1.0 ELECTRICAL CHARACTERISTICS

Absolute Maximum Ratings†

Input Voltage 6.5V
Output Voltage........................... (-0.3V) to (V_{IN} + 0.3V)
Power Dissipation................Internally Limited **(Note 7)**
Maximum Voltage on Any Pin ....V_{IN} +0.3V to -0.3V
Operating Temperature Range...... -40°C < T_J < 125°C
Storage Temperature..........................-65°C to +150°C

† Notice: Stresses above 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 above those indicated in the operation sections of the specifications is not implied. Exposure to Absolute Maximum Rating conditions for extended periods may affect device reliability.

TC1014/TC1015/TC1185 ELECTRICAL SPECIFICATIONS

Electrical Specifications: $V_{IN} = V_R + 1V$, I_L = 100 µA, C_L = 1.0 µF, $\overline{SHDN} > V_{IH}$, T_A = +25°C, unless otherwise noted.
Boldface type specifications apply for junction temperatures of -40°C to +125°C.

Parameter	Symbol	Min	Typ	Max	Units	Device	Test Conditions
Input Operating Voltage	V_{IN}	**2.7**	—	**6.0**	V	—	**Note 1**
Maximum Output Current	I_{OUTMAX}	**50** **100** **150**	— — —	— — —	mA	TC1014 TC1015 TC1185	
Output Voltage	V_{OUT}	**V_R – 2.5%**	V_R ±0.5%	**V_R + 2.5%**	V	—	**Note 2**
V_{OUT} Temperature Coefficient	TCV_{OUT}	— —	20 **40**	— —	ppm/°C	—	**Note 3**
Line Regulation	$\Delta V_{OUT}/\Delta V_{IN}$	—	0.05	**0c.35**	%	—	$(V_R + 1V) \le V_{IN} \le 6V$
Load Regulation	$\Delta V_{OUT}/V_{OUT}$	— —	0.5 0.5	**2** **3**	%	TC1014; TC1015 TC1185	I_L = 0.1 mA to I_{OUTMAX} I_L = 0.1 mA to I_{OUTMAX} **(Note 4)**
Dropout Voltage	$V_{IN}-V_{OUT}$	— — — — —	2 65 85 180 270	— — **120** **250** **400**	mV	— — — TC1015; TC1185 TC1185	I_L = 100 µA I_L = 20 mA I_L = 50 mA I_L = 100 mA I_L = 150 mA **(Note 5)**
Supply Current **(Note 8)**	I_{IN}	—	50	**80**	µA	—	$\overline{SHDN} = V_{IH}$, $I_L = 0$
Shutdown Supply Current	I_{INSD}	—	0.05	0.5	µA	—	$\overline{SHDN}$ = 0V
Power Supply Rejection Ratio	PSRR	—	64	—	dB	—	$F_{RE} \le 1$ kHz
Output Short Circuit Current	I_{OUTSC}	—	300	450	mA	—	V_{OUT} = 0V
Thermal Regulation	$\Delta V_{OUT}/\Delta P_D$	—	0.04	—	V/W	—	**Notes 6, 7**
Thermal Shutdown Die Temperature	T_{SD}	—	160	—	°C	—	
Thermal Shutdown Hysteresis	ΔT_{SD}	—	10	—	°C	—	

Note 1: The minimum V_{IN} has to meet two conditions: $V_{IN} \ge 2.7V$ and $V_{IN} \ge V_R + V_{DROPOUT}$.

2: V_R is the regulator output voltage setting. For example: V_R = 1.8V, 2.5V, 2.6V, 2.7V, 2.8V, 2.85V, 3.0V, 3.3V, 3.6V, 4.0V, 5.0V.

3: $$TC\ V_{OUT} = \frac{(V_{OUTMAX} - V_{OUTMIN}) \times 10^6}{V_{OUT} \times \Delta T}$$

4: Regulation is measured at a constant junction temperature using low duty cycle pulse testing. Load regulation is tested over a load range from 1.0 mA to the maximum specified output current. Changes in output voltage due to heating effects are covered by the thermal regulation specification.

5: Dropout voltage is defined as the input to output differential at which the output voltage drops 2% below its nominal value at a 1V differential.

6: Thermal Regulation is defined as the change in output voltage at a time T after a change in power dissipation is applied, excluding load or line regulation effects. Specifications are for a current pulse equal to I_{LMAX} at V_{IN} = 6V for T = 10 ms.

7: The maximum allowable power dissipation is a function of ambient temperature, the maximum allowable junction temperature and the thermal resistance from junction-to-air (i.e., T_A, T_J, θ_{JA}). Exceeding the maximum allowable power dissipation causes the device to initiate thermal shutdown. Please see **Section 5.0 “Thermal Considerations”** for more details.

8: Apply for Junction Temperatures of -40°C to +85°C.

TC1014/TC1015/TC1185 ELECTRICAL SPECIFICATIONS (CONTINUED)

Electrical Specifications: $V_{IN} = V_R + 1V$, $I_L = 100\ \mu A$, $C_L = 1.0\ \mu F$, $\overline{SHDN} > V_{IH}$, $T_A = +25°C$, unless otherwise noted. Boldface type specifications apply for junction temperatures of -40°C to +125°C.

Parameter	Symbol	Min	Typ	Max	Units	Device	Test Conditions
Output Noise	eN	—	600	—	$nV/\sqrt{Hz}$	—	$I_L = I_{OUTMAX}$, F = 10 kHz 470 pF from Bypass to GND
$\overline{SHDN}$ Input High Threshold	V_{IH}	45	—	—	$\%V_{IN}$	—	V_{IN} = 2.5V to 6.5V
$\overline{SHDN}$ Input Low Threshold	V_{IL}	—	—	15	$\%V_{IN}$	—	V_{IN} = 2.5V to 6.5V

Note 1: The minimum V_{IN} has to meet two conditions: $V_{IN} \geq 2.7V$ and $V_{IN} \geq V_R + V_{DROPOUT}$.

2: V_R is the regulator output voltage setting. For example: V_R = 1.8V, 2.5V, 2.6V, 2.7V, 2.8V, 2.85V, 3.0V, 3.3V, 3.6V, 4.0V, 5.0V.

3: $$TC\ V_{OUT} = \frac{(V_{OUTMAX} - V_{OUTMIN}) \times 10^6}{V_{OUT} \times \Delta T}$$

4: Regulation is measured at a constant junction temperature using low duty cycle pulse testing. Load regulation is tested over a load range from 1.0 mA to the maximum specified output current. Changes in output voltage due to heating effects are covered by the thermal regulation specification.

5: Dropout voltage is defined as the input to output differential at which the output voltage drops 2% below its nominal value at a 1V differential.

6: Thermal Regulation is defined as the change in output voltage at a time T after a change in power dissipation is applied, excluding load or line regulation effects. Specifications are for a current pulse equal to I_{LMAX} at V_{IN} = 6V for T = 10 ms.

7: The maximum allowable power dissipation is a function of ambient temperature, the maximum allowable junction temperature and the thermal resistance from junction-to-air (i.e., T_A, T_J, θ_{JA}). Exceeding the maximum allowable power dissipation causes the device to initiate thermal shutdown. Please see **Section 5.0 "Thermal Considerations"** for more details.

