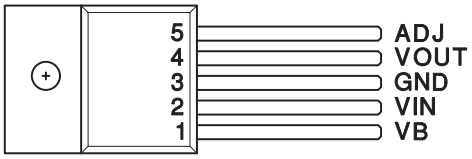
# UC282-1, UC282-2, UC282-3, UC282-ADJ, UC382-1, UC382-2, UC382-3, UC382-ADJ
# FAST LDO LINEAR REGULATOR

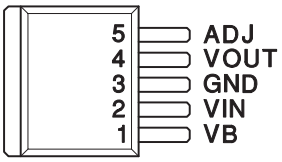
SLUS317B − JANUARY 2000 − REVISED FEBRUARY 2004

- **Fast Transient Response**
- **10-mA to 3-A Load Current**
- **Short Circuit Protection**
- **Maximum Dropout of 450-mV at 3-A Load Current**
- **Separate Bias 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*

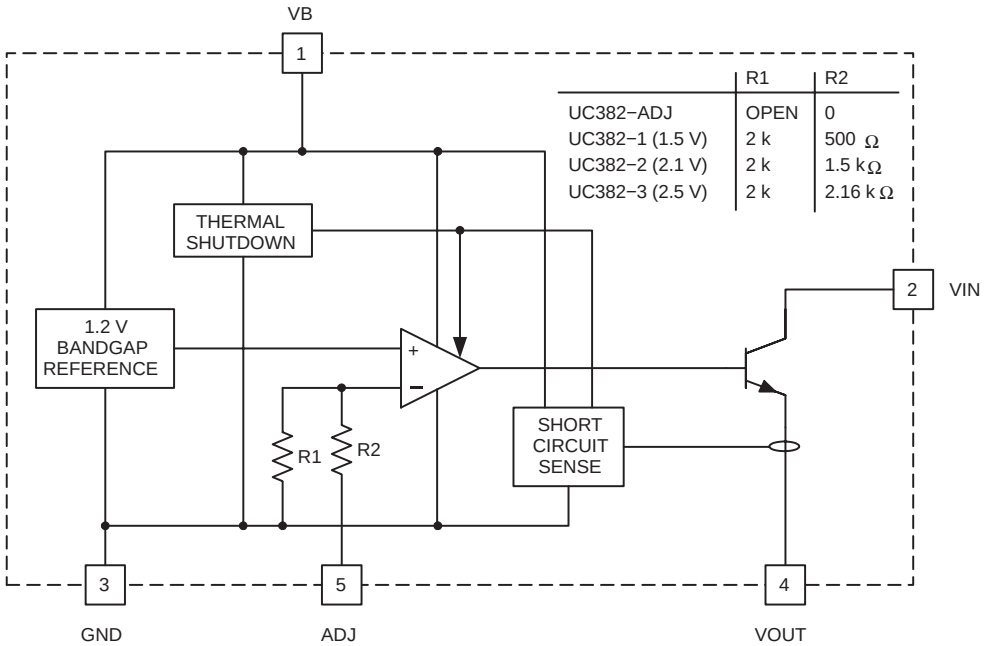
## description

The UC382 is a low-dropout-linear regulator providing a quick response to fast load changes. Combined with its precision onboard reference, the UC382 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 450 mV maximum at 100°C and 350 mV typical at 3-A load.

The onboard bandgap reference is stable with temperature and scaled for a 1.2-V input to the internal-power amplifier. The UC382 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-00080

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.**

Copyright © 2000−2004, Texas Instruments Incorporated

### absolute maximum ratings over operating free-air temperature (unless otherwise noted)†‡

VB . . . . . 13 V
VIN . . . . . 7.5 V
Output voltage . . . . . 1.2 V to 6.0 V
Storage temperature, $T_{stg}$ . . . . . −65°C to 150°C
Junction temperature, $T_J$ . . . . . −55°C to 150°C
Lead temperature (soldering, 10 seconds) . . . . . 300°C

† 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.

‡ Currents are positive into, negative out of the specified terminal. Consult Packaging Section of Databook for thermal limitations and considerations of packages.

**AVAILABLE OPTIONS(1)**

| $T_J$ | 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 | 282T-1 | 282T-2 | 282T-3 | 282T-ADJ | 282TD-1 | 282TD-2 | 282TD-3 | 282TD-ADJ |
| 0°C to 100°C | 382T-1 | 382T-2 | 382T-3 | 382T-ADJ | 382TD-1 | 382TD-2 | 382TD-3 | 382TD-ADJ |

1. For more package and ordering information, see the Package Option Addendum located at the end of this data sheet.
2. For 50 piece reel, add KTTT (e.g., UC282TDKTTT−1); for 500 piece reel, add TR (e.g., UC282TDTR−1).

### electrical characteristics, $T_A$ = −40°C to 100°C for the UC282-X series and 0°C to 100°C for the UC382-X, VB = 5 V, VIN = 3.3 V, VOUT = 2.5 V for the UC382-ADJ, $T_A = T_J$, (unless otherwise stated)

### UC382-3 fixed 2.5 V, 3-A family

| PARAMETERS | TEST CONDITIONS | | MIN | TYP | MAX | UNITS |
|---|---|---|---|---|---|---|
| Output voltage ($I_{VOUT}$ = 100 mA) | UC382-3 | | 2.475 | 2.500 | 2.525 | V |
| | UC282-3 | | 2.450 | 2.500 | 2.525 | V |
| Load regulation | $I_{VOUT}$ = 10 mA to 3 A | | | 0.5 | 4 | mV |
| VIN PSSR | | | 80 | 100 | | dB |
| VB PSSR | | | 50 | 60 | | dB |
| VIN dropout voltage = VIN−VOUT | $I_{VOUT}$ = 3 A, | $T_J$ = 25°C | | 350 | 425 | mV |
| | $I_{VOUT}$ = 3 A, | UC382-3 | | 350 | 450 | mV |
| | $I_{VOUT}$ = 3 A, | UC282-3 | | 350 | 500 | mV |
| VB dropout = VB−VOUT | $I_{VOUT}$ = 3 A, | UC382-3 | | 1.8 | 2.10 | V |
| | $I_{VOUT}$ = 3 A, | UC282-3 | | 1.8 | 2.20 | V |
| Short circuit current limit | | | 3.3 | | 4.5 | A |
| VB current | $I_{VOUT}$ = 10 mA | | | 6 | 11 | mA |
| | $I_{VOUT}$ = 3 A | | | 18 | 60 | mA |
| VIN current | $I_{VOUT}$ = 3 A | | 2.94 | 2.97 | | A |

**electrical characteristics, $T_A$ = −40°C to 100°C for the UC282-X series and 0°C to 100°C for the UC382-X, VB = 5 V, VIN = 3.3 V, VOUT = 2.5 V for the UC382-ADJ, $T_A = T_J$, (unless otherwise stated)**

