

Ultralow I_Q , 50mA LDO Linear Regulators with Power Good Output in SC70 Package

Check for Samples: [TPS797xx](#)

FEATURES

- 50mA Low-Dropout Regulator
- Ultralow 1.2 μ A Quiescent Current at 10mA
- 5-Pin SC70 (DCK) Package
- Integrated Power Good Output
- Stable With Any Capacitor ($> 0.47\mu$ F)
- Dropout Voltage Typically 105mV at 10mA (TPS79733)
- Over-Current Limitation
- -40°C to $+85^{\circ}\text{C}$ Operating Junction Temperature Range

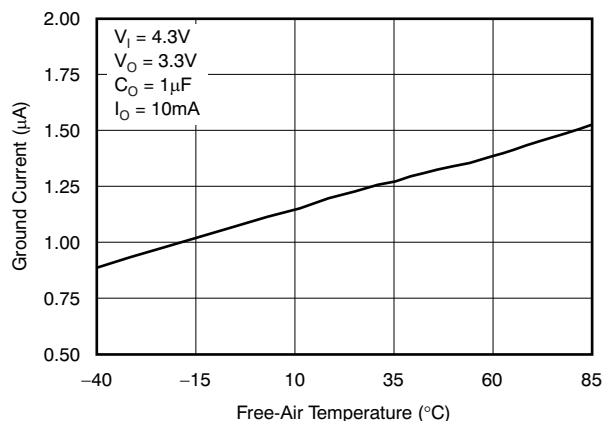
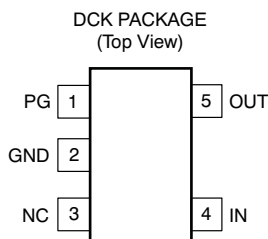
APPLICATIONS

- Battery-Powered Microcontrollers and Microprocessors

DESCRIPTION

The TPS797xx family of low-dropout (LDO) voltage regulators offers the benefits of low-dropout voltage and ultralow-power operation. The device is stable with any capacitor ($> 0.47\mu$ F). Therefore, implementations of this device require very little board space due to the miniaturized packaging and potentially small output capacitor. In addition, the family includes an integrated open drain active-high power good (PG) output. Intended for use in microcontroller-based, battery-powered applications, the TPS797xx family low dropout and ultralow-powered operation results in a significant increase in system battery operating life. The small packaging minimizes consumption of board space.

The device is enabled when the applied voltage exceeds the minimum input voltage. The usual PNP pass transistor has been replaced by a PMOS pass element. Because the PMOS pass element behaves as a low-value resistor, the dropout voltage is very low, typically 105mV at 10mA of load current, and is directly proportional to the load current. The quiescent current is ultralow (1.2 μ A typically) and is stable over the entire range of output load current (0mA to 50mA). When properly configured with a pull-up resistor, the PG output can be used to implement a power-on reset or low battery indicator.



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.



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.

ORDERING INFORMATION⁽¹⁾

| PRODUCT | V _{OUT} ⁽²⁾ |
|----------------|---|
| TPS797xx yy yz | XX is nominal output voltage (for example, 25 = 2.5V). YYY is package designator. Z is package quantity. |

- (1) For the most current package and ordering information see the Package Option Addendum at the end of this document, or see the TI web site at www.ti.com.
- (2) Output voltages from 1.25V to 4.9V in 50mV increments are available through the use of probe level programming; minimum order quantities may apply. Contact factory for details and availability.

ABSOLUTE MAXIMUM RATINGS⁽¹⁾

Over operating junction temperature range, unless otherwise noted.

| | |
|--|---|
| Input voltage range ⁽²⁾ | –0.3V to 6V |
| Maximum dc output voltage | 4.9V |
| Peak output current | Internally limited |
| ESD rating, HBM | 2kV |
| ESD rating, CDM | 500V |
| Continuous total power dissipation | See Dissipation Ratings Table |
| Operating virtual junction temperature range, T _J | –40°C to +85°C |
| Storage temperature range, T _{STG} | –65°C to +150°C |

- (1) 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.
- (2) All voltage values are with respect to network ground terminal.

PACKAGE DISSIPATION RATINGS

| BOARD | PACKAGE | R _{θJC} °C/W | R _{θJA} °C/W | DERATING FACTOR ABOVE T _A = +25°C | T _A ≤ +25°C POWER RATING | T _A = +70°C POWER RATING | T _A = +85°C POWER RATING |
|-----------------------|---------|--------------------------|--------------------------|---|--|--|--|
| Low K ⁽¹⁾ | DCK | 165.39 | 396.24 | 2.52mW/°C | 252mW | 139mW | 101mW |
| High K ⁽²⁾ | DCK | 165.39 | 314.74 | 3.18mW/°C | 318mW | 175mW | 127mW |

- (1) The JEDEC low K (1s) board design used to derive this data was a 3-inch × 3-inch, two layer board with 2 ounce copper traces on top of the board.
- (2) The JEDEC high K (2s2p) board design used to derive this data was a 3-inch × 3-inch, multilayer board with 1 ounce internal power and ground planes and 2 ounce copper traces on top and bottom of the board.

ELECTRICAL CHARACTERISTICS

Over operating temperature range $T_J = -40^{\circ}\text{C}$ to $+85^{\circ}\text{C}$, $V_{IN} = V_{OUT}(\text{typ}) + 0.5\text{V}$ or 2.0V , whichever is greater; $I_{OUT} = 0.5\text{mA}$, V_{SET} , $V_{EN} = V_{IN}$, and $C_{OUT} = 1.0\mu\text{F}$, unless otherwise noted. Typical values are at $T_A = +25^{\circ}\text{C}$.