8: Apply for Junction Temperatures of -40°C to +85°C.

TEMPERATURE CHARACTERISTICS

Electrical Specifications: $V_{IN} = V_R + 1V$, $I_L = 100\ \mu A$, $C_L = 1.0\ \mu F$, $\overline{SHDN} > V_{IH}$, $T_A = +25°C$, unless otherwise noted. Boldface type specifications apply for junction temperatures of -40°C to +125°C.

Parameters	Sym	Min	Typ	Max	Units	Conditions
Temperature Ranges:						
Extended Temperature Range	T_A	-40	—	+125	°C	
Operating Temperature Range	T_A	-40	—	+125	°C	
Storage Temperature Range	T_A	-65	—	+150	°C	
Thermal Package Resistances:						
Thermal Resistance, 5L-SOT-23	θ_{JA}	—	256	—	°C/W	

2.0 TYPICAL PERFORMANCE CURVES

Note: The graphs and tables provided following this note are a statistical summary based on a limited number of samples and are provided for informational purposes only. The performance characteristics listed herein are not tested or guaranteed. In some graphs or tables, the data presented may be outside the specified operating range (e.g., outside specified power supply range) and therefore outside the warranted range.

Note: Unless otherwise specified, all parts are measured at temperature = +25°C.

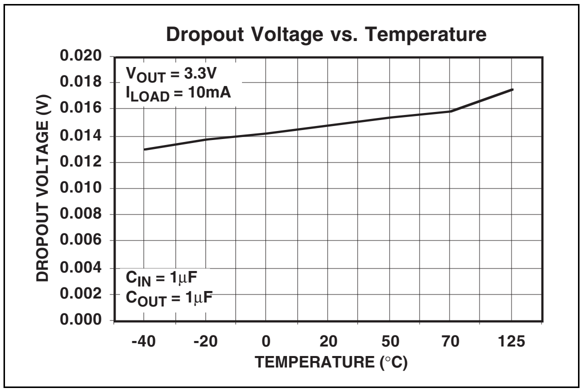


FIGURE 2-1: Dropout Voltage vs. Temperature.

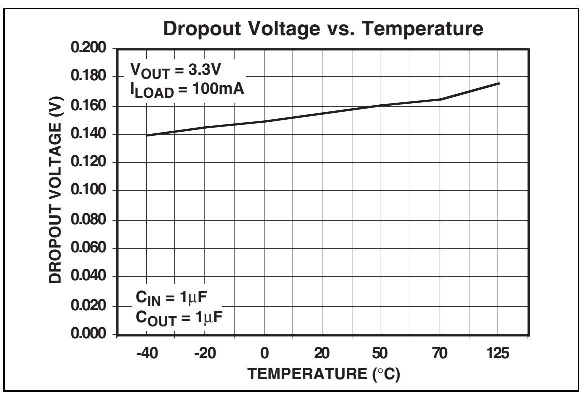


FIGURE 2-2: Dropout Voltage vs. Temperature.

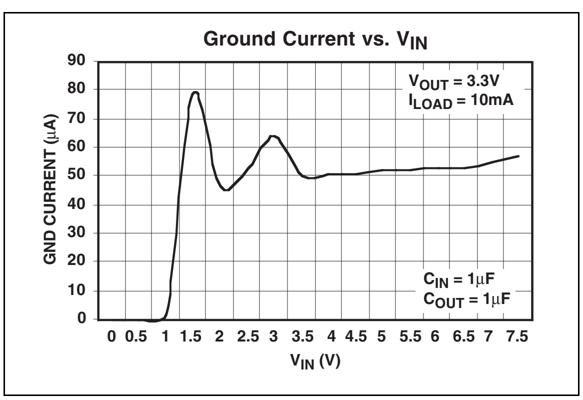


FIGURE 2-3: Ground Current vs. Input Voltage (V_{IN}).

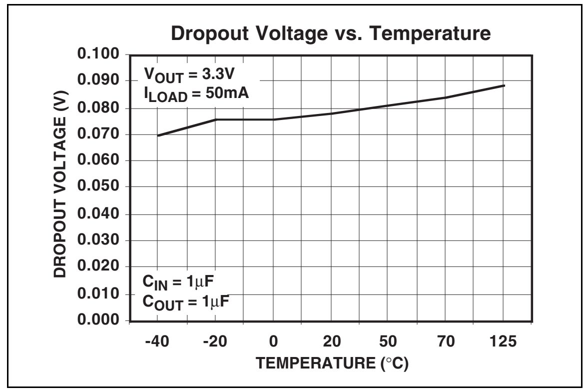


FIGURE 2-4: Dropout Voltage vs. Temperature.

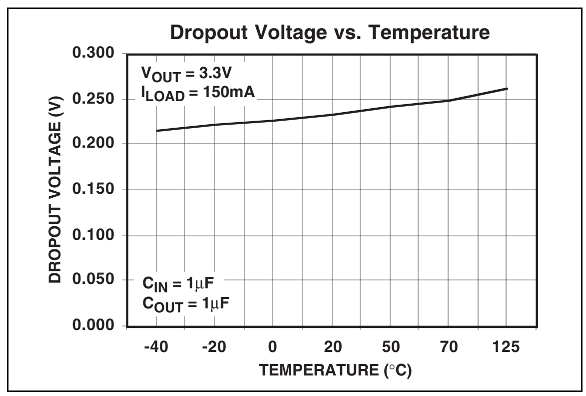


FIGURE 2-5: Dropout Voltage vs. Temperature.

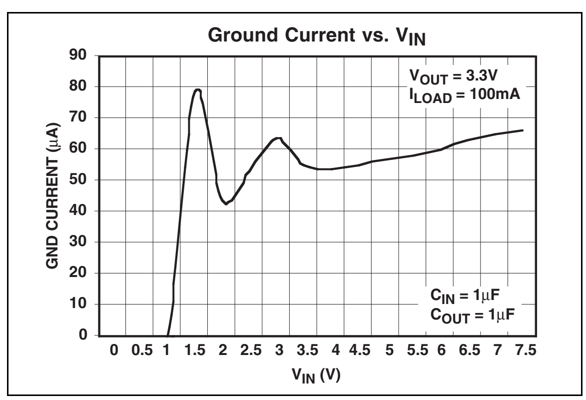


FIGURE 2-6: Ground Current vs. Input Voltage (V_{IN}).

TYPICAL PERFORMANCE CURVES (CONTINUED)

Note: Unless otherwise specified, all parts are measured at temperature = +25°C.

