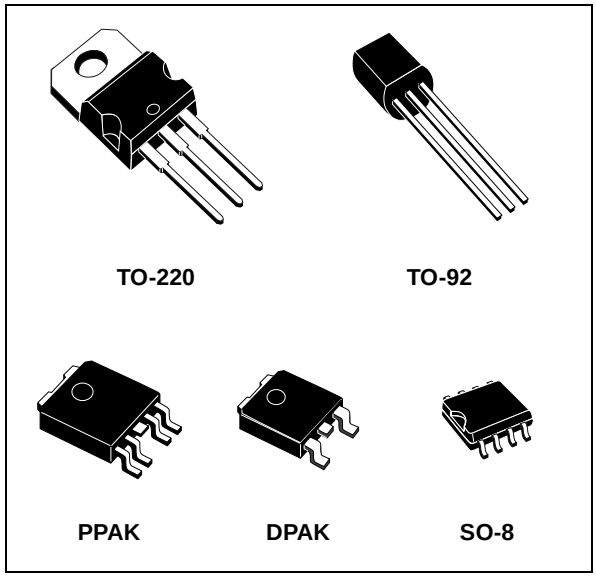
# L4931 SERIES

## VERY LOW DROP VOLTAGE REGULATORS WITH INHIBIT

- VERY LOW DROPOUT VOLTAGE (0.4V)
- VERY LOW QUIESCENT CURRENT (TYP. 50 µA IN OFF MODE, 600µA IN ON MODE)
- OUTPUT CURRENT UP TO 250 mA
- LOGIC-CONTROLLED ELECTRONIC SHUTDOWN
- OUTPUT VOLTAGES OF 1.25; 1.5; 2.5; 2.7; 3; 3.3; 3.5; 4; 4.5; 4.7; 5; 5.2; 5.5; 6; 8; 12V
- INTERNAL CURRENT AND THERMAL LIMIT
- ONLY 2.2µF FOR STABILITY
- AVAILABLE IN ± 1% (AB) OR 2% (C) SELECTION AT 25°C
- SUPPLY VOLTAGE REJECTION: 70db TYP. FOR 5V VERSION
- TEMPERATURE RANGE: -40 TO 125°C



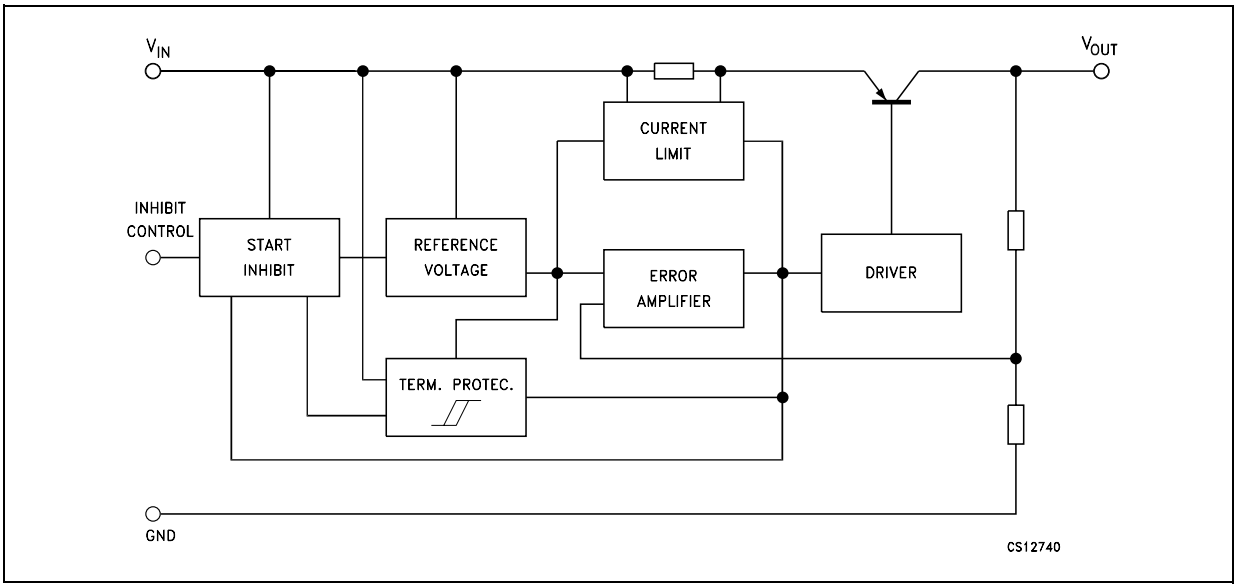

### DESCRIPTION

The L4931 series are very Low Drop regulators available in TO-220, SO-8, DPAK, PPAK and TO-92 packages and in a wide range of output voltages.