| PARAMETER | | TEST CONDITIONS | TPS797xx | | | UNIT |
|-------------------------------------|---|---|----------|------|-------|----------------------------|
| | | | MIN | TYP | MAX | |
| V_{IN} | Input voltage ⁽¹⁾ | $I_{OUT} = 3\text{mA}$ | 1.8 | | 5.5 | V |
| | | $I_{OUT} = 10\text{mA}$ | 2 | | 5.5 | |
| I_{OUT} | Continuous output current ⁽²⁾ | | 0 | | 50 | mA |
| V_{OUT} | Output voltage accuracy ⁽³⁾ | $V_{OUT} + 1\text{V} \leq V_{IN} \leq 5.5\text{V}$ $1\text{mA} < I_{OUT} < 10\text{mA}$ | -4 | | 4 | % |
| $\Delta V_{OUT}\% / \Delta V_{IN}$ | Line regulation ⁽³⁾ | $V_{OUT} + 1\text{V} \leq V_{IN} \leq 5.5\text{V}$ | | 0.15 | | %/V |
| $\Delta V_{OUT}\% / \Delta I_{OUT}$ | Load regulation | $1\mu\text{A} < I_{OUT} < 10\text{mA}$ | | 5 | | mV |
| V_{DO} | Dropout voltage ⁽⁴⁾ , $I_{OUT} = 10\text{mA}$ $V_{IN} = V_{OUT(NOM)} - 0.1\text{V}$ | TPS79730 | | 110 | 200 | mV |
| | | TPS79733 | | 105 | 200 | |
| I_{SC} | Output current limit | $V_{OUT} = 0\text{V}$ | | 190 | 300 | mA |
| I_{GND} | Ground pin current ⁽³⁾ | $I_{OUT} = 10\text{mA}$ | | 1.2 | 2 | μA |
| PSRR | Power-supply rejection ratio (ripple rejection) | $f = 100\text{Hz}$, $C_{OUT} = 10\mu\text{F}$, $I_{OUT} = 10\text{mA}$ | | 50 | | dB |
| V_N | Output noise voltage (TPS79718) | $\text{BW} = 200\text{kHz}$ to 100kHz , $C_{OUT} = 10\mu\text{F}$, $I_{OUT} = 10\text{mA}$ | | 600 | | μV_{RMS} |
| $V_{PG(\text{MIN})}$ | Minimum input voltage for valid PG | $V_{(PG)} \geq 0.8\text{V}$, $I_{PG} = 100\mu\text{A}$ | | 1.2 | | V |
| V_{IT} | PG trip threshold voltage | V_{OUT} increasing | | 90 | | %/V _{OUT} |
| $V_{PG,LO}$ | PG output low voltage | $V_{IN} = 1.4\text{V}$, $I_{PG} = 30\mu\text{A}$, $I_{OUT} = 1\text{mA}$ | | 0.14 | 0.225 | V |
| $I_{PG,LKG}$ | PG leakage current | $V_{(PG)} = 5\text{V}$, $V_{IN} = V_{OUT} + 1.0\text{V}$, $I_{OUT} = 1\text{mA}$ | 0.1 | | | nA |
| T_J | Operating junction temperature, T_J | | -40 | | +85 | $^{\circ}\text{C}$ |

- (1) Minimum $V_{IN} = V_{OUT} + V_{DO}$ or the minimum value specified here, whichever is greater.
- (2) Continuous output current is limited by internal protection circuitry, but it is not recommended that the device operate above this maximum for extended periods of time.
- (3) Minimum V_{IN} is specified in note (1).
- (4) V_{DO} is not measured for the TPS79718 because minimum $V_{IN} > 1.7\text{V}$.

FUNCTIONAL BLOCK DIAGRAM

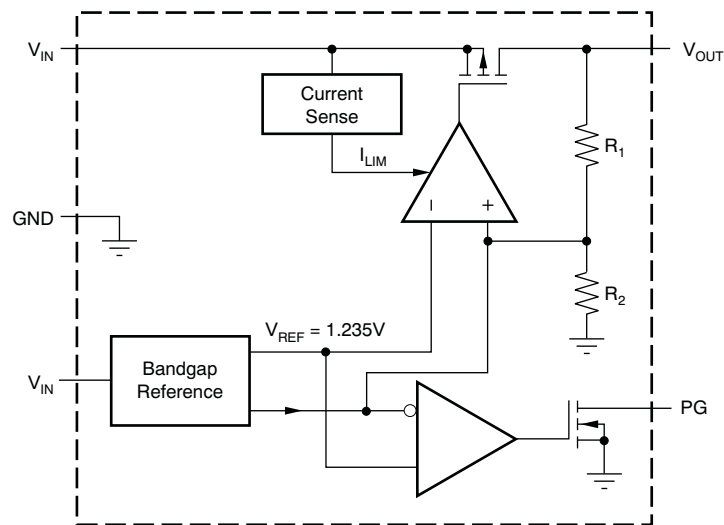
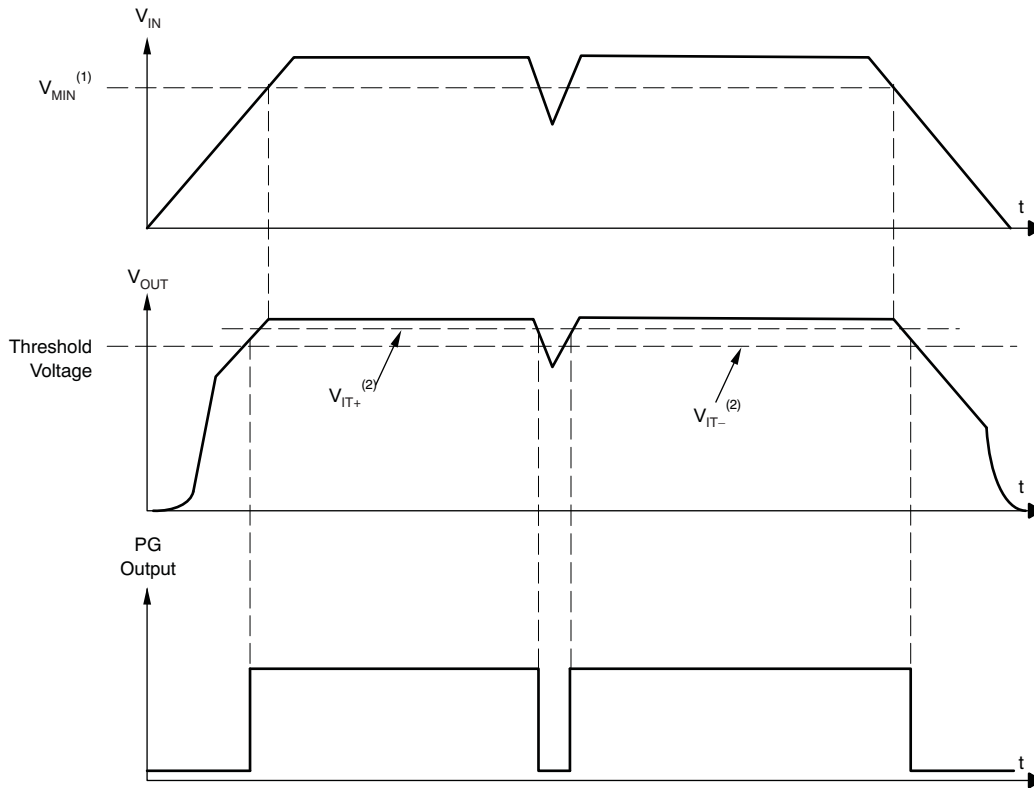


Table 1. TERMINAL FUNCTIONS

| TERMINAL | | DESCRIPTION |
|----------|-----|---|
| NAME | NO. | |
| GND | 2 | Ground |
| NC | 3 | No connection |
| OUT | 5 | The OUT terminal provides the regulated output voltage of the device. |
| PG | 1 | The PG terminal for the fixed voltage option devices is an open drain, active-high output that indicates the status of V_O (output of the LDO). When V_O exceeds approximately 90% of the regulated voltage, PG goes to a high-impedance state. It goes to a low-impedance state when V_O falls below approximately 90% (that is, overload condition) of the regulated voltage. The open drain output of the PG terminal requires a pull-up resistor. |
| IN | 4 | The IN terminal is the power supply input to the device. |

TPS797xx PG Timing Diagram



NOTES: (1) $V_{MIN} = V_{OUT} + V_{DO}$.
 (2) The PG trip voltage is typically 10% lower than the output voltage (90% V_O). V_{IT+} to V_{IT-} is the hysteresis voltage.