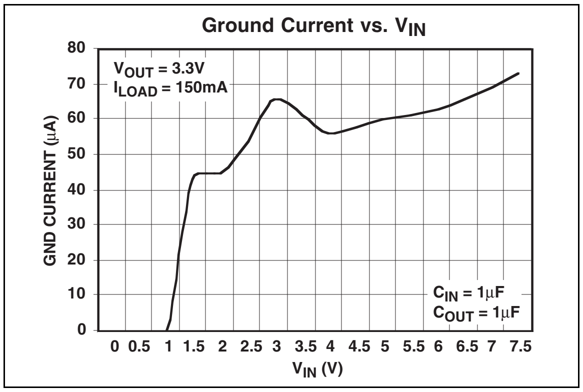


FIGURE 2-7: *Ground Current vs. Input Voltage (V_{IN}).*

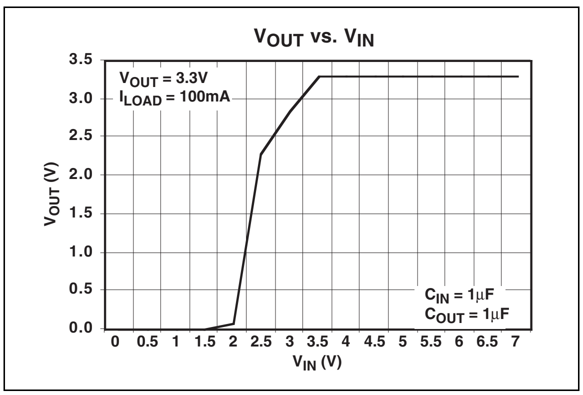


FIGURE 2-8: *Output Voltage (V_{OUT}) vs. Input Voltage (V_{IN}).*

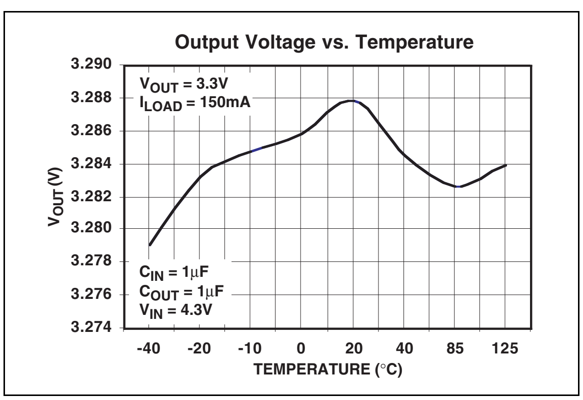


FIGURE 2-9: *Output Voltage (V_{OUT}) vs. Temperature.*

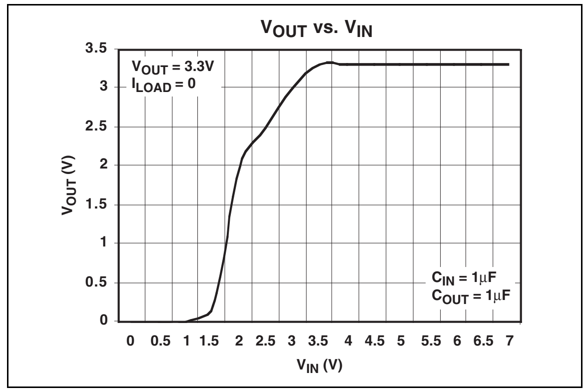


FIGURE 2-10: *Output Voltage (V_{OUT}) vs. Input Voltage (V_{IN}).*

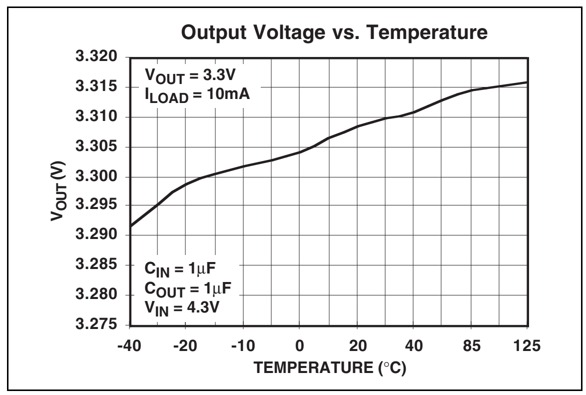


FIGURE 2-11: *Output Voltage (V_{OUT}) vs. Temperature.*

TYPICAL PERFORMANCE CURVES (CONTINUED)

Note: Unless otherwise specified, all parts are measured at temperature = +25°C.