The very Low Drop voltage (0.4V) and the very low quiescent current make them particularly suitable for Low Noise, Low Power applications and specially in battery powered systems.

In PPAK and SO-8 packages a Shutdown Logic Control function is available TTL compatible. This means that when the device is used as a local regulator, it is possible to put a part of the board in standby, decreasing the total power consumption. It requires only a 2.2 µF capacitor for stability allowing space and cost saving.

### SCHEMATIC DIAGRAM



## ABSOLUTE MAXIMUM RATINGS

| Symbol | Parameter | Value | Unit |
|---|---|---|---|
| $V_I$ | DC Input Voltage | 20 | V |
| $I_O$ | Output Current | Internally Limited | |
| $P_{tot}$ | Power Dissipation | Internally Limited | |
| $T_{stg}$ | Storage Temperature Range | -40 to 150 | °C |
| $T_{op}$ | Operating Junction Temperature Range | -40 to 125 | °C |

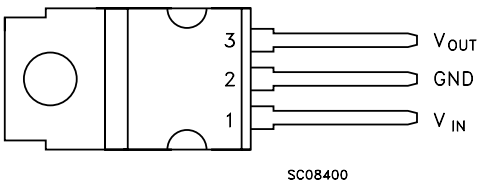
Absolute Maximum Ratings are those values beyond which damage to the device may occur. Functional operation under these condition is not implied.

## THERMAL DATA

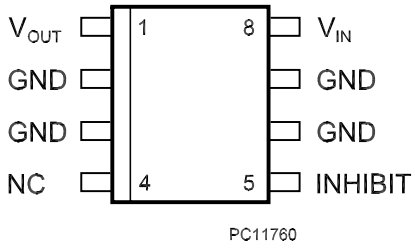
| Symbol | Parameter | TO-220 | SO-8 | DPAK | PPAK | TO-92 | Unit |
|---|---|---|---|---|---|---|---|
| $R_{thj\text{-}case}$ | Thermal Resistance Junction-case | 3 | 20 | 8 | 8 | | °C/W |
| $R_{thj\text{-}amb}$ | Thermal Resistance Junction-ambient | 50 | 55(*) | 100 | 100 | 200 | °C/W |

(*) Considering 6 $cm^2$ of copper board heat-sink

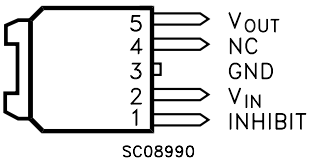
## CONNECTION DIAGRAM (top view)