TYPICAL CHARACTERISTICS

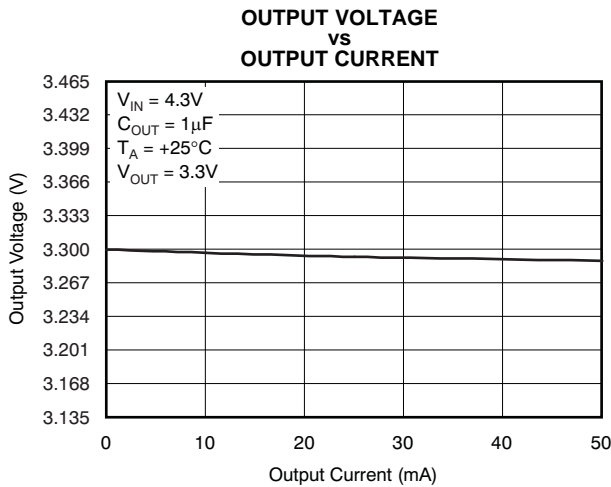


Figure 1.

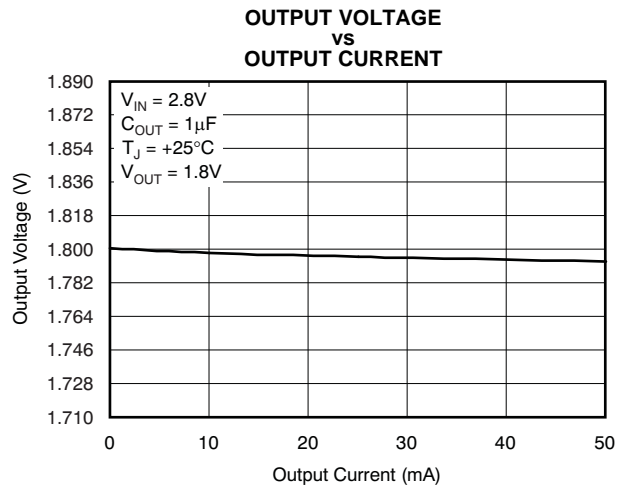


Figure 2.

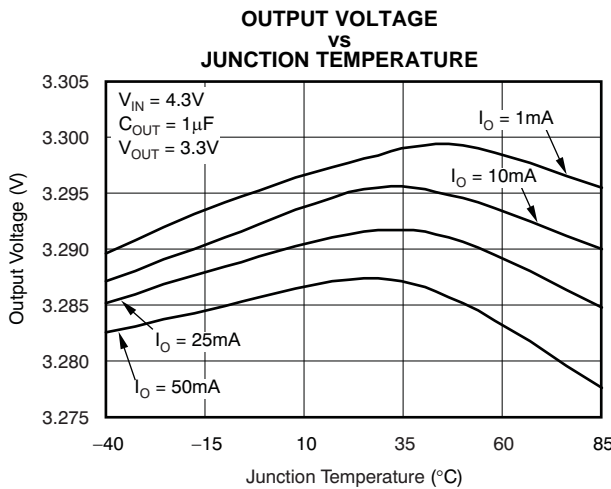


Figure 3.

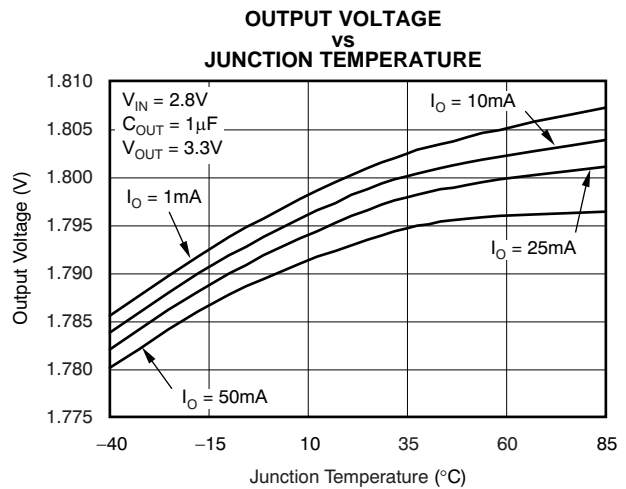


Figure 4.

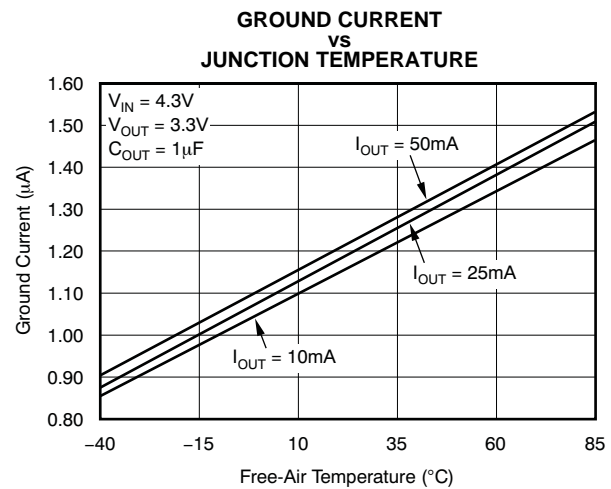


Figure 5.