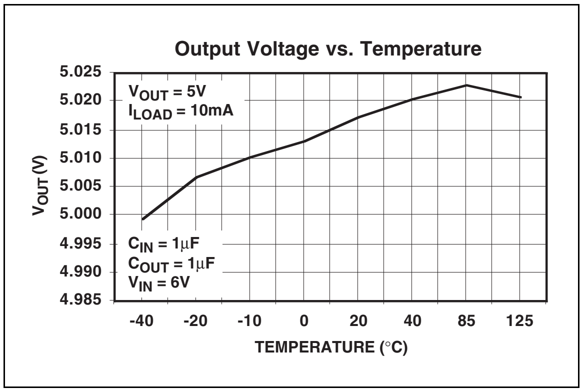


FIGURE 2-12: *Output Voltage (V_{OUT}) vs. Temperature.*

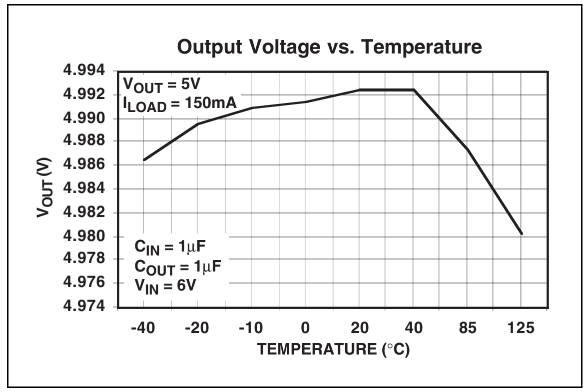


FIGURE 2-14: *Output Voltage (V_{OUT}) vs. Temperature.*

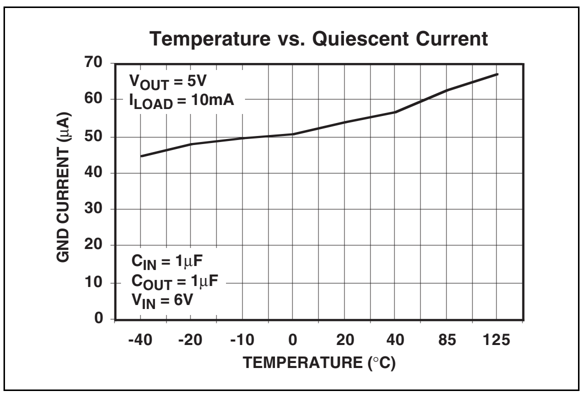


FIGURE 2-13: *I_{GND} vs. Temperature.*

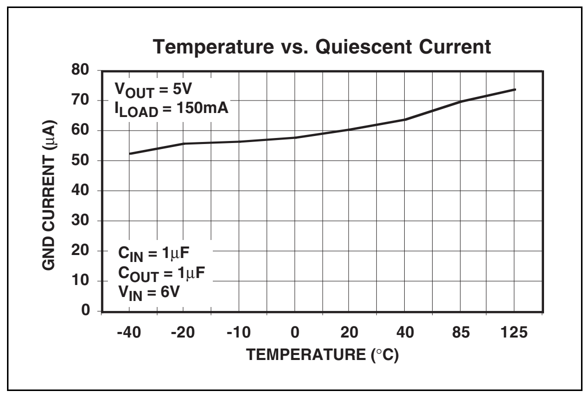


FIGURE 2-15: *I_{GND} vs. Temperature.*

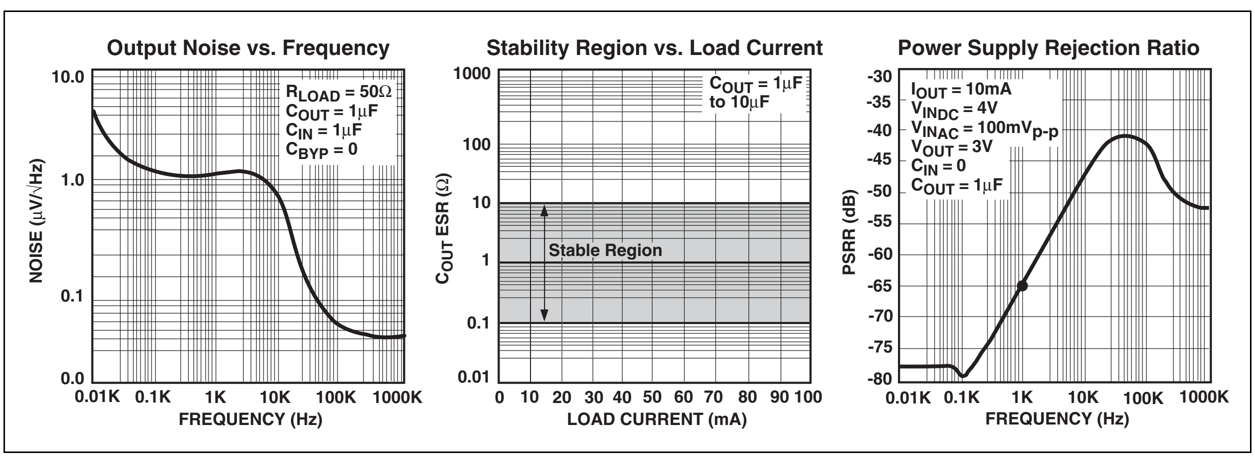


FIGURE 2-16: *AC Characteristics.*

TYPICAL PERFORMANCE CURVES (CONTINUED)

Note: Unless otherwise specified, all parts are measured at temperature = +25°C.

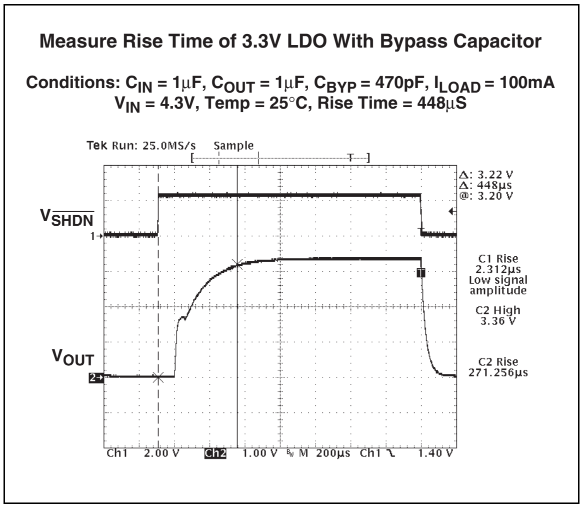


FIGURE 2-17: *Measure Rise Time of 3.3V with Bypass Capacitor.*

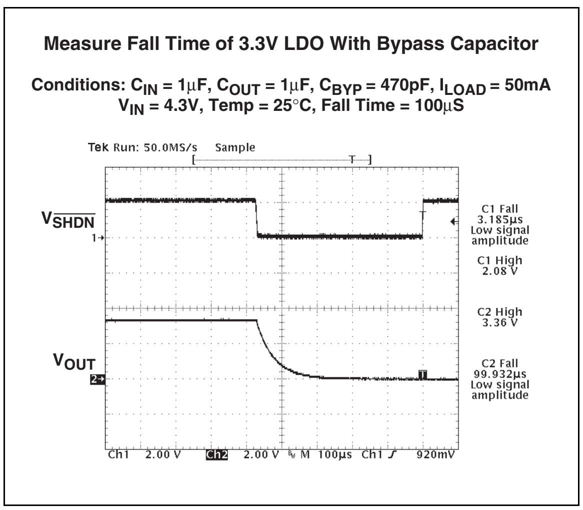


FIGURE 2-18: *Measure Fall Time of 3.3V with Bypass Capacitor.*

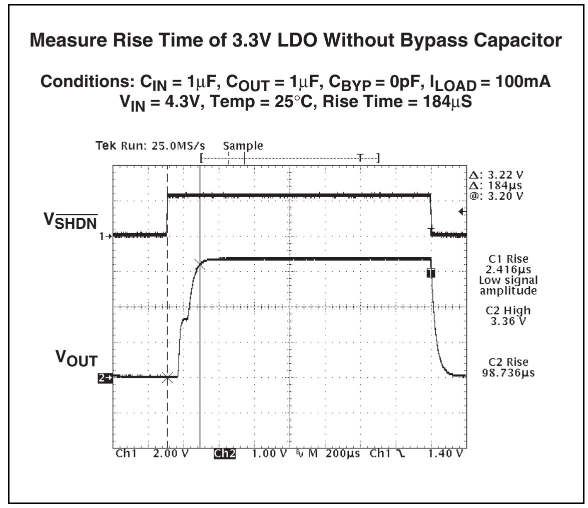


FIGURE 2-19: *Measure Rise Time of 3.3V without Bypass Capacitor.*

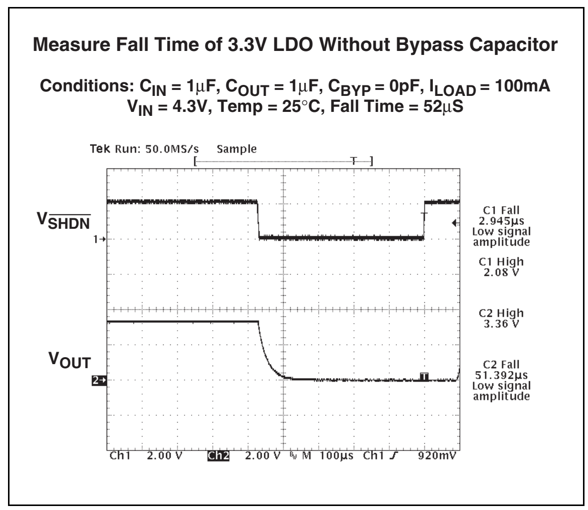


FIGURE 2-20: *Measure Fall Time of 3.3V without Bypass Capacitor.*

TYPICAL PERFORMANCE CURVES (CONTINUED)

Note: Unless otherwise specified, all parts are measured at temperature = +25°C.