### UC382-2 fixed 2.1 V, 3-A family

| PARAMETERS | TEST CONDITIONS | | MIN | TYP | MAX | UNITS |
|---|---|---|---|---|---|---|
| Output voltage ($I_{VOUT}$ = 100 mA) | UC382-2 | | 2.079 | 2.100 | 2.121 | V |
| | UC282-2 | | 2.058 | 2.100 | 2.121 | V |
| Load regulation | $I_{VOUT}$ = 10 mA to 3 A | | | 0.5 | 4 | mV |
| VIN PSSR | | | 80 | 100 | | dB |
| VB PSSR | | | 52 | 62 | | dB |
| VIN dropout voltage = VIN−VOUT | $I_{VOUT}$ = 3 A, | $T_J$ = 25°C | | 350 | 425 | mV |
| | $I_{VOUT}$ = 3 A, | UC382-2 | | 350 | 450 | mV |
| | $I_{VOUT}$ = 3 A, | UC282-2 | | 350 | 500 | mV |
| VB dropout = VB−VOUT | $I_{VOUT}$ = 3 A, | UC382-2 | | 1.8 | 2.10 | V |
| | $I_{VOUT}$ = 3 A, | UC282-2 | | 1.8 | 2.20 | V |
| Short circuit current limit | | | 3.3 | | 4.5 | A |
| VB current | $I_{VOUT}$ = 10 mA | | | 6 | 11 | mA |
| | $I_{VOUT}$ = 3 A | | | 18 | 60 | mA |
| VIN current | $I_{VOUT}$ = 3 A | | 2.94 | 2.97 | | A |

### UC382-1 fixed 1.5 V, 3-A family

| PARAMETERS | TEST CONDITIONS | | MIN | TYP | MAX | UNITS |
|---|---|---|---|---|---|---|
| Output voltage ($I_{VOUT}$ = 100 mA) | UC382-1 | | 1.485 | 1.500 | 1.515 | V |
| | UC282-1 | | 1.470 | 1.500 | 1.515 | V |
| Load regulation | $I_{VOUT}$ = 10 mA to 3 A | | | 0.5 | 4 | mV |
| VIN PSSR | | | 80 | 100 | | dB |
| VB PSSR | | | 55 | 65 | | dB |
| VIN dropout voltage = VIN−VOUT | $I_{VOUT}$ = 3 A, | $T_J$ = 25°C | | 350 | 425 | mV |
| | $I_{VOUT}$ = 3 A, | UC382-1 | | 350 | 450 | mV |
| | $I_{VOUT}$ = 3 A, | UC282-1 | | 350 | 500 | mV |
| VB dropout = VB−VOUT | $I_{VOUT}$ = 3 A, | UC382-1 | | 1.8 | 2.10 | V |
| | $I_{VOUT}$ = 3 A, | UC282-1 | | 1.8 | 2.20 | V |
| Short circuit current limit | | | 3.3 | | 4.5 | A |
| VB current | $I_{VOUT}$ = 10 mA | | | 6 | 11 | mA |
| | $I_{VOUT}$ = 3 A | | | 18 | 60 | mA |
| VIN current | $I_{VOUT}$ = 3 A | | 2.94 | 2.97 | | A |

## electrical characteristics, $T_A$ = −40°C to 100°C for the UC282-X series and 0°C to 100°C for the UC382-X, VB = 5 V, VIN = 3.3 V, VOUT = 2.5 V for the UC382-ADJ, $T_A = T_J$, (unless otherwise stated)

### UC382-ADJ adjustable, 3-A family

| PARAMETERS | TEST CONDITIONS | | MIN | TYP | MAX | UNITS |
|---|---|---|---|---|---|---|
| ADJ voltage ($I_{VOUT}$ = 100 mA) | UC382-ADJ | | 1.188 | 1.200 | 1.212 | V |
| | UC282-ADJ | | 1.176 | 1.200 | 1.212 | V |
| Load regulation | $I_{VOUT}$ = 10 mA to 3 A | | | 0.5 | 4 | mV |
| VIN PSSR | VOUT programmed for 2.5 V | | 80 | 100 | | dB |
| VB PSSR | VOUT programmed for 2.5 V | | 50 | 60 | | dB |
| VIN dropout voltage = VIN−VOUT | $I_{VOUT}$ = 3 A, | $T_J$ = 25°C | | 350 | 425 | mV |
| | $I_{VOUT}$ = 3 A, | UC382-ADJ | | 350 | 450 | mV |
| | $I_{VOUT}$ = 3 A, | UC282-ADJ | | 350 | 500 | mV |
| VB dropout = VB−VOUT | $I_{VOUT}$ = 3 A, | UC382-ADJ | | 1.8 | 2.10 | V |
| | $I_{VOUT}$ = 3 A, | UC282-ADJ | | 1.8 | 2.20 | V |
| Short circuit current limit | | | 3.3 | | 4.5 | A |
| VB current | $I_{VOUT}$ = 10 mA | | | 6 | 11 | mA |
| | $I_{VOUT}$ = 3 A | | | 18 | 60 | mA |
| VIN current | $I_{VOUT}$ = 3 A | | 2.94 | 2.97 | | A |

### 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 non-inverting-operational amplifier. The resistors should meet the criteria of R3 || R4 < 100 Ω. 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. For -1, -2, and -3 versions, ADJ pin is tied to VOUT to obtain specified output voltage.

**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 collector of 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 (VIN−VOUT) is under 100 mV for light loads; maximum dropout is 450 mV at 3 A for $T_J$ = 0°C to 100°C. (Dropout is derated for junction temperatures over 100°C.) At full load, the majority of the VB current is going to the load.