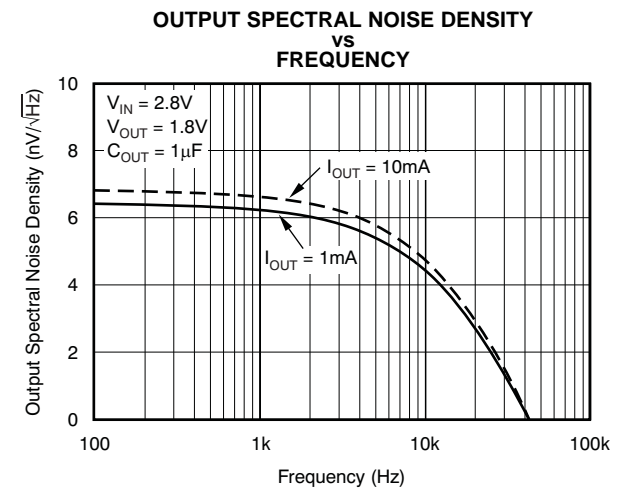


Figure 6.

TYPICAL CHARACTERISTICS (continued)

OUTPUT IMPEDANCE
VS
FREQUENCY

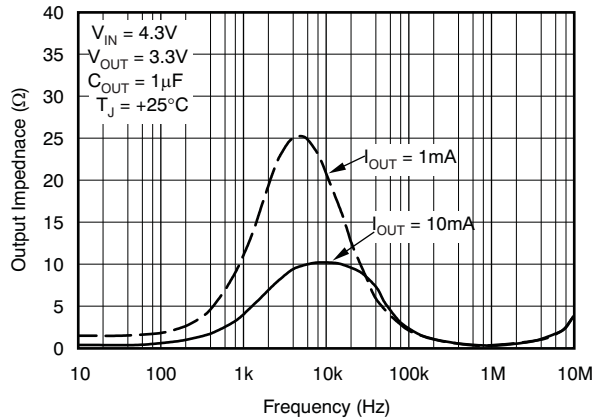


Figure 7.

DROPOUT VOLTAGE
VS
JUNCTION TEMPERATURE

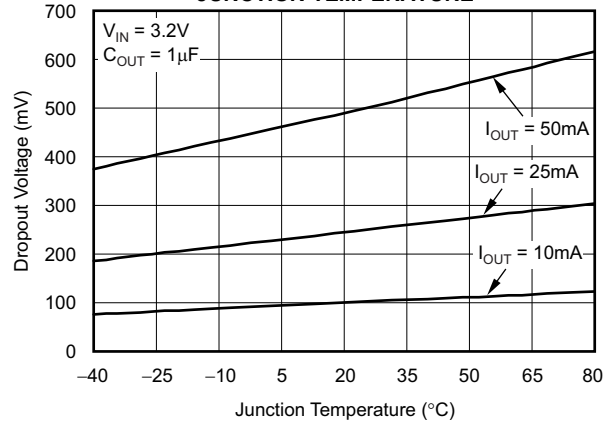


Figure 8.

POWER-UP/POWER-DOWN

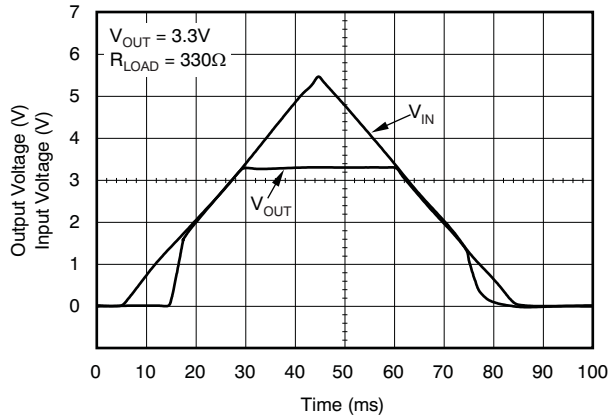


Figure 9.

TPS79718
LINE TRANSIENT RESPONSE

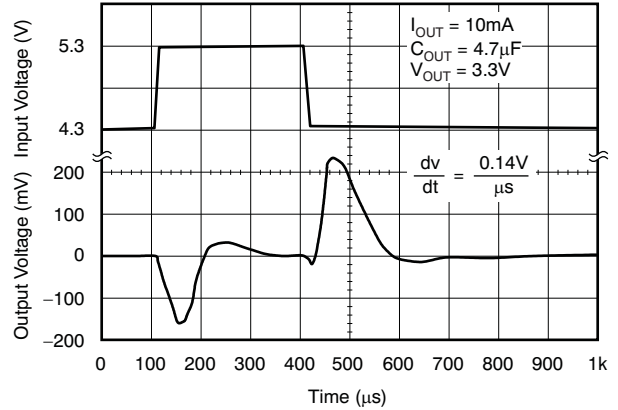


Figure 10.

TPS79718
LOAD TRANSIENT RESPONSE

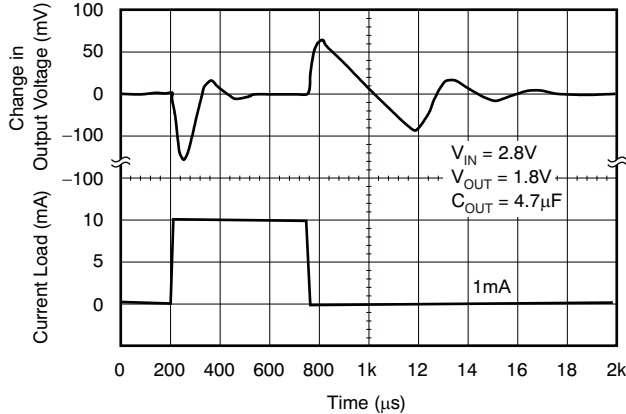


Figure 11.

TPS79733
LINE TRANSIENT RESPONSE

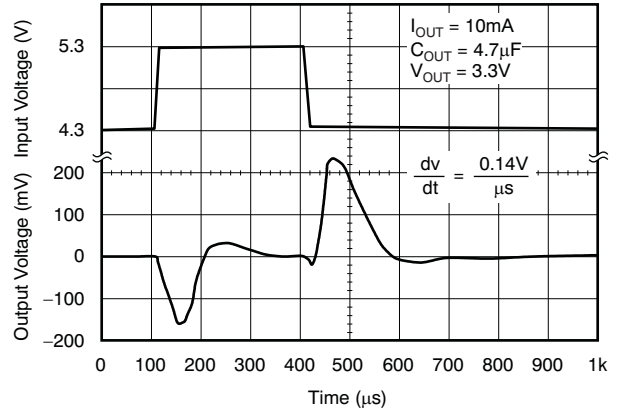


Figure 12.