Measure Rise Time of 5.0V LDO With Bypass Capacitor

Conditions: C_{IN} = 1µF, C_{OUT} = 1µF, C_{BYP} = 470pF, I_{LOAD} = 100mA
V_{IN} = 6V, Temp = 25°C, Rise Time = 390µS

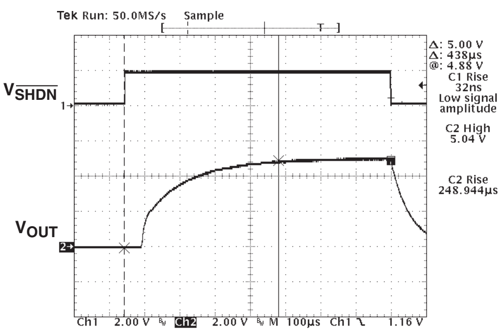


FIGURE 2-21: Measure Rise Time of 5.0V with Bypass Capacitor.

Measure Rise Time of 5.0V LDO Without Bypass Capacitor

Conditions: C_{IN} = 1µF, C_{OUT} = 1µF, C_{BYP} = 0pF, I_{LOAD} = 100mA
V_{IN} = 6V, Temp = 25°C, Rise Time = 192µS

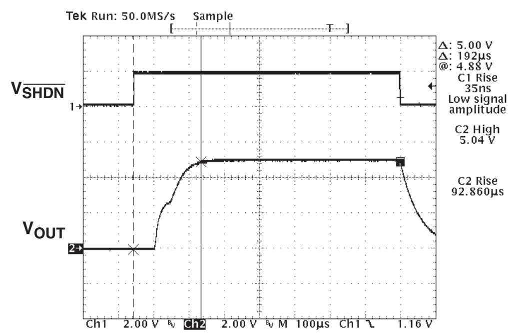


FIGURE 2-23: Measure Rise Time of 5.0V without Bypass Capacitor.

Measure Fall Time of 5.0V LDO With Bypass Capacitor

Conditions: C_{IN} = 1µF, C_{OUT} = 1µF, C_{BYP} = 470pF, I_{LOAD} = 50mA
V_{IN} = 6V, Temp = 25°C, Fall Time = 167µS

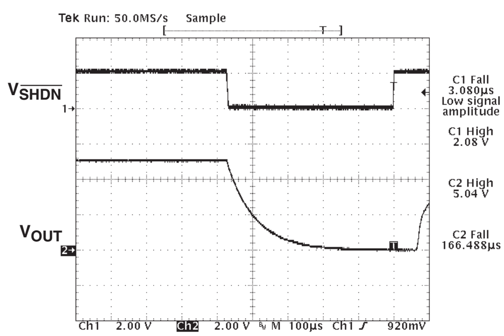


FIGURE 2-22: Measure Fall Time of 5.0V with Bypass Capacitor.

Measure Fall Time of 5.0V LDO Without Bypass Capacitor

Conditions: C_{IN} = 1µF, C_{OUT} = 1µF, C_{BYP} = 0pF, I_{LOAD} = 100mA
V_{IN} = 6V, Temp = 25°C, Fall Time = 88µS

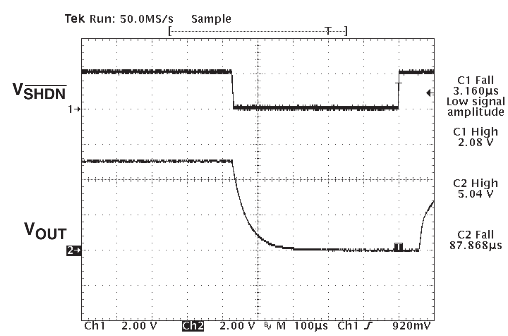


FIGURE 2-24: Measure Fall Time of 5.0V without Bypass Capacitor.

TYPICAL PERFORMANCE CURVES (CONTINUED)

Note: Unless otherwise specified, all parts are measured at temperature = +25°C.

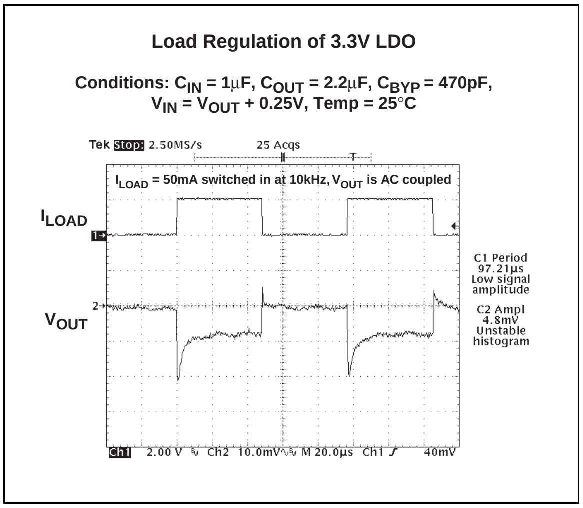


FIGURE 2-25: Load Regulation of 3.3V LDO.

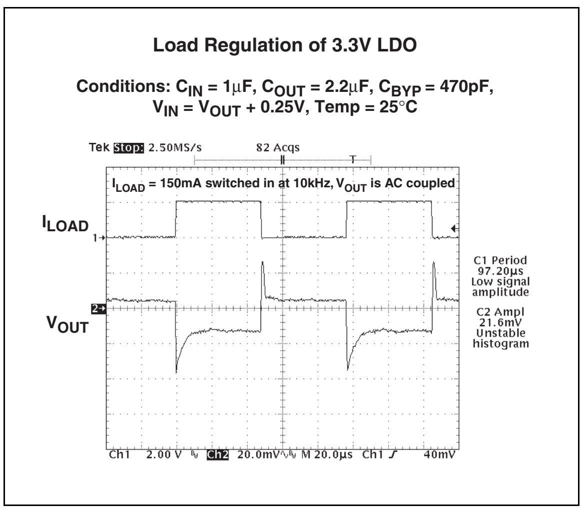


FIGURE 2-26: Load Regulation of 3.3V LDO.

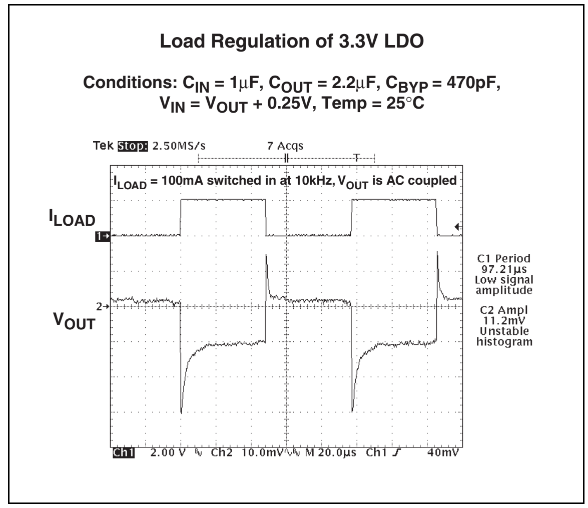


FIGURE 2-27: Load Regulation of 3.3V LDO.