**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.

**pin descriptions (continued)**

**DROPOUT VOLTAGE ($V_B - V_{OUT}$) vs LOAD CURRENT**

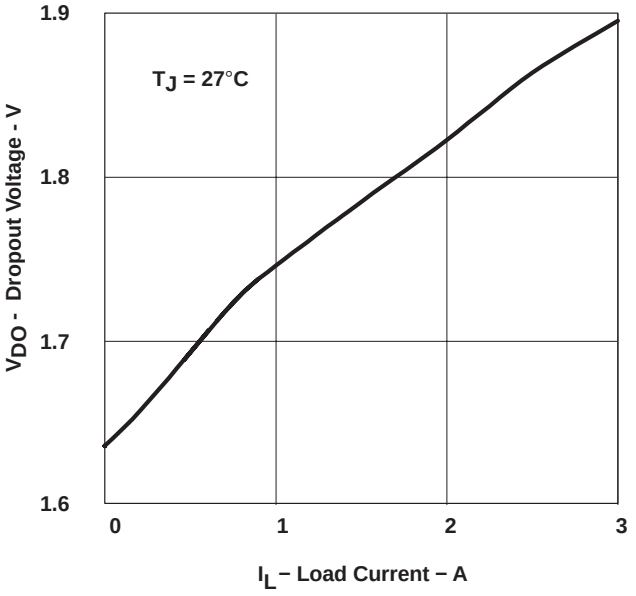



**Figure 1**

**DROPOUT VOLTAGE ($V_{IN} - V_{OUT}$) vs LOAD CURRENT**

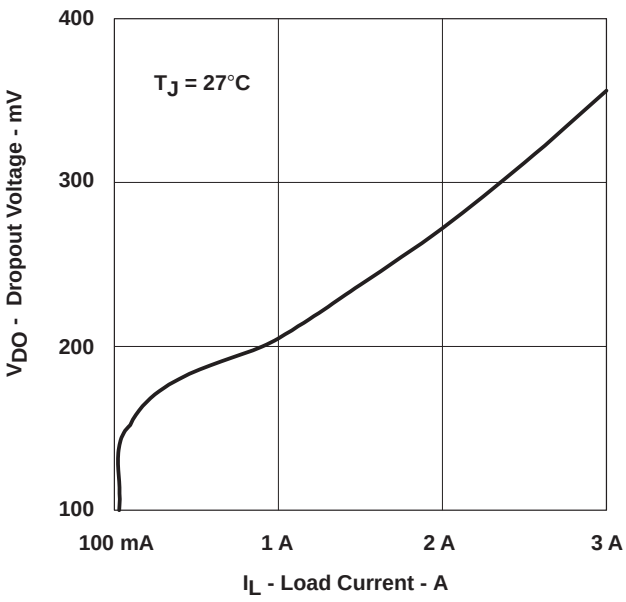



**Figure 2**

## APPLICATION INFORMATION

The UC382 is easy to use. The adjustable version requires two 0.1% resistors to set the output voltage. The fixed versions of the UC382 require no external resistors. All versions of the UC382 require decoupling capacitors on the input and output. In a typical application, VB and VIN are driven from switching power supplies which may have large filter capacitors at their outputs. If the UC382 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 UC382 with at least 100 μF of high-quality tantalum or Sanyo OSCON capacitors close to the VOUT pin for maximum stability. Many applications involving Ultra-Fast 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 VOUT. When specifying the decoupling capacitors, the series resistance of the capacitor bank is an important factor in its ability to filter load transients.

The UC382 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 (VIN to VOUT and VB to VOUT). The dropout of 450 mV is measured at the pins and does not include additional drops due to trace resistance. The minimum load current is 10 mA.

Two or more UC382's may be used in parallel. While stable, this arrangement does degrade the transient response.