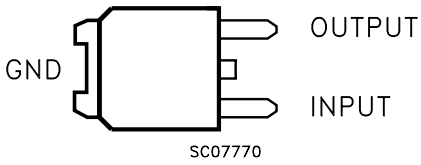

**TO-220**



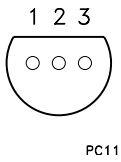

**SO-8**




**PPAK**




**DPAK**




PIN 1 = $V_{OUT}$
PIN 2 = GND
PIN 3 = $V_{IN}$

**TO-92**

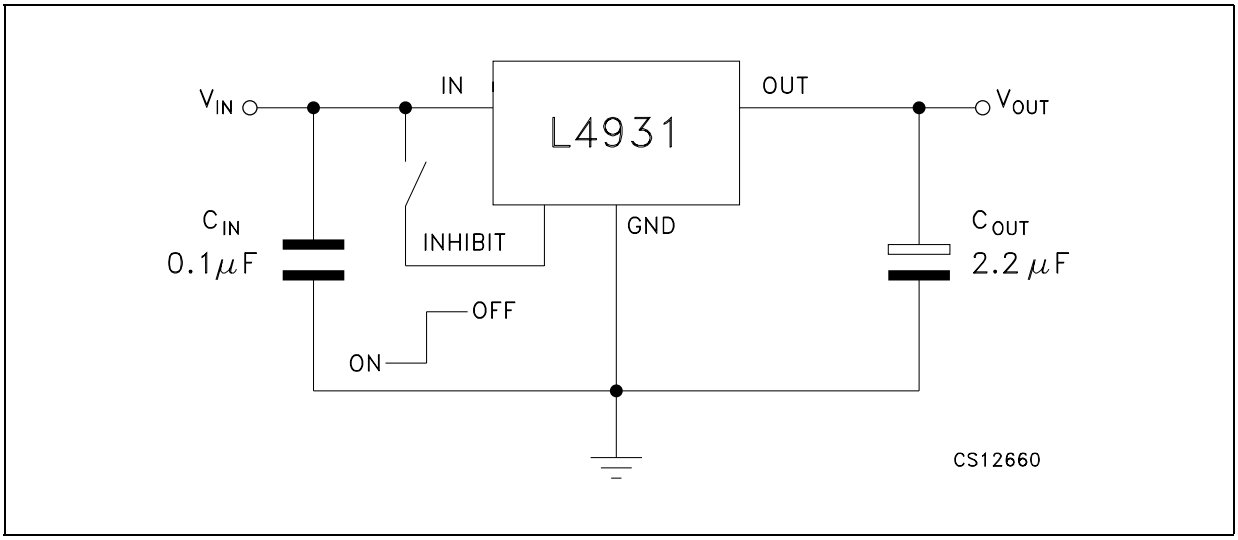
BOTTOM VIEW

## ORDERING CODES

| TO-220 | SO-8 | PPAK | DPAK | TO-92 | OUTPUT VOLTAGE |
|---|---|---|---|---|---|
| L4931CV12 (*) | L4931CD12 (*) | L4931CPT12 (*) | L4931CDT12 (*) | L4931CZ12 (*) | 1.25 V |
| L4931ABV12 (*) | L4931ABD12 (*) | L4931ABPT12 (*) | L4931ABDT12 (*) | L4931ABZ12 (*) | 1.25 V |
| L4931CV15 (*) | L4931CD15 (*) | L4931CPT15 (*) | L4931CDT15 (*) | L4931CZ15 (*) | 1.5 V |
| L4931ABV15 (*) | L4931ABD15 (*) | L4931ABPT15 (*) | L4931ABDT15 (*) | L4931ABZ15 (*) | 1.5 V |
| L4931CV25 (*) | L4931CD25 | L4931CPT25 (*) | L4931CDT25 | L4931CZ25 (*) | 2.5 V |
| L4931ABV25 (*) | L4931ABD25 | L4931ABPT25 (*) | L4931ABDT25 | L4931ABZ25 (*) | 2.5 V |
| L4931CV27 | L4931CD27 | L4931CPT27 | L4931CDT27 | L4931CZ27 | 2.7 V |
| L4931ABV27 | L4931ABD27 | L4931ABPT27 | L4931ABDT27 | L4931ABZ27 | 2.7 V |
| L4931CV30 | L4931CD30 | L4931CPT30 | L4931CDT30 | L4931CZ30 | 3 V |
| L4931ABV30 | L4931ABD30 | L4931ABPT30 | L4931ABDT30 | L4931ABZ30 | 3 V |
| L4931CV33 | L4931CD33 | L4931CPT33 | L4931CDT33 | L4931CZ33 | 3.3 V |
| L4931ABV33 | L4931ABD33 | L4931ABPT33 | L4931ABDT33 | L4931ABZ33 | 3.3 V |
| L4931CV35 | L4931CD35 | L4931CPT35 | L4931CDT35 | L4931CZ35 | 3.5 V |
| L4931ABV35 | L4931ABD35 | L4931ABPT35 | L4931ABDT35 | L4931ABZ35 | 3.5 V |
| L4931CV40 | L4931CD40 | L4931CPT40 | L4931CDT40 | L4931CZ40 | 4 V |
| L4931ABV40 | L4931ABD40 | L4931ABPT40 | L4931ABDT40 | L4931ABZ40 | 4 V |
| L4931CV45 (*) | L4931CD45 (*) | L4931CPT45 (*) | L4931CDT45 (*) | L4931CZ45 (*) | 4.5 V |
| L4931ABV45 (*) | L4931ABD45 (*) | L4931ABPT45 (*) | L4931ABDT45 (*) | L4931ABZ45 (*) | 4.5 V |
| L4931CV47 | L4931CD47 | L4931CPT47 | L4931CDT47 | L4931CZ47 | 4.75 V |
| L4931ABV47 | L4931ABD47 | L4931ABPT47 | L4931ABDT47 | L4931ABZ47 | 4.75 V |
| L4931CV50 | L4931CD50 | L4931CPT50 | L4931CDT50 | L4931CZ50 | 5 V |
| L4931ABV50 | L4931ABD50 | L4931ABPT50 | L4931ABDT50 | L4931ABZ50 | 5 V |
| L4931CV52 (*) | L4931CD52 (*) | L4931CPT52 (*) | L4931CDT52 (*) | L4931CZ52 (*) | 5.2 V |
| L4931ABV52 (*) | L4931ABD52 (*) | L4931ABPT52 (*) | L4931ABDT52 (*) | L4931ABZ52 (*) | 5.2 V |
| L4931CV55 (*) | L4931CD55 (*) | L4931CPT55 (*) | L4931CDT55 (*) | L4931CZ55 (*) | 5.5 V |
| L4931ABV55 (*) | L4931ABD55 (*) | L4931ABPT55 (*) | L4931ABDT55 (*) | L4931ABZ55 (*) | 5.5 V |
| L4931CV60 | L4931CD60 | L4931CPT60 | L4931CDT60 | L4931CZ60 | 6 V |
| L4931ABV60 | L4931ABD60 | L4931ABPT60 | L4931ABDT60 | L4931ABZ60 | 6 V |
| L4931CV80 | L4931CD80 | L4931CPT80 | L4931CDT80 | L4931CZ80 | 8 V |
| L4931ABV80 | L4931ABD80 | L4931ABPT80 | L4931ABDT80 | L4931ABZ80 | 8 V |
| L4931CV120 | L4931CD120 | L4931CPT120 | L4931CDT120 | L4931CZ120 | 12 V |
| L4931ABV120 | L4931ABD120 | L4931ABPT120 | L4931ABDT120 | L4931ABZ120 | 12 V |