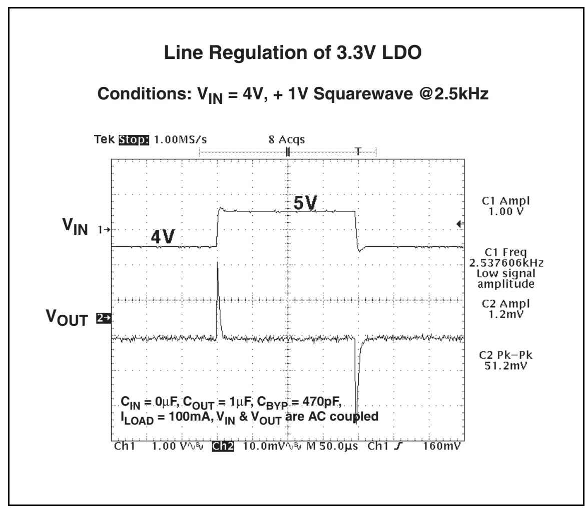


FIGURE 2-28: Load Regulation of 3.3V LDO.

TYPICAL PERFORMANCE CURVES (CONTINUED)

Note: Unless otherwise specified, all parts are measured at temperature = +25°C.

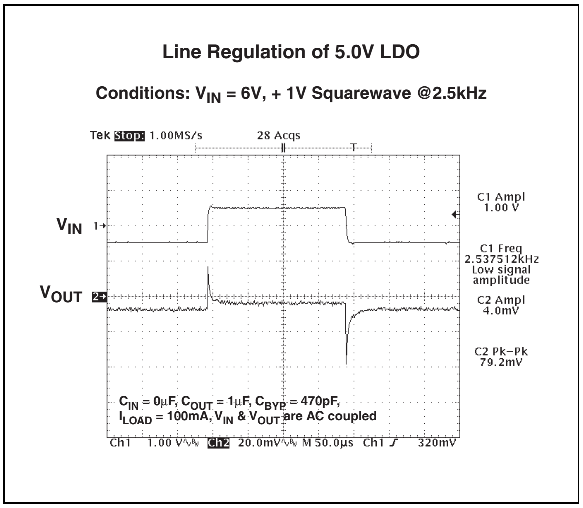


FIGURE 2-29: Line Regulation of 5.0V LDO.

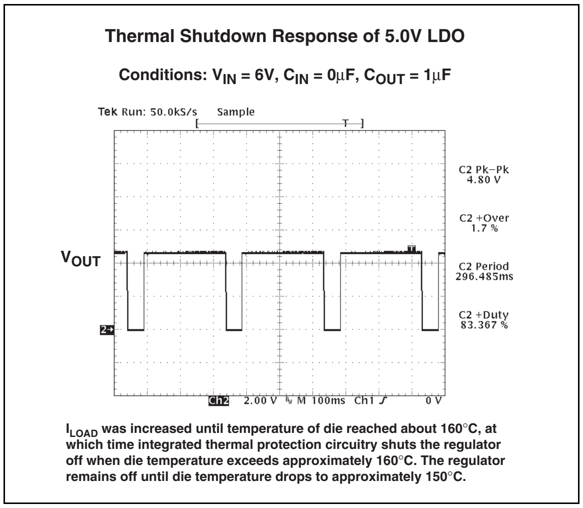


FIGURE 2-30: Thermal Shutdown Response of 5.0V LDO.

3.0 PIN DESCRIPTIONS

The descriptions of the pins are listed in Table 3-1.

TABLE 3-1: PIN FUNCTION TABLE

Pin No. (5-Pin SOT-23)	Symbol	Description
1	V_{IN}	Unregulated supply input.
2	GND	Ground terminal.
3	$\overline{SHDN}$	Shutdown control input. The regulator is fully enabled when a logic high is applied to this input. The regulator enters shutdown when a logic low is applied to this input. During shutdown, output voltage falls to zero and supply current is reduced to 0.5 µA (maximum).
4	Bypass	Reference bypass input. Connecting a 470 pF to this input further reduces output noise.
5	V_{OUT}	Regulated voltage output.

3.1 Input Voltage (V_{IN})

Connect the V_{IN} pin to the unregulated source voltage. Like all low dropout linear regulators, low source impedance is necessary for the stable operation of the LDO. The amount of capacitance required to ensure low source impedance will depend on the proximity of the input source capacitors or battery type. For most applications, 1.0 µF of capacitance will ensure stable operation of the LDO circuit. The type of capacitor used can be ceramic, tantalum or aluminum electrolytic. The low Effective Series Resistance (ESR) characteristics of the ceramic will yield better noise and Power Supply Ripple Rejection (PSRR) performance at high frequency.

3.2 Ground Terminal (GND)

Connect the ground pin to the input voltage return. For the optimal noise and PSRR performance, the GND pin of the LDO should be tied to a quiet circuit ground. For applications have switching or noisy inputs tie the GND pin to the return of the output capacitor. Ground planes help lower inductance and voltage spikes caused by fast transient load currents and are recommended for applications that are subjected to fast load transients.

3.3 Shutdown ($\overline{SHDN}$)

The Shutdown input is used to turn the LDO on and off. When the $\overline{SHDN}$ pin is at a logic high level, the LDO output is enabled. When the $\overline{SHDN}$ pin is pulled to a logic low, the LDO output is disabled. When disabled, the quiescent current used by the LDO is less than 0.5 µA max.

3.4 Bypass

Connecting a low-value ceramic capacitor to the Bypass pin will further reduce output voltage noise and improve the PSRR performance of the LDO. While smaller and larger values can be used, these affect the speed at which the LDO output voltage rises when the input power is applied. The larger the bypass capacitor, the slower the output voltage will rise.

3.5 Output Voltage (V_{OUT})

Connect the output load to V_{OUT} of the LDO. Also connect one side of the LDO output capacitor as close as possible to the V_{OUT} pin.

4.0 DETAILED DESCRIPTION

The TC1014, TC1015 and TC1185 are precision fixed output voltage regulators (if an adjustable version is needed, see the TC1070, TC1071 and TC1187 data sheet (DS21353). Unlike bipolar regulators, the TC1014, TC1015 and TC1185 supply current does not increase with load current. In addition, the LDOs' output voltage is stable using 1 µF of capacitance over the entire specified input voltage range and output current range.

Figure 4-1 shows a typical application circuit. The regulator is enabled anytime the shutdown input ($\overline{SHDN}$) is at or above V_{IH}, and disabled when $\overline{SHDN}$ is at or below V_{IL}. $\overline{SHDN}$ may be controlled by a CMOS logic gate or I/O port of a microcontroller. If the $\overline{SHDN}$ input is not required, it should be connected directly to the input supply. While in shutdown, the supply current decreases to 0.05 µA (typical) and V_{OUT} falls to zero volts.