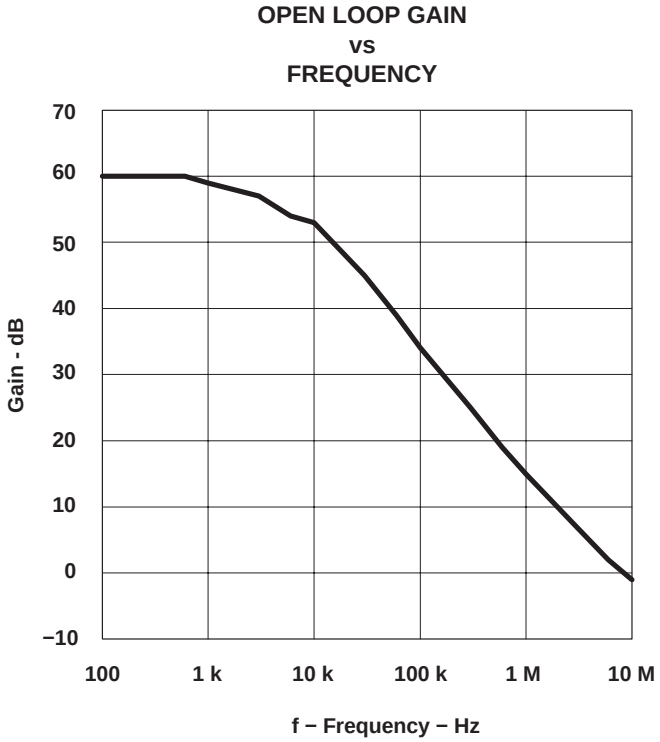



Figure 3

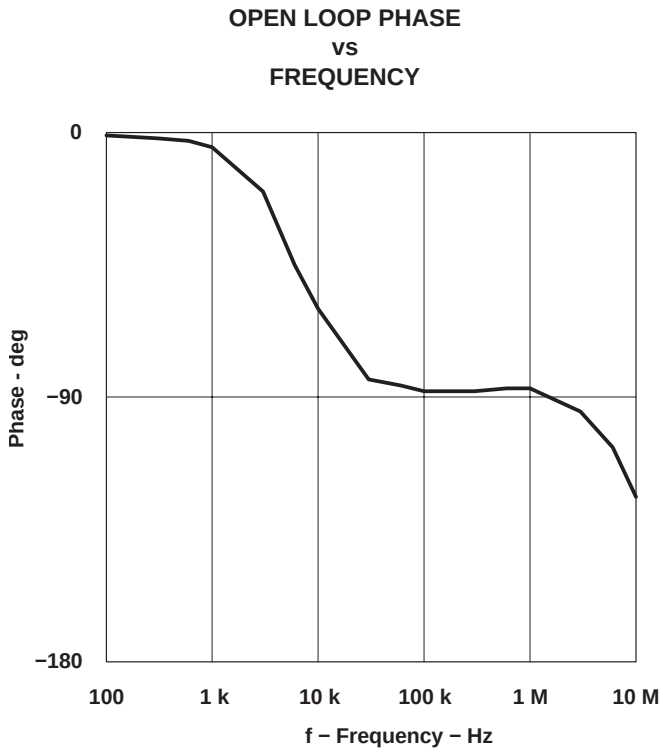



Figure 4

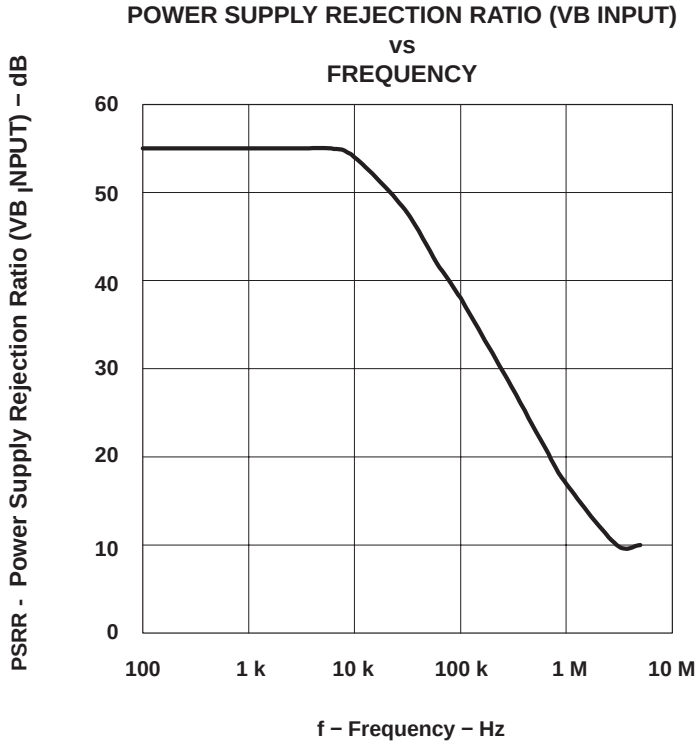



Figure 5

## APPLICATION INFORMATION

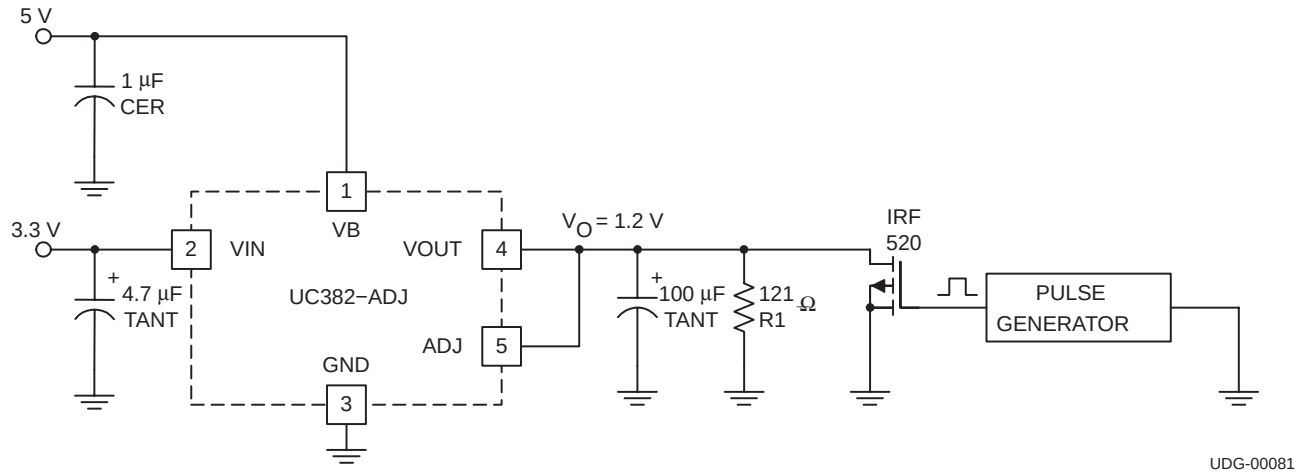



**Figure 6. Transient Test Circuit**

### 10 mA to 3 A/µs Load Transient Response

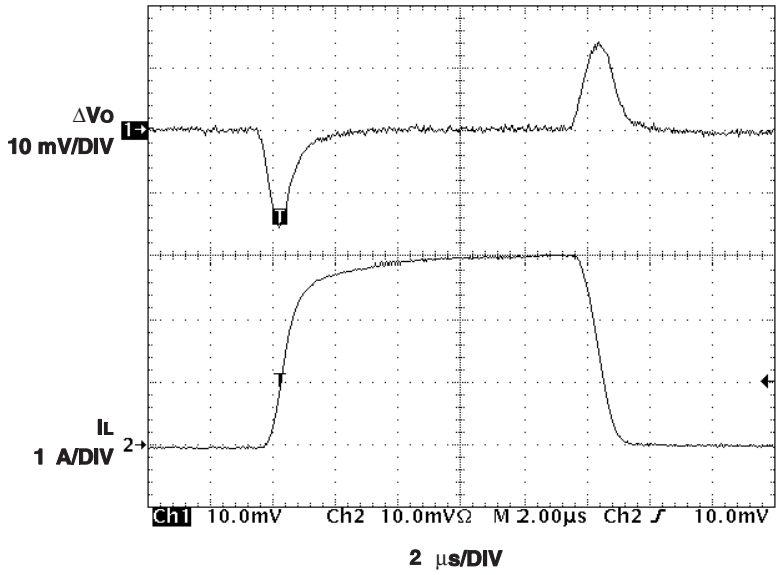
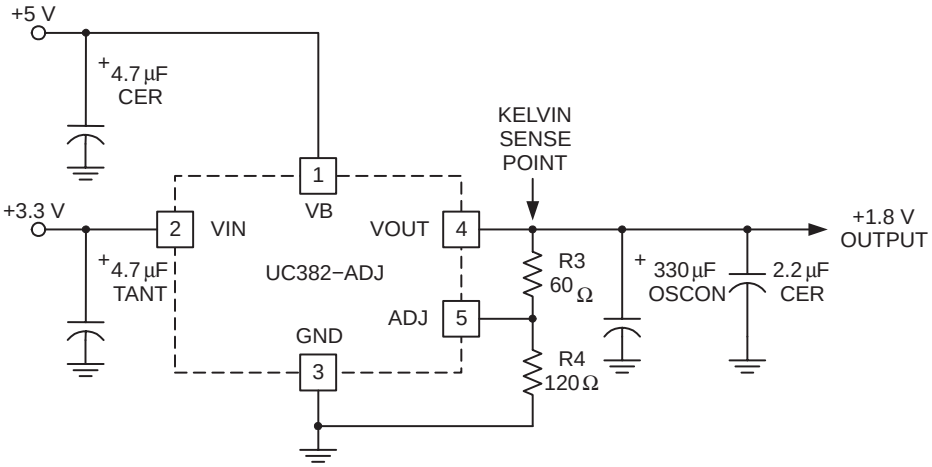