TYPICAL CHARACTERISTICS (continued)

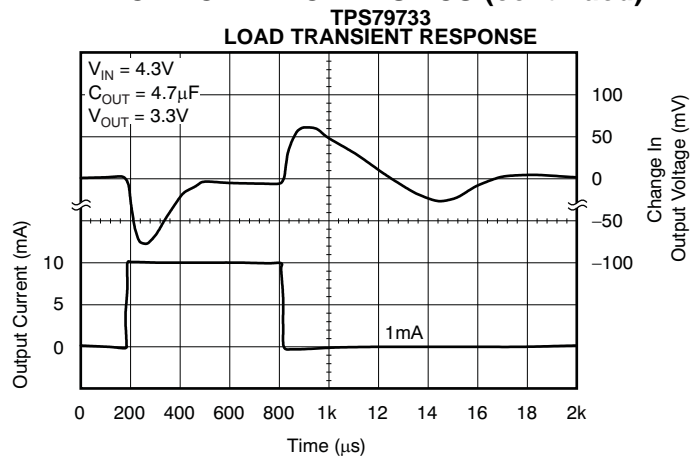


Figure 13.

APPLICATION INFORMATION

The TPS797xx family of low-dropout (LDO) regulators have been optimized for use in micropower applications. They feature extremely low dropout voltages and ultralow quiescent current (1.2µA typically).

A typical application circuit is shown in [Figure 14](#).

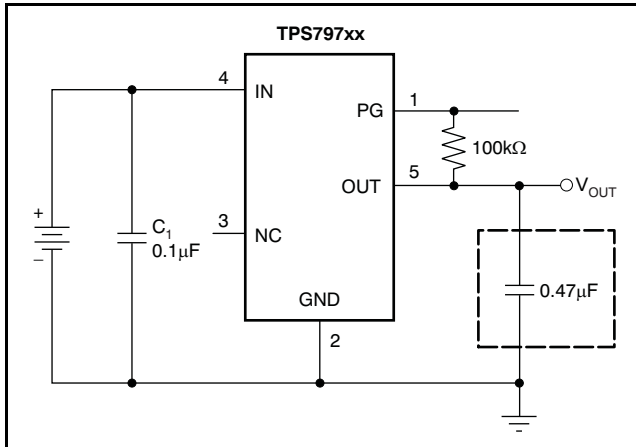


Figure 14. Typical Application Circuit

External Capacitor Requirements

Although not required, a 0.1µF or larger input bypass capacitor, connected between IN and GND and located close to the TPS797xx, is recommended, especially when a highly resistive power supply is powering the LDO in addition to other devices. Like all low-dropout regulators, the TPS797xx requires an output capacitor connected between OUT and GND to stabilize the internal control loop. The minimum recommended capacitance is 0.47µF. Any 0.47µF capacitor is suitable. Capacitor values larger than 0.47µF are acceptable.

Power Dissipation and Junction Temperature

Specified regulator operation is assured to a junction temperature of +85°C; restrict the maximum junction temperature to +85°C under normal operating conditions. This restriction limits the power dissipation the regulator can handle in any given application. To ensure the junction temperature is within acceptable limits, calculate the maximum allowable dissipation, $P_{D(MAX)}$, and the actual dissipation, P_D , which must be less than or equal to $P_{D(MAX)}$.

The maximum-power-dissipation limit is determined using the following equation:

$$P_{D(max)} = \frac{T_{Jmax} - T_A}{R_{\theta JA}} \quad (1)$$

Where:

T_{Jmax} is the maximum allowable junction temperature.

$R_{\theta JA}$ is the thermal resistance junction-to-ambient for the package (see [Package Dissipation Ratings](#)).

T_A is the ambient temperature.

The regulator dissipation is calculated using:

$$P_D = (V_I - V_O) \times I_O \quad (2)$$

Power dissipation resulting from quiescent current is negligible.

Regulator Protection

The TPS797xx PMOS-pass transistor has a built-in back diode that conducts reverse current when the input voltage drops below the output voltage (for example, during power down). Current is conducted from the output to the input and is not internally limited. If extended reverse voltage operation is anticipated, external limiting might be appropriate.

The TPS797xx features internal current limiting. During normal operation, the TPS797xx limits output current to approximately 190mA. When current limiting engages, the output voltage scales back linearly until the overcurrent condition ends. Take care not to exceed the power dissipation ratings of the package.

Microcontroller Application

One application for which this device is particularly suited is providing a regulated input voltage and power good (PG) supervisory signal to low-power devices such as mixed-signal microcontrollers. The quiescent or ground current of the TPS797xx family is typically 1.2µA even at full load; therefore, the reduction in battery life by including the TPS797xx in the system is negligible.

The primary benefits of using the TPS797xx to power low-power digital devices include:

- Regulated output voltage that protects the device from battery droop and noise on the line (for example, switch bounce)
- Smooth, monotonic power up
- PG signal for controlled device $\overline{\text{RESET}}$
- Potential to use an existing 5V power rail to power a 3.3V or lower device
- Potential to provide separate digital and analog power and ground supplies for a system with only

one power source

Figure 15 shows an application in which the TPS79718 is used to power TI's MSP430 mixed signal microcontroller.

Minimal board space is needed to accommodate the DCK (SC70) packaged TPS79718, the 0.1 μF output capacitor, the 0.47 μF input capacitor, and the pull-up resistor on the PG pin.

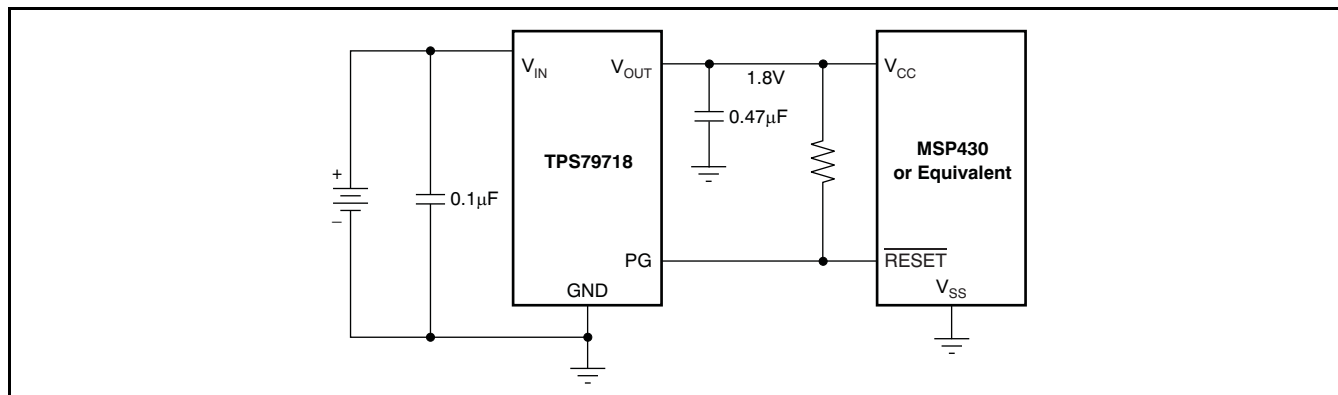


Figure 15. MSP430 Microcontroller Powered by the TPS79718 Regulator

REVISION HISTORY

NOTE: Page numbers for previous revisions may differ from page numbers in the current version.