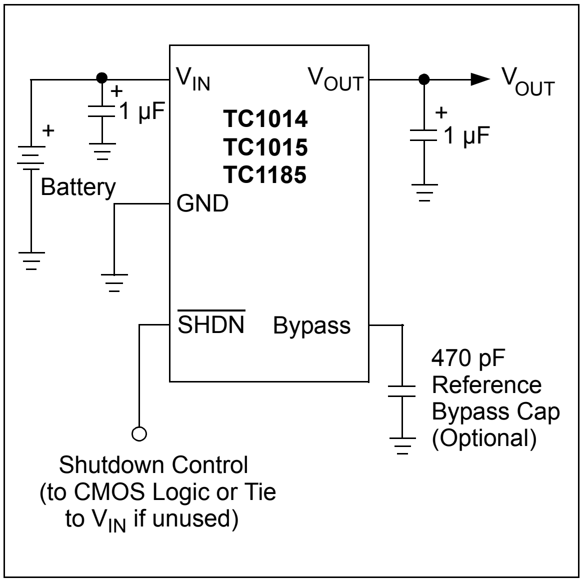


FIGURE 4-1: *Typical Application Circuit.*

4.1 Bypass Input

A 470 pF capacitor connected from the Bypass input to ground reduces noise present on the internal reference, which in turn, significantly reduces output noise. If output noise is not a concern, this input may be left unconnected. Larger capacitor values may be used, but results in a longer time period to rated output voltage when power is initially applied.

4.2 Output Capacitor

A 1 µF (min) capacitor from V_{OUT} to ground is required. The output capacitor should have an effective series resistance greater than 0.1Ω and less than 5Ω. A 1 µF capacitor should be connected from V_{IN} to GND if there is more than 10 inches of wire between the regulator and the AC filter capacitor, or if a battery is used as the power source. Aluminum electrolytic or tantalum capacitor types can be used. (Since many aluminum electrolytic capacitors freeze at approximately -30°C, solid tantalums are recommended for applications operating below -25°C.) When operating from sources other than batteries, supply-noise rejection and transient response can be improved by increasing the value of the input and output capacitors and employing passive filtering techniques.

4.3 Input Capacitor

A 1 µF capacitor should be connected from V_{IN} to GND if there is more than 10 inches of wire between the regulator and this AC filter capacitor, or if a battery is used as the power source. Aluminum electrolytic or tantalum capacitors can be used (since many aluminum electrolytic capacitors freeze at approximately -30°C, solid tantalum is recommended for applications operating below -25°C). When operating from sources other than batteries, supply-noise rejection and transient response can be improved by increasing the value of the input and output capacitors and employing passive filtering techniques.

5.0 THERMAL CONSIDERATIONS

5.1 Thermal Shutdown

Integrated thermal protection circuitry shuts the regulator off when die temperature exceeds 160°C. The regulator remains off until the die temperature drops to approximately 150°C.

5.2 Power Dissipation

The amount of power the regulator dissipates is primarily a function of input and output voltage, and output current. The following equation is used to calculate worst-case actual power dissipation:

EQUATION 5-1:

$$P_D \approx (V_{INMAX} - V_{OUTMIN}) I_{LOADMAX}$$

Where:

P_D	=	Worst-case actual power dissipation
V_{INMAX}	=	Maximum voltage on V_{IN}
V_{OUTMIN}	=	Minimum regulator output voltage
$I_{LOADMAX}$	=	Maximum output (load) current

The maximum allowable power dissipation (Equation 5-2) is a function of the maximum ambient temperature (T_{AMAX}), the maximum allowable die temperature (T_{JMAX}) and the thermal resistance from junction-to-air (θ_{JA}). The 5-pin SOT-23 package has a θ_{JA} of approximately 220°C/Watt.

EQUATION 5-2:

$$P_{DMAX} = \frac{(T_{JMAX} - T_{AMAX})}{\theta_{JA}}$$

Where all terms are previously defined.

Equation 5-1 can be used in conjunction with Equation 5-2 to ensure regulator thermal operation is within limits. For example:

Given:

V_{INMAX}	=	3.0V +10%
V_{OUTMIN}	=	2.7V – 2.5%
$I_{LOADMAX}$	=	40 mA
T_{JMAX}	=	125°C
T_{AMAX}	=	55°C

Find:

1. Actual power dissipation
2. Maximum allowable dissipation

Actual power dissipation:

$P_D \approx (V_{INMAX} - V_{OUTMIN}) I_{LOADMAX}$

$= [(3.0 \times 1.1) - (2.7 \times .975)] 40 \times 10^{-3}$

$= 26.7$ mW

Maximum allowable power dissipation:

$$P_{DMAX} = \frac{(T_{JMAX} - T_{AMAX})}{\theta_{JA}} = \frac{(125 - 55)}{220} = 318\ mW$$

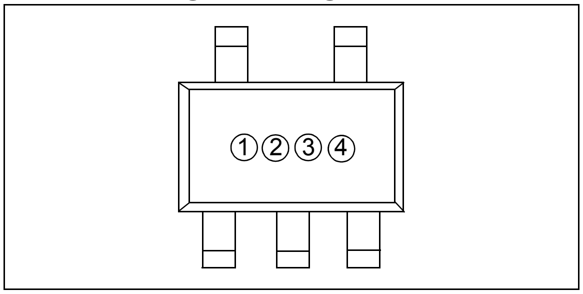
In this example, the TC1014 dissipates a maximum of 26.7 mW below the allowable limit of 318 mW. In a similar manner, Equation 5-1 and Equation 5-2 can be used to calculate maximum current and/or input voltage limits.

5.3 Layout Considerations

The primary path of heat conduction out of the package is via the package leads. Therefore, layouts having a ground plane, wide traces at the pads, and wide power supply bus lines combine to lower θ_{JA} and therefore increase the maximum allowable power dissipation limit.

6.0 PACKAGING INFORMATION

6.1 Package Marking Information



① & ② represents part number code + temperature range and voltage

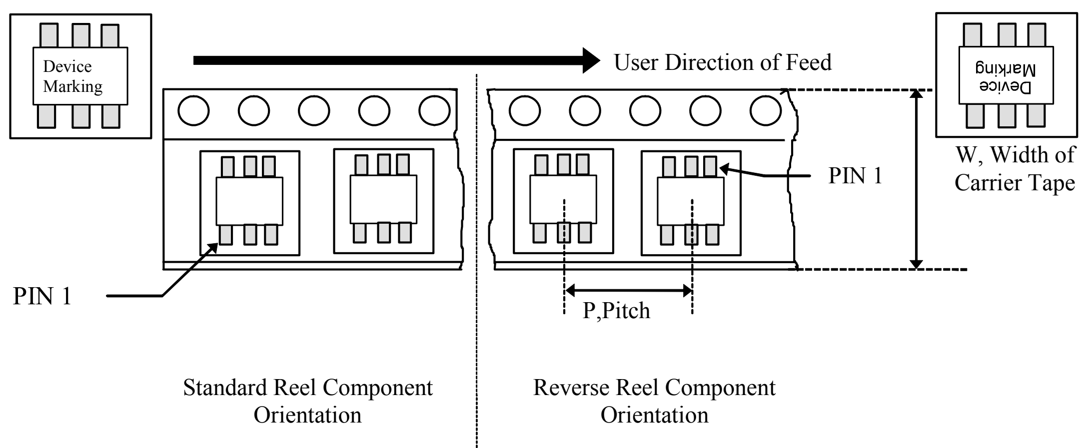
③ represents year and 2-month period code