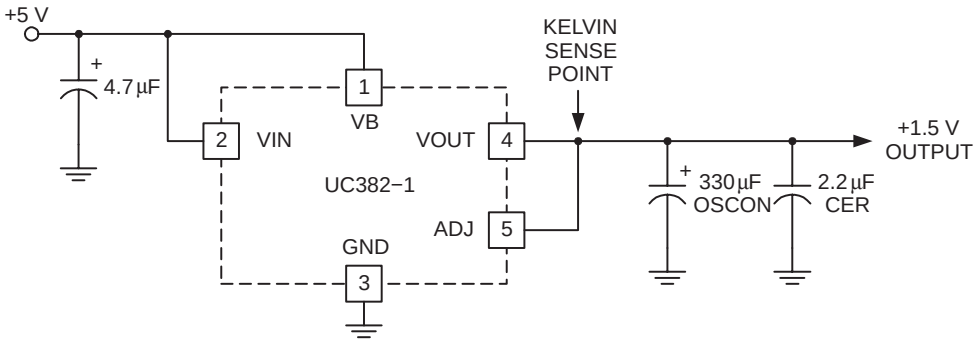

**Figure 7**

## APPLICATION INFORMATION




UDG-00082

**Figure 8. Typical UC382-ADJ Application**




UDG-00083

**Figure 9. Typical UC382-1, -2, or -3 Application**

## 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) |
|---|---|---|---|---|---|---|---|---|---|
| UC282T-ADJ | Active | Production | TO-220 (KC) \| 5 | 50 \| TUBE | Yes | SN | N/A for Pkg Type | -40 to 100 | UC282T-ADJ |
| UC282T-ADJ.A | Active | Production | TO-220 (KC) \| 5 | 50 \| TUBE | Yes | SN | N/A for Pkg Type | -40 to 100 | UC282T-ADJ |
| UC282TDKTTT-1 | Active | Production | DDPAK/ TO-263 (KTT) \| 5 | 50 \| TUBE | Yes | SN | Level-2-260C-1 YEAR | -40 to 100 | UC282TD-1 |
| UC282TDKTTT-1.A | Active | Production | DDPAK/ TO-263 (KTT) \| 5 | 50 \| TUBE | Yes | SN | Level-2-260C-1 YEAR | -40 to 100 | UC282TD-1 |
| UC282TDTR-3 | Active | Production | DDPAK/ TO-263 (KTT) \| 5 | 500 \| LARGE T&R | Yes | SN | Level-2-260C-1 YEAR | -40 to 100 | UC282TD-3 |
| UC282TDTR-3.A | Active | Production | DDPAK/ TO-263 (KTT) \| 5 | 500 \| LARGE T&R | Yes | SN | Level-2-260C-1 YEAR | -40 to 100 | UC282TD-3 |
| UC282TDTR-ADJ | Active | Production | DDPAK/ TO-263 (KTT) \| 5 | 500 \| LARGE T&R | Yes | SN | Level-2-260C-1 YEAR | -40 to 100 | UC282TD-ADJ |
| UC282TDTR-ADJ.A | Active | Production | DDPAK/ TO-263 (KTT) \| 5 | 500 \| LARGE T&R | Yes | SN | Level-2-260C-1 YEAR | -40 to 100 | UC282TD-ADJ |
| UC382T-ADJ | Active | Production | TO-220 (KC) \| 5 | 50 \| TUBE | Yes | SN | N/A for Pkg Type | - | UC382T-ADJ |
| UC382T-ADJ.A | Active | Production | TO-220 (KC) \| 5 | 50 \| TUBE | Yes | SN | N/A for Pkg Type | 0 to 100 | UC382T-ADJ |
| UC382T-ADJG3 | Active | Production | TO-220 (KC) \| 5 | 50 \| TUBE | Yes | SN | N/A for Pkg Type | 0 to 100 | UC382T-ADJ |
| UC382TDKTTT-2 | Active | Production | DDPAK/ TO-263 (KTT) \| 5 | 50 \| TUBE | Yes | SN | Level-2-260C-1 YEAR | 0 to 70 | UC382TD-2 |
| UC382TDKTTT-2.A | Active | Production | DDPAK/ TO-263 (KTT) \| 5 | 50 \| TUBE | Yes | SN | Level-2-260C-1 YEAR | 0 to 70 | UC382TD-2 |
| UC382TDTR-ADJ | Active | Production | DDPAK/ TO-263 (KTT) \| 5 | 500 \| LARGE T&R | Yes | SN | Level-2-260C-1 YEAR | - | UC382TD-ADJ |
| UC382TDTR-ADJ.A | Active | Production | DDPAK/ TO-263 (KTT) \| 5 | 500 \| LARGE T&R | Yes | SN | Level-2-260C-1 YEAR | 0 to 100 | UC382TD-ADJ |

(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.

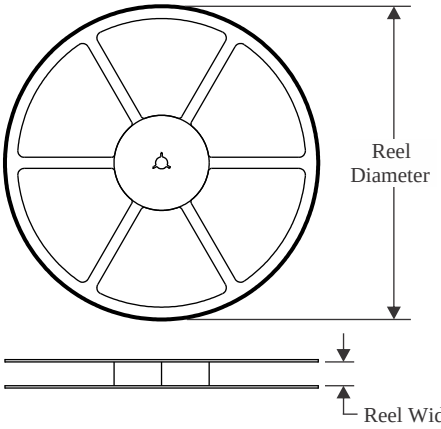
Multiple part markings will be inside parentheses. Only one part marking contained in parentheses and separated by a "~" will appear on a part. If a line is indented then it is a continuation of the previous line and the two combined represent the entire part marking for that device.

**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.

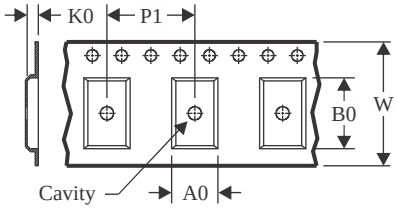
In no event shall TI's liability arising out of such information exceed the total purchase price of the TI part(s) at issue in this document sold by TI to Customer on an annual basis.

## TAPE AND REEL INFORMATION

**REEL DIMENSIONS**

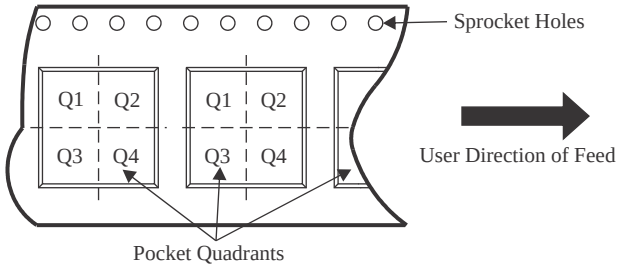



**TAPE DIMENSIONS**




| | |
|---|---|
| A0 | Dimension designed to accommodate the component width |
| B0 | Dimension designed to accommodate the component length |
| K0 | Dimension designed to accommodate the component thickness |
| W | Overall width of the carrier tape |
| P1 | Pitch between successive cavity centers |

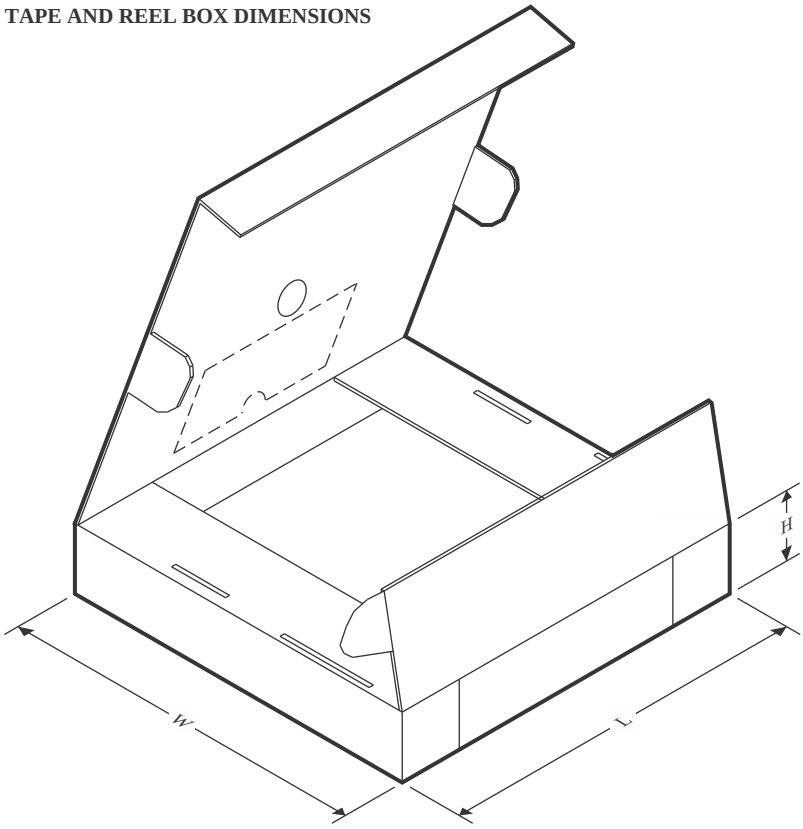
**QUADRANT ASSIGNMENTS FOR PIN 1 ORIENTATION IN TAPE**




*All dimensions are nominal

| Device | Package Type | Package Drawing | Pins | SPQ | Reel Diameter (mm) | Reel Width W1 (mm) | A0 (mm) | B0 (mm) | K0 (mm) | P1 (mm) | W (mm) | Pin1 Quadrant |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| UC282TDTR-3 | DDPAK/ TO-263 | KTT | 5 | 500 | 330.0 | 24.4 | 10.9 | 16.1 | 4.9 | 16.0 | 24.0 | Q2 |
| UC282TDTR-ADJ | DDPAK/ TO-263 | KTT | 5 | 500 | 330.0 | 24.4 | 10.9 | 16.1 | 4.9 | 16.0 | 24.0 | Q2 |
| UC382TDTR-ADJ | DDPAK/ TO-263 | KTT | 5 | 500 | 330.0 | 24.4 | 10.9 | 16.1 | 4.9 | 16.0 | 24.0 | Q2 |