(*) Available on request.

## TEST CIRCUITS




**ELECTRICAL CHARACTERISTICS OF L4931ABxx12** (refer to the test circuits, $T_J$ = 25°C, $C_I$ = 0.1 µF, $C_O$ = 2.2 µF unless otherwise specified).

| Symbol | Parameter | Test Conditions | | Min. | Typ. | Max. | Unit |
|---|---|---|---|---|---|---|---|
| $V_O$ | Output Voltage | $I_O$ = 5 mA $V_I$ = 3.3 V | | 1.238 | 1.25 | 1.263 | V |
| | | $I_O$ = 5 mA $V_I$ = 3.3 V $T_A$=-25 to 85°C | | 1.225 | | 1.275 | |
| $V_I$ | Operating Input Voltage | $I_O$ = 250 mA | | 2.5 | | 20 | V |
| $I_{out}$ | Output Current Limit | | | | 300 | | mA |
| $\Delta V_O$ | Line Regulation | $V_I$ = 2.5 to 20 V $I_O$ = 0.5 mA | | | 3 | 15 | mV |
| $\Delta V_O$(*) | Load Regulation | $V_I$ = 2.7 V $I_O$ = 0.5 to 250 mA | | | 3 | 15 | mV |
| $I_d$ | Quiescent Current ON MODE | $V_I$ = 2.7 to 20 V $I_O$ = 0 mA | | | 0.6 | 1 | mA |
| | | $V_I$ = 2.7 to 20 V $I_O$ = 250 mA | | | 4 | 6 | |
| | OFF MODE | $V_I$ = 6 V | | | 50 | 100 | µA |
| SVR | Supply Voltage Rejection | $I_O$ = 5 mA $V_I$ = 3.7 ± 1 V | f = 120 Hz | | 80 | | dB |
| | | | f = 1 KHz | | 77 | | |
| | | | f = 10 KHz | | 55 | | |
| eN | Output Noise Voltage | B =10 Hz to 100 KHz | | | 50 | | µV |
| $V_d$(*) | Dropout Voltage | $I_O$ = 250 mA | | | 1.25 | | V |
| $V_{IL}$ | Control Input Logic Low | $T_A$= -40 to 125°C | | | | 0.8 | V |
| $V_{IH}$ | Control Input Logic High | $T_A$= -40 to 125°C | | 2 | | | V |
| $I_I$ | Control Input Current | $V_I$ = 6 V, $V_C$ = 6 V | | | 10 | | µA |
| $C_O$ | Output Bypass Capacitance | ESR = 0.1 to 10 Ω $I_O$ = 0 to 250 mA | | 2 | 10 | | µF |

(*) For SO-8 package the maximum limit of load regulation and dropout is increased by 20 mV.