| Changes from Revision H (April 2012) to Revision I | Page |
|--|------|
| • Changed Figure 8 Y-axis unit from V to mV (typo) | 7 |

| Changes from Revision G (November 2009) to Revision H | Page |
|---|------|
| • Deleted sentence regarding thermal protection | 9 |

| Changes from Revision F (May 2009) to Revision G | Page |
|---|------|
| • Changed document title | 1 |
| • Deleted references to SOT323 package throughout document | 1 |
| • Changed test conditions for <i>Electrical Characteristics</i> table | 3 |
| • Changed output voltage accuracy test conditions from 10 $\mu\text{A} < I_{\text{OUT}} < 10\text{mA}$ to 1mA < $I_{\text{OUT}} < 10\text{mA}$ | 3 |
| • Deleted line regulation maximum specification | 3 |
| • Changed PG trip threshold voltage test conditions from V_{OUT} decreasing to V_{OUT} increasing; deleted minimum and maximum specifications | 3 |
| • Revised PG low output low voltage test conditions | 3 |
| • Updated PG leakage current test conditions | 3 |

PACKAGING INFORMATION

| Orderable Device | Status (1) | Package Type | Package Drawing | Pins | Package Qty | Eco Plan (2) | Lead/Ball Finish | MSL Peak Temp (3) | Op Temp (°C) | Device Marking (4/5) | Samples |
|------------------|---------------|--------------|-----------------|------|-------------|-------------------------|------------------|----------------------|--------------|-------------------------|-------------------------|
| TPS79718DCKR | ACTIVE | SC70 | DCK | 5 | 3000 | Green (RoHS & no Sb/Br) | CU NIPDAU | Level-1-260C-UNLIM | -40 to 85 | ATD | Samples |
| TPS79718DCKRG4 | ACTIVE | SC70 | DCK | 5 | 3000 | Green (RoHS & no Sb/Br) | CU NIPDAU | Level-1-260C-UNLIM | -40 to 85 | ATD | Samples |
| TPS79718DCKT | ACTIVE | SC70 | DCK | 5 | 250 | Green (RoHS & no Sb/Br) | CU NIPDAU | Level-1-260C-UNLIM | -40 to 85 | ATD | Samples |
| TPS79718DCKTG4 | ACTIVE | SC70 | DCK | 5 | 250 | Green (RoHS & no Sb/Br) | CU NIPDAU | Level-1-260C-UNLIM | -40 to 85 | ATD | Samples |
| TPS797285DCKR | ACTIVE | SC70 | DCK | 5 | 3000 | Green (RoHS & no Sb/Br) | CU NIPDAU | Level-1-260C-UNLIM | -40 to 85 | OEB | Samples |
| TPS797285DCKT | ACTIVE | SC70 | DCK | 5 | 250 | Green (RoHS & no Sb/Br) | CU NIPDAU | Level-1-260C-UNLIM | -40 to 85 | OEB | Samples |
| TPS79730DCKR | ACTIVE | SC70 | DCK | 5 | 3000 | Green (RoHS & no Sb/Br) | CU NIPDAU | Level-1-260C-UNLIM | -40 to 85 | ATE | Samples |
| TPS79730DCKRG4 | ACTIVE | SC70 | DCK | 5 | 3000 | Green (RoHS & no Sb/Br) | CU NIPDAU | Level-1-260C-UNLIM | -40 to 85 | ATE | Samples |
| TPS79730DCKT | ACTIVE | SC70 | DCK | 5 | 250 | Green (RoHS & no Sb/Br) | CU NIPDAU | Level-1-260C-UNLIM | -40 to 85 | ATE | Samples |
| TPS79730DCKTG4 | ACTIVE | SC70 | DCK | 5 | 250 | Green (RoHS & no Sb/Br) | CU NIPDAU | Level-1-260C-UNLIM | -40 to 85 | ATE | Samples |
| TPS79733DCKR | ACTIVE | SC70 | DCK | 5 | 3000 | Green (RoHS & no Sb/Br) | CU NIPDAU | Level-1-260C-UNLIM | -40 to 85 | ATF | Samples |
| TPS79733DCKRG4 | ACTIVE | SC70 | DCK | 5 | 3000 | Green (RoHS & no Sb/Br) | CU NIPDAU | Level-1-260C-UNLIM | -40 to 85 | ATF | Samples |
| TPS79733DCKT | ACTIVE | SC70 | DCK | 5 | 250 | Green (RoHS & no Sb/Br) | CU NIPDAU | Level-1-260C-UNLIM | -40 to 85 | ATF | Samples |
| TPS79733DCKTG4 | ACTIVE | SC70 | DCK | 5 | 250 | Green (RoHS & no Sb/Br) | CU NIPDAU | Level-1-260C-UNLIM | -40 to 85 | ATF | Samples |

(1) 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.

OBSELETE: TI has discontinued the production of the device.

⁽²⁾ Eco Plan - The planned eco-friendly classification: Pb-Free (RoHS), Pb-Free (RoHS Exempt), or Green (RoHS & no Sb/Br) - please check <http://www.ti.com/productcontent> for the latest availability information and additional product content details.

TBD: The Pb-Free/Green conversion plan has not been defined.

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.

Pb-Free (RoHS Exempt): This component has a RoHS exemption for either 1) lead-based flip-chip solder bumps used between the die and package, or 2) lead-based die adhesive used between the die and leadframe. The component is otherwise considered Pb-Free (RoHS compatible) as defined above.

Green (RoHS & no Sb/Br): TI defines "Green" to mean Pb-Free (RoHS compatible), and free of Bromine (Br) and Antimony (Sb) based flame retardants (Br or Sb do not exceed 0.1% by weight in homogeneous material)

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

⁽⁴⁾ There may be additional marking, which relates to the logo, the lot trace code information, or the environmental category on the device.

⁽⁵⁾ Multiple Device Markings will be inside parentheses. Only one Device Marking contained in parentheses and separated by a "~" will appear on a device. If a line is indented then it is a continuation of the previous line and the two combined represent the entire Device 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.