④ represents lot ID number

TABLE 6-1: PART NUMBER CODE AND TEMPERATURE RANGE

(V)	TC1014 Code	TC1015 Code	TC1185 Code
1.8	AY	BY	NY
2.5	A1	B1	N1
2.6	NB	BT	NT
2.7	A2	B2	N2
2.8	AZ	BZ	NZ
2.85	A8	B8	N8
3.0	A3	B3	N3
3.3	A5	B5	N5
3.6	A9	B9	N9
4.0	A0	B0	N0
5.0	A7	B7	N7

6.2 Taping Form

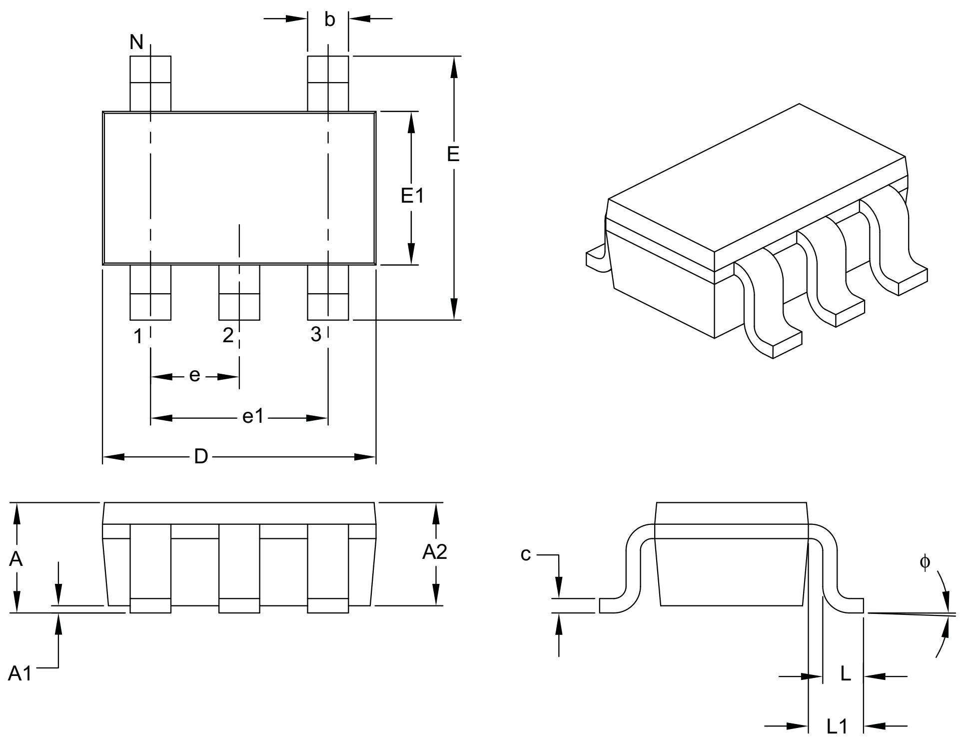


Carrier Tape, Number of Components per Reel and Reel Size

Package	Carrier Width (W)	Pitch (P)	Part Per Full Reel	Reel Size
5-Pin SOT-23	8 mm	4 mm	3000	7 in

5-Lead Plastic Small Outline Transistor (OT) [SOT-23]

Note: For the most current package drawings, please see the Microchip Packaging Specification located at http://www.microchip.com/packaging



Units		MILLIMETERS		
Dimension Limits		MIN	NOM	MAX
Number of Pins	N	5		
Lead Pitch	e	0.95 BSC		
Outside Lead Pitch	e1	1.90 BSC		
Overall Height	A	0.90	–	1.45
Molded Package Thickness	A2	0.89	–	1.30
Standoff	A1	0.00	–	0.15
Overall Width	E	2.20	–	3.20
Molded Package Width	E1	1.30	–	1.80
Overall Length	D	2.70	–	3.10
Foot Length	L	0.10	–	0.60
Footprint	L1	0.35	–	0.80
Foot Angle	ϕ	0°	–	30°
Lead Thickness	c	0.08	–	0.26
Lead Width	b	0.20	–	0.51

Notes:

1. Dimensions D and E1 do not include mold flash or protrusions. Mold flash or protrusions shall not exceed 0.127 mm per side.
2. Dimensioning and tolerancing per ASME Y14.5M.

   BSC: Basic Dimension. Theoretically exact value shown without tolerances.

Microchip Technology Drawing C04-091B

NOTES:

APPENDIX A: REVISION HISTORY

Revision E (February 2007)

- **Section 1.0 "Electrical characteristics"**: Changed Dropout Voltage from mA to µA.
- Updated **"Product Identification System"**, page 19.
- Updated **Section 6.0 "Packaging Information"**.

Revision D (April 2006)

- Removed "ERROR is open circuited" from $\overline{\text{SHDN}}$ pin description in Pin Function Table.
- Added verbiage for pinout descriptions in Pin Function Table.
- Replaced verbiage in first paragraph of Section 4.0 Detailed Description.
- Added Section 4.3 Input Capacitor

Revision C (January 2006)

- Changed TR suffix to 713 suffix in Taping Form in Package Marking Section

Revision B (May 2002)

- Converted Telcom data sheet to Microchip standard for Analog Handbook

Revision A (February 2001)

- Original Release of this Document under Telcom.

NOTES:

PRODUCT IDENTIFICATION SYSTEM

To order or obtain information, e.g., on pricing or delivery, refer to the factory or the listed sales office.

PART NO.	-X.X	X	XXXXX
Device	Output Voltage	Temperature Range	Package

Device:
- TC1014: 50 mA LDO with Shutdown and V_{REF} Bypass
- TC1015: 100 mA LDO with Shutdown and V_{REF} Bypass
- TC1185: 150 mA LDO with Shutdown and V_{REF} Bypass

Output Voltage:
- 1.8 = 1.8V
- 2.5 = 2.5V
- 2.6 = 2.6V
- 2.7 = 2.7V
- 2.8 = 2.8V
- 2.85 = 2.85V
- 3.0 = 3.0V
- 3.3 = 3.3V
- 3.6 = 3.6V
- 4.0 = 4.0V
- 5.0 = 5.0V

Temperature Range: V = -40° C to +125° C

Package: CT713 = Plastic Small Outline Transistor (SOT-23), 5-lead, Tape and Reel

Examples:

a) TC1014-1.8VCT713: 1.8V, 5LD SOT-23, Tape and Reel.
b) TC1014-2.85VCT713: 2.85V, 5LD SOT-23, Tape and Reel.
c) TC1014-3.3VCT713: 3.3V, 5LD SOT-23, Tape and Reel.

a) TC1015-1.8VCT713: 1.8V, 5LD SOT-23, Tape and Reel.
b) TC1015-2.85VCT713: 2.85V, 5LD SOT-23, Tape and Reel.
c) TC1015-3.0VCT713: 3.0V, 5LD SOT-23, Tape and Reel.

a) TC1185-1.8VCT713: 1.8V, 5LD SOT-23, Tape and Reel.
b) TC1185-2.8VCT713: 2.8V, 5LD SOT-23, Tape and Reel.

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