**ELECTRICAL CHARACTERISTICS OF L4931Cxx12** (refer to the test circuits, $T_J$ = 25°C, $C_I$ = 0.1 µF, $C_O$ = 2.2 µF unless otherwise specified).

| Symbol | Parameter | Test Conditions | | Min. | Typ. | Max. | Unit |
|---|---|---|---|---|---|---|---|
| $V_O$ | Output Voltage | $I_O$ = 5 mA $V_I$ = 3.3 V | | 1.225 | 1.25 | 1.275 | V |
| | | $I_O$ = 5 mA $V_I$ = 3.3 V $T_A$=-25 to 85°C | | 1.2 | | 1.3 | |
| $V_I$ | Operating Input Voltage | $I_O$ = 250 mA | | 2.5 | | 20 | V |
| $I_{out}$ | Output Current Limit | | | | 300 | | mA |
| $\Delta V_O$ | Line Regulation | $V_I$ = 2.5 to 20 V $I_O$ = 0.5 mA | | | 3 | 18 | mV |
| $\Delta V_O$(*) | Load Regulation | $V_I$ = 2.7 V $I_O$ = 0.5 to 250 mA | | | 3 | 18 | mV |
| $I_d$ | Quiescent Current ON MODE | $V_I$ = 2.7 to 20 V $I_O$ = 0 mA | | | 0.6 | 1 | mA |
| | | $V_I$ = 2.7 to 20 V $I_O$ = 250 mA | | | 4 | 6 | |
| | OFF MODE | $V_I$ = 6 V | | | 50 | 100 | µA |
| SVR | Supply Voltage Rejection | $I_O$ = 5 mA $V_I$ = 3.7 ± 1 V | f = 120 Hz | | 80 | | dB |
| | | | f = 1 KHz | | 77 | | |
| | | | f = 10 KHz | | 55 | | |
| eN | Output Noise Voltage | B =10 Hz to 100 KHz | | | 50 | | µV |
| $V_d$(*) | Dropout Voltage | $I_O$ = 250 mA | | | 1.25 | | V |
| $V_{IL}$ | Control Input Logic Low | $T_A$= -40 to 125°C | | | | 0.8 | V |
| $V_{IH}$ | Control Input Logic High | $T_A$= -40 to 125°C | | 2 | | | V |
| $I_I$ | Control Input Current | $V_I$ = 6 V, $V_C$ = 6 V | | | 10 | | µA |
| $C_O$ | Output Bypass Capacitance | ESR = 0.1 to 10 Ω $I_O$ = 0 to 250 mA | | 2 | 10 | | µF |

(*) For SO-8 package the maximum limit of load regulation and dropout is increased by 20 mV.

**ELECTRICAL CHARACTERISTICS OF L4931ABxx15** (refer to the test circuits, $T_J$ = 25°C, $C_I$ = 0.1 µF, $C_O$ = 2.2 µF unless otherwise specified).

| Symbol | Parameter | Test Conditions | | Min. | Typ. | Max. | Unit |
|---|---|---|---|---|---|---|---|
| $V_O$ | Output Voltage | $I_O$ = 5 mA $V_I$ = 3.5 V | | 1.485 | 1.5 | 1.515 | V |
| | | $I_O$ = 5 mA $V_I$ = 3.5 V $T_A$=-25 to 85°C | | 1.47 | | 1.53 | |
| $V_I$ | Operating Input Voltage | $I_O$ = 250 mA | | 2.5 | | 20 | V |
| $I_{out}$ | Output Current Limit | | | | 300 | | mA |
| $\Delta V_O$ | Line Regulation | $V_I$ = 2.5 to 20 V $I_O$ = 0.5 mA | | | 3 | 15 | mV |
| $\Delta V_O$(*) | Load Regulation | $V_I$ = 2.7 V $I_O$ = 0.5 to 250 mA | | | 3 | 15 | mV |
| $I_d$ | Quiescent Current ON MODE | $V_I$ = 2.7 to 20 V $I_O$ = 0 mA | | | 0.6 | 1 | mA |
| | | $V_I$ = 2.7 to 20 V $I_O$ = 250 mA | | | 4 | 6 | |
| | OFF MODE | $V_I$ = 6 V | | | 50 | 100 | µA |
| SVR | Supply Voltage Rejection | $I_O$ = 5 mA $V_I$ = 3.7 ± 1 V | f = 120 Hz | | 79 | | dB |
| | | | f = 1 KHz | | 76 | | |
| | | | f = 10 KHz | | 55 | | |
| eN | Output Noise Voltage | B =10 Hz to 100 KHz | | | 50 | | µV |
| $V_d$(*) | Dropout Voltage | $I_O$ = 250 mA | | | 1 | | V |
| $V_{IL}$ | Control Input Logic Low | $T_A$= -40 to 125°C | | | | 0.8 | V |
| $V_{IH}$ | Control Input Logic High | $T_A$= -40 to 125°C | | 2 | | | V |
| $I_I$ | Control Input Current | $V_I$ = 6 V, $V_C$ = 6 V | | | 10 | | µA |
| $C_O$ | Output Bypass Capacitance | ESR = 0.1 to 10 Ω $I_O$ = 0 to 250 mA | | 2 | 10 | | µF |