OTHER QUALIFIED VERSIONS OF TPS79718, TPS79730, TPS79733 :

● Automotive: [TPS79718-Q1](#), [TPS79730-Q1](#), [TPS79733-Q1](#)

● Enhanced Product: [TPS79718-EP](#), [TPS79730-EP](#), [TPS79733-EP](#)

NOTE: Qualified Version Definitions:

- Automotive - Q100 devices qualified for high-reliability automotive applications targeting zero defects
- Enhanced Product - Supports Defense, Aerospace and Medical Applications

TAPE AND REEL INFORMATION

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 |
|---------------|--------------|-----------------|------|------|--------------------|--------------------|---------|---------|---------|---------|--------|---------------|
| TPS79718DCKR | SC70 | DCK | 5 | 3000 | 178.0 | 9.0 | 2.4 | 2.5 | 1.2 | 4.0 | 8.0 | Q3 |
| TPS79718DCKR | SC70 | DCK | 5 | 3000 | 180.0 | 8.4 | 2.25 | 2.4 | 1.22 | 4.0 | 8.0 | Q3 |
| TPS79718DCKT | SC70 | DCK | 5 | 250 | 180.0 | 8.4 | 2.25 | 2.4 | 1.22 | 4.0 | 8.0 | Q3 |
| TPS79718DCKT | SC70 | DCK | 5 | 250 | 178.0 | 9.0 | 2.4 | 2.5 | 1.2 | 4.0 | 8.0 | Q3 |
| TPS797285DCKR | SC70 | DCK | 5 | 3000 | 180.0 | 8.4 | 2.25 | 2.4 | 1.22 | 4.0 | 8.0 | Q3 |
| TPS797285DCKT | SC70 | DCK | 5 | 250 | 180.0 | 8.4 | 2.25 | 2.4 | 1.22 | 4.0 | 8.0 | Q3 |
| TPS79730DCKR | SC70 | DCK | 5 | 3000 | 178.0 | 9.0 | 2.4 | 2.5 | 1.2 | 4.0 | 8.0 | Q3 |
| TPS79730DCKR | SC70 | DCK | 5 | 3000 | 180.0 | 8.4 | 2.25 | 2.4 | 1.22 | 4.0 | 8.0 | Q3 |
| TPS79730DCKT | SC70 | DCK | 5 | 250 | 180.0 | 8.4 | 2.25 | 2.4 | 1.22 | 4.0 | 8.0 | Q3 |
| TPS79730DCKT | SC70 | DCK | 5 | 250 | 178.0 | 9.0 | 2.4 | 2.5 | 1.2 | 4.0 | 8.0 | Q3 |
| TPS79733DCKR | SC70 | DCK | 5 | 3000 | 178.0 | 9.0 | 2.4 | 2.5 | 1.2 | 4.0 | 8.0 | Q3 |
| TPS79733DCKR | SC70 | DCK | 5 | 3000 | 180.0 | 8.4 | 2.25 | 2.4 | 1.22 | 4.0 | 8.0 | Q3 |
| TPS79733DCKT | SC70 | DCK | 5 | 250 | 180.0 | 8.4 | 2.25 | 2.4 | 1.22 | 4.0 | 8.0 | Q3 |
| TPS79733DCKT | SC70 | DCK | 5 | 250 | 178.0 | 9.0 | 2.4 | 2.5 | 1.2 | 4.0 | 8.0 | Q3 |

