed.

TI assumes no liability for applications assistance or customer product design. Customers are responsible for their products and applications using TI components. To minimize the risks associated with customer products and applications, customers should provide adequate design and operating safeguards.

TI does not warrant or represent that any license, either express or implied, is granted under any TI patent right, copyright, mask work right, or other TI intellectual property right relating to any combination, machine, or process in which TI products or services are used. Information published by TI regarding third-party products or services does not constitute a license from TI to use such products or services or a warranty or endorsement thereof. Use of such information may require a license from a third party under the patents or other intellectual property of the third party, or a license from TI under the patents or other intellectual property of TI.

Reproduction of information in TI data books or data sheets is permissible only if reproduction is without alteration and is accompanied by all associated warranties, conditions, limitations, and notices. Reproduction of this information with alteration is an unfair and deceptive business practice. TI is not responsible or liable for such altered documentation.

Resale of TI products or services with statements different from or beyond the parameters stated by TI for that product or service voids all express and any implied warranties for the associated TI product or service and is an unfair and deceptive business practice. TI is not responsible or liable for any such statements.

Following are URLs where you can obtain information on other Texas Instruments products and application solutions:

| <b>Products</b>  |                                                                    | <b>Applications</b> |                                                                          |
|------------------|--------------------------------------------------------------------|---------------------|--------------------------------------------------------------------------|
| Amplifiers       | <a href="http://amplifier.ti.com">amplifier.ti.com</a>             | Audio               | <a href="http://www.ti.com/audio">www.ti.com/audio</a>                   |
| Data Converters  | <a href="http://dataconverter.ti.com">dataconverter.ti.com</a>     | Automotive          | <a href="http://www.ti.com/automotive">www.ti.com/automotive</a>         |
| DSP              | <a href="http://dsp.ti.com">dsp.ti.com</a>                         | Broadband           | <a href="http://www.ti.com/broadband">www.ti.com/broadband</a>           |
| Interface        | <a href="http://interface.ti.com">interface.ti.com</a>             | Digital Control     | <a href="http://www.ti.com/digitalcontrol">www.ti.com/digitalcontrol</a> |
| Logic            | <a href="http://logic.ti.com">logic.ti.com</a>                     | Military            | <a href="http://www.ti.com/military">www.ti.com/military</a>             |
| Power Mgmt       | <a href="http://power.ti.com">power.ti.com</a>                     | Optical Networking  | <a href="http://www.ti.com/opticalnetwork">www.ti.com/opticalnetwork</a> |
| Microcontrollers | <a href="http://microcontroller.ti.com">microcontroller.ti.com</a> | Security            | <a href="http://www.ti.com/security">www.ti.com/security</a>             |
|                  |                                                                    | Telephony           | <a href="http://www.ti.com/telephony">www.ti.com/telephony</a>           |
|                  |                                                                    | Video & Imaging     | <a href="http://www.ti.com/video">www.ti.com/video</a>                   |
|                  |                                                                    | Wireless            | <a href="http://www.ti.com/wireless">www.ti.com/wireless</a>             |

Mailing Address: Texas Instruments  
Post Office Box 655303 Dallas, Texas 75265

Copyright © 2005, Texas Instruments Incorporated