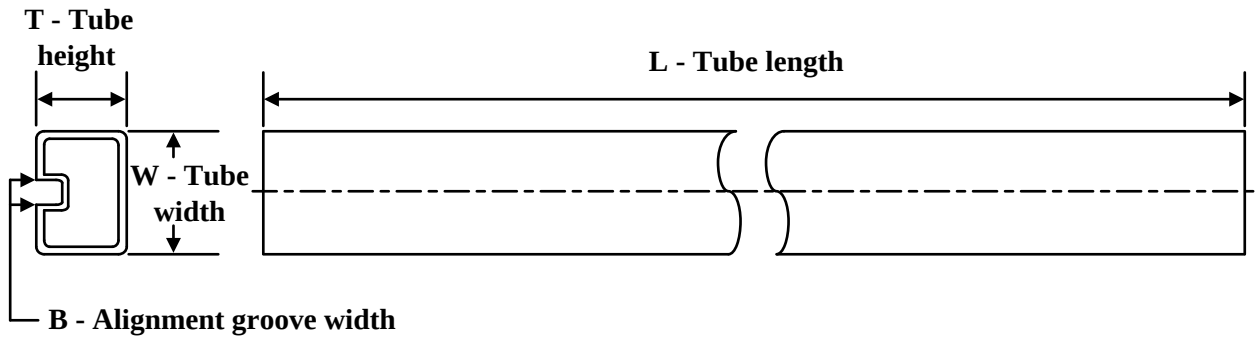
TAPE AND REEL BOX DIMENSIONS




*All dimensions are nominal

| Device | Package Type | Package Drawing | Pins | SPQ | Length (mm) | Width (mm) | Height (mm) |
|---|---|---|---|---|---|---|---|
| UC282TDTR-3 | DDPAK/TO-263 | KTT | 5 | 500 | 356.0 | 356.0 | 45.0 |
| UC282TDTR-ADJ | DDPAK/TO-263 | KTT | 5 | 500 | 356.0 | 356.0 | 45.0 |
| UC382TDTR-ADJ | DDPAK/TO-263 | KTT | 5 | 500 | 356.0 | 356.0 | 45.0 |

## TUBE




*All dimensions are nominal

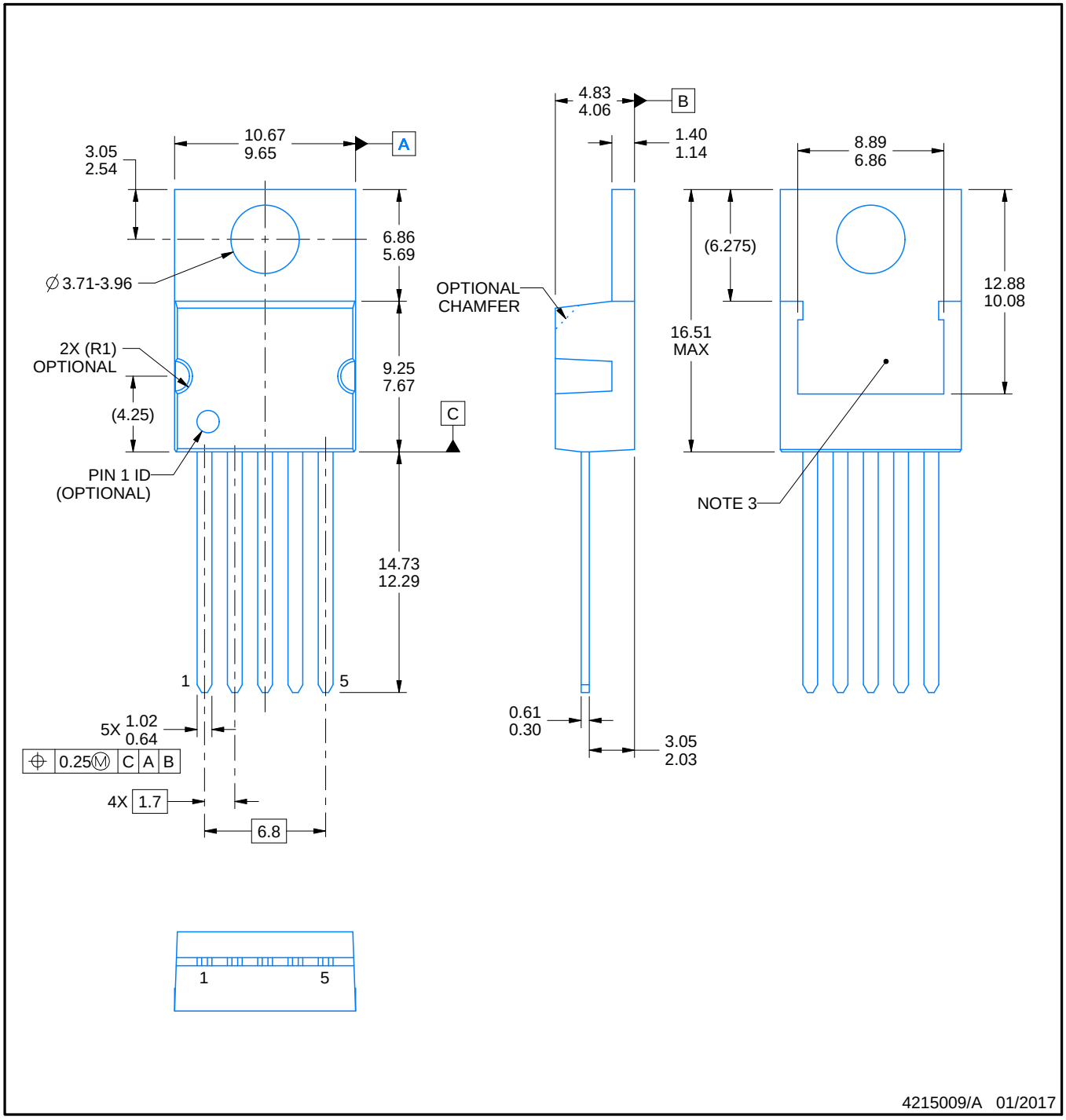
| Device | Package Name | Package Type | Pins | SPQ | L (mm) | W (mm) | T (µm) | B (mm) |
|---|---|---|---|---|---|---|---|---|
| UC282T-ADJ | KC | TO-220 | 5 | 50 | 546 | 31 | 11930 | 3.17 |
| UC282T-ADJ.A | KC | TO-220 | 5 | 50 | 546 | 31 | 11930 | 3.17 |
| UC382T-ADJ | KC | TO-220 | 5 | 50 | 546 | 31 | 11930 | 3.17 |
| UC382T-ADJ.A | KC | TO-220 | 5 | 50 | 546 | 31 | 11930 | 3.17 |
| UC382T-ADJG3 | KC | TO-220 | 5 | 50 | 546 | 31 | 11930 | 3.17 |

# KC0005A

# PACKAGE OUTLINE

## TO-220 - 16.51 mm max height

TO-220




NOTES:

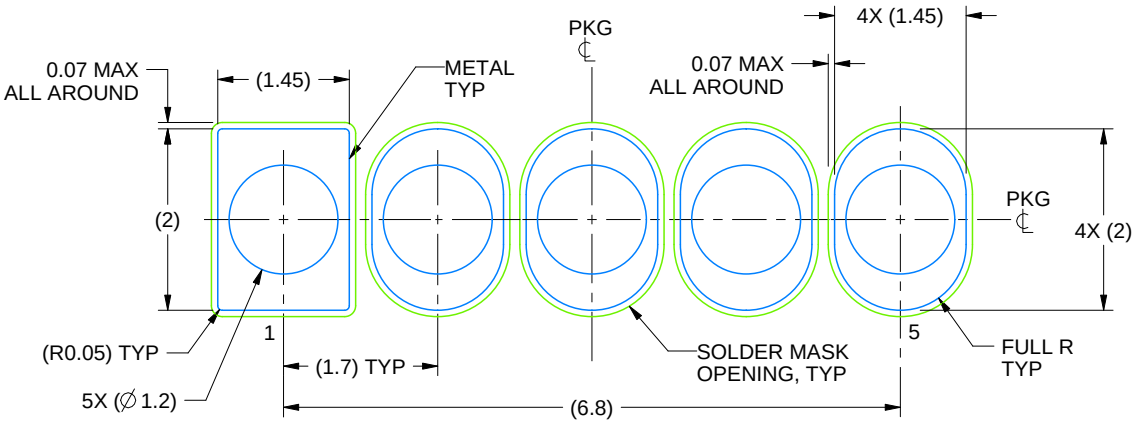
1. All controlling linear dimensions are in inches. Dimensions in brackets are in millimeters. Any dimension in brackets or parenthesis are for reference only. Dimensioning and tolerancing per ASME Y14.5M.
2. This drawing is subject to change without notice.
3. Shape may vary per different assembly sites.