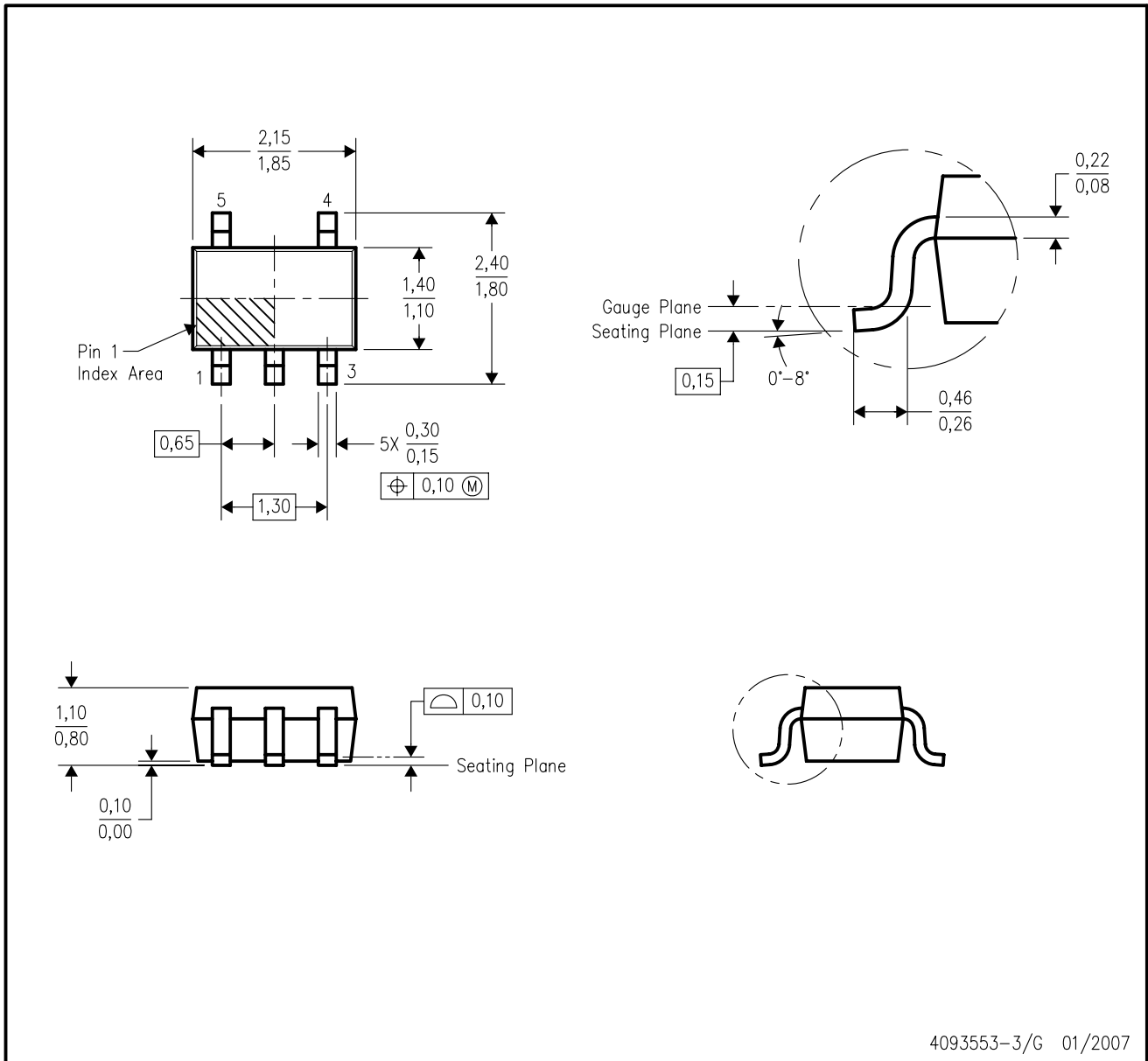
TAPE AND REEL BOX DIMENSIONS


*All dimensions are nominal

| Device | Package Type | Package Drawing | Pins | SPQ | Length (mm) | Width (mm) | Height (mm) |
|---------------|--------------|-----------------|------|------|-------------|------------|-------------|
| TPS79718DCKR | SC70 | DCK | 5 | 3000 | 180.0 | 180.0 | 18.0 |
| TPS79718DCKR | SC70 | DCK | 5 | 3000 | 202.0 | 201.0 | 28.0 |
| TPS79718DCKT | SC70 | DCK | 5 | 250 | 202.0 | 201.0 | 28.0 |
| TPS79718DCKT | SC70 | DCK | 5 | 250 | 180.0 | 180.0 | 18.0 |
| TPS797285DCKR | SC70 | DCK | 5 | 3000 | 202.0 | 201.0 | 28.0 |
| TPS797285DCKT | SC70 | DCK | 5 | 250 | 202.0 | 201.0 | 28.0 |
| TPS79730DCKR | SC70 | DCK | 5 | 3000 | 180.0 | 180.0 | 18.0 |
| TPS79730DCKR | SC70 | DCK | 5 | 3000 | 202.0 | 201.0 | 28.0 |
| TPS79730DCKT | SC70 | DCK | 5 | 250 | 202.0 | 201.0 | 28.0 |
| TPS79730DCKT | SC70 | DCK | 5 | 250 | 180.0 | 180.0 | 18.0 |
| TPS79733DCKR | SC70 | DCK | 5 | 3000 | 180.0 | 180.0 | 18.0 |
| TPS79733DCKR | SC70 | DCK | 5 | 3000 | 202.0 | 201.0 | 28.0 |
| TPS79733DCKT | SC70 | DCK | 5 | 250 | 202.0 | 201.0 | 28.0 |
| TPS79733DCKT | SC70 | DCK | 5 | 250 | 180.0 | 180.0 | 18.0 |

DCK (R-PDSO-G5)

PLASTIC SMALL-OUTLINE PACKAGE



- NOTES:
- All linear dimensions are in millimeters.
 - This drawing is subject to change without notice.
 - Body dimensions do not include mold flash or protrusion. Mold flash and protrusion shall not exceed 0.15 per side.
 - Falls within JEDEC MO-203 variation AA.

DCK (R-PDSO-G5)

PLASTIC SMALL OUTLINE



- NOTES:
- A. All linear dimensions are in millimeters.
 - B. This drawing is subject to change without notice.
 - C. Customers should place a note on the circuit board fabrication drawing not to alter the center solder mask defined pad.
 - D. Publication IPC-7351 is recommended for alternate designs.
 - E. 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. Example stencil design based on a 50% volumetric metal load solder paste. Refer to IPC-7525 for other stencil recommendations.

IMPORTANT NOTICE

Texas Instruments Incorporated and its subsidiaries (TI) reserve the right to make corrections, enhancements, improvements and other changes to its semiconductor products and services per JESD46, latest issue, and to discontinue any product or service per JESD48, latest issue. Buyers should obtain the latest relevant information before placing orders and should verify that such information is current and complete. All semiconductor products (also referred to herein as "components") are sold subject to TI's terms and conditions of sale supplied at the time of order acknowledgment.

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

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

TI does not warrant or represent that any license, either express or implied, is granted under any patent right, copyright, mask work right, or other intellectual property right relating to any combination, machine, or process in which TI components or services are used. Information published by TI regarding third-party products or services does not constitute a license 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 significant portions of TI 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. TI is not responsible or liable for such altered documentation. Information of third parties may be subject to additional restrictions.

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

Buyer acknowledges and agrees that it is solely responsible for compliance with all legal, regulatory and safety-related requirements concerning its products, and any use of TI components in its applications, notwithstanding any applications-related information or support that may be provided by TI. Buyer represents and agrees that it has all the necessary expertise to create and implement safeguards which anticipate dangerous consequences of failures, monitor failures and their consequences, lessen the likelihood of failures that might cause harm and take appropriate remedial actions. Buyer will fully indemnify TI and its representatives against any damages arising out of the use of any TI components in safety-critical applications.

In some cases, TI components may be promoted specifically to facilitate safety-related applications. With such components, TI's goal is to help enable customers to design and create their own end-product solutions that meet applicable functional safety standards and requirements. Nonetheless, such components are subject to these terms.

No TI components are authorized for use in FDA Class III (or similar life-critical medical equipment) unless authorized officers of the parties have executed a special agreement specifically governing such use.

Only those TI components which TI has specifically designated as military grade or "enhanced plastic" are designed and intended for use in military/aerospace applications or environments. Buyer acknowledges and agrees that any military or aerospace use of TI components which have **not** been so designated is solely at the Buyer's risk, and that Buyer is solely responsible for compliance with all legal and regulatory requirements in connection with such use.

TI has specifically designated certain components as meeting ISO/TS16949 requirements, mainly for automotive use. In any case of use of non-designated products, TI will not be responsible for any failure to meet ISO/TS16949.

Products

| | |
|------------------------------|--|
| Audio | www.ti.com/audio |
| Amplifiers | amplifier.ti.com |
| Data Converters | dataconverter.ti.com |
| DLP® Products | www.dlp.com |
| DSP | dsp.ti.com |
| Clocks and Timers | www.ti.com/clocks |
| Interface | interface.ti.com |
| Logic | logic.ti.com |
| Power Mgmt | power.ti.com |
| Microcontrollers | microcontroller.ti.com |
| RFID | www.ti-rfid.com |
| OMAP Applications Processors | www.ti.com/omap |
| Wireless Connectivity | www.ti.com/wirelessconnectivity |

Applications

| | |
|-------------------------------|--|
| Automotive and Transportation | www.ti.com/automotive |
| Communications and Telecom | www.ti.com/communications |
| Computers and Peripherals | www.ti.com/computers |
| Consumer Electronics | www.ti.com/consumer-apps |
| Energy and Lighting | www.ti.com/energy |
| Industrial | www.ti.com/industrial |
| Medical | www.ti.com/medical |
| Security | www.ti.com/security |
| Space, Avionics and Defense | www.ti.com/space-avionics-defense |
| Video and Imaging | www.ti.com/video |

TI E2E Community

e2e.ti.com