# EXAMPLE BOARD LAYOUT

## KC0005A

## TO-220 - 16.51 mm max height

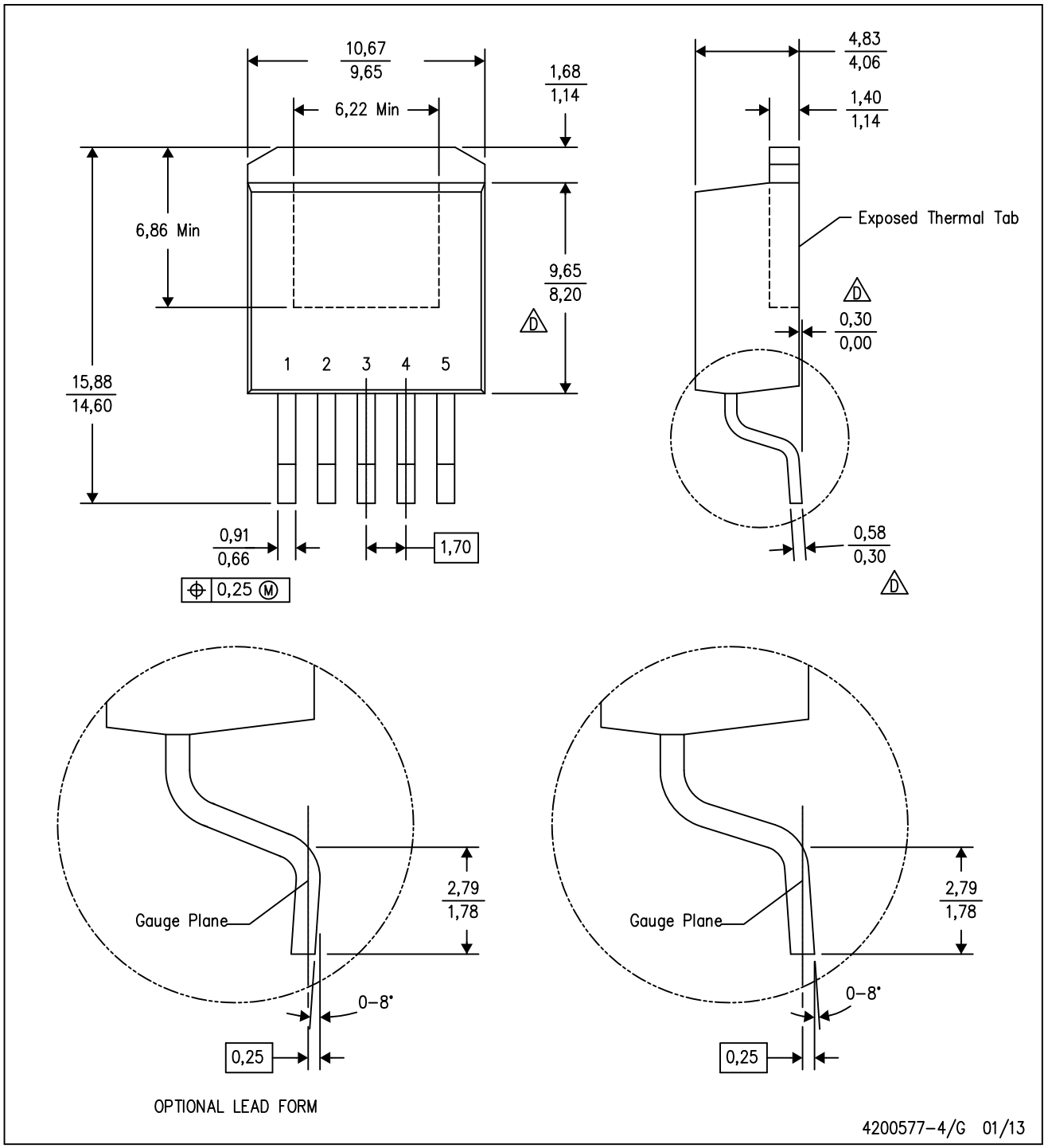
TO-220




LAND PATTERN
NON-SOLDER MASK DEFINED
SCALE:12X

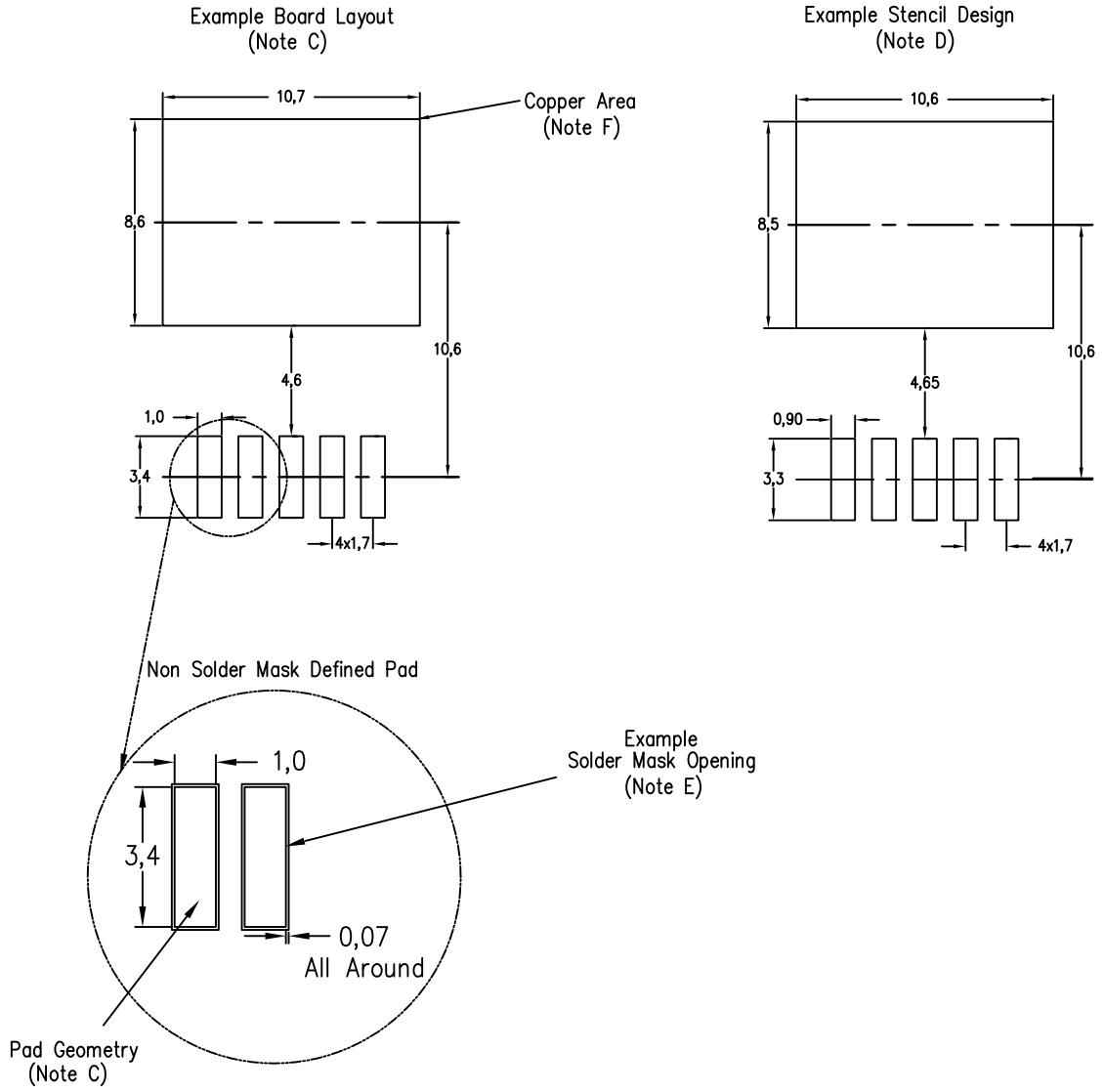
4215009/A 01/2017

KTT (R–PSFM–G5) PLASTIC FLANGE–MOUNT PACKAGE




NOTES:
A. All linear dimensions are in millimeters.
B. This drawing is subject to change without notice.
C. 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.

KTT (R–PSFM–G5) PLASTIC FLANGE–MOUNT PACKAGE




NOTES:
A. All linear dimensions are in millimeters.
B. This drawing is subject to change without notice.
C. Publication IPC–SM–782 is recommended for alternate designs.
D. Laser cutting apertures with trapezoidal walls and also rounding corners will offer better paste release. Customers should contact their board assembly site for stencil design recommendations. Refer to IPC–7525.
E. Customers should contact their board fabrication site for solder mask tolerances between and around signal pads.
F. This package is designed to be soldered to a thermal pad on the board. Refer to the Product Datasheet for specific thermal information, via requirements, and recommended thermal pad size. For thermal pad sizes larger than shown a solder mask defined pad is recommended in order to maintain the solderable pad geometry while increasing copper area.

# IMPORTANT NOTICE AND DISCLAIMER

TI PROVIDES TECHNICAL AND RELIABILITY DATA (INCLUDING DATASHEETS), DESIGN RESOURCES (INCLUDING REFERENCE DESIGNS), APPLICATION OR OTHER DESIGN ADVICE, WEB TOOLS, SAFETY INFORMATION, AND OTHER RESOURCES “AS IS” AND WITH ALL FAULTS, AND DISCLAIMS ALL WARRANTIES, EXPRESS AND IMPLIED, INCLUDING WITHOUT LIMITATION ANY IMPLIED WARRANTIES OF MERCHANTABILITY, FITNESS FOR A PARTICULAR PURPOSE OR NON-INFRINGEMENT OF THIRD PARTY INTELLECTUAL PROPERTY RIGHTS.

These resources are intended for skilled developers designing with TI products. You are solely responsible for (1) selecting the appropriate TI products for your application, (2) designing, validating and testing your application, and (3) ensuring your application meets applicable standards, and any other safety, security, regulatory or other requirements.

These resources are subject to change without notice. TI grants you permission to use these resources only for development of an application that uses the TI products described in the resource. Other reproduction and display of these resources is prohibited. No license is granted to any other TI intellectual property right or to any third party intellectual property right. TI disclaims responsibility for, and you fully indemnify TI and its representatives against any claims, damages, costs, losses, and liabilities arising out of your use of these resources.

TI’s products are provided subject to TI’s Terms of Sale, TI’s General Quality Guidelines, or other applicable terms available either on ti.com or provided in conjunction with such TI products. TI’s provision of these resources does not expand or otherwise alter TI’s applicable warranties or warranty disclaimers for TI products. Unless TI explicitly designates a product as custom or customer-specified, TI products are standard, catalog, general purpose devices.

TI objects to and rejects any additional or different terms you may propose.

Copyright © 2026, Texas Instruments Incorporated

Last updated 10/2025

ENTEGRECİ

Bu belge www.entegreci.com üzerinden sunulmaktadır.

# Elektronik komponent tedarikinde Entegreci

Entegreci, Eskişehir merkezli, Türkiye geneline satış yapan bir elektronik komponent mağazasıdır. Entegreler (IC), mikrodenetleyiciler, transistörler, diyotlar, pasif elemanlar, konnektörler, modüller ve geliştirme kartları tek adetten seri üretim adetlerine kadar satılır. Ürün sayfalarında güncel stok durumunu, fiyatı ve datasheet bağlantısını bulabilirsiniz.

### Parça koduyla arama

Üretici parça numarasını yazın; stok ve fiyatı hemen görün.

**www.entegreci.com**

### Ürün kategorileri

Entegreden kapasitöre tüm elektronik komponent kategorileri.

**Kategorilere göz atın**

### Üreticiler

Aradığınız üreticinin ürünlerini tek sayfada inceleyin.

**Üreticileri görün**

### Toplu alım ve teklif

Listede olmayan ya da yüksek adetli parçalar için teklif isteyin.

**Teklif isteyin**

**www.entegreci.com** | **destek@entegreci.com** | **0850 305 90 34**

Entegreci is an online electronic components store based in Türkiye. Search by manufacturer part number to see stock, prices and datasheets for integrated circuits, microcontrollers, transistors, passive components and connectors, or request a quote for parts that are not listed.

Bu sayfa Entegreci tarafından eklenmiştir. Belgenin önceki sayfaları asıl yayıncısına aittir ve içeriği değiştirilmemiştir; en güncel sürüm için belgenin yayıncısına başvurun.