(*) For SO-8 package the maximum limit of load regulation and dropout is increased by 20 mV.

**ELECTRICAL CHARACTERISTICS OF L4931Cxx15** (refer to the test circuits, $T_J$ = 25°C, $C_I$ = 0.1 µF, $C_O$ = 2.2 µF unless otherwise specified).

| Symbol | Parameter | Test Conditions | | Min. | Typ. | Max. | Unit |
|---|---|---|---|---|---|---|---|
| $V_O$ | Output Voltage | $I_O$ = 5 mA $V_I$ = 3.5 V | | 1.47 | 1.5 | 1.53 | V |
| | | $I_O$ = 5 mA $V_I$ = 3.5 V $T_A$=-25 to 85°C | | 1.44 | | 1.56 | |
| $V_I$ | Operating Input Voltage | $I_O$ = 250 mA | | 2.5 | | 20 | V |
| $I_{out}$ | Output Current Limit | | | | 300 | | mA |
| $\Delta V_O$ | Line Regulation | $V_I$ = 2.5 to 20 V $I_O$ = 0.5 mA | | | 3 | 18 | mV |
| $\Delta V_O$(*) | Load Regulation | $V_I$ = 2.7 V $I_O$ = 0.5 to 250 mA | | | 3 | 18 | mV |
| $I_d$ | Quiescent Current ON MODE | $V_I$ = 2.7 to 20 V $I_O$ = 0 mA | | | 0.6 | 1 | mA |
| | | $V_I$ = 2.7 to 20 V $I_O$ = 250 mA | | | 4 | 6 | |
| | OFF MODE | $V_I$ = 6 V | | | 50 | 100 | µA |
| SVR | Supply Voltage Rejection | $I_O$ = 5 mA $V_I$ = 3.7 ± 1 V | f = 120 Hz | | 79 | | dB |
| | | | f = 1 KHz | | 76 | | |
| | | | f = 10 KHz | | 55 | | |
| eN | Output Noise Voltage | B =10 Hz to 100 KHz | | | 50 | | µV |
| $V_d$(*) | Dropout Voltage | $I_O$ = 250 mA | | | 1 | | V |
| $V_{IL}$ | Control Input Logic Low | $T_A$= -40 to 125°C | | | | 0.8 | V |
| $V_{IH}$ | Control Input Logic High | $T_A$= -40 to 125°C | | 2 | | | V |
| $I_I$ | Control Input Current | $V_I$ = 6 V, $V_C$ = 6 V | | | 10 | | µA |
| $C_O$ | Output Bypass Capacitance | ESR = 0.1 to 10 Ω $I_O$ = 0 to 250 mA | | 2 | 10 | | µF |

(*) For SO-8 package the maximum limit of load regulation and dropout is increased by 20 mV.

**ELECTRICAL CHARACTERISTICS OF L4931ABxx25** (refer to the test circuits, $T_J$ = 25°C, $C_I$ = 0.1 µF, $C_O$ = 2.2 µF unless otherwise specified).

| Symbol | Parameter | Test Conditions | | Min. | Typ. | Max. | Unit |
|---|---|---|---|---|---|---|---|
| $V_O$ | Output Voltage | $I_O$ = 5 mA $V_I$ = 4.5 V | | 2.475 | 2.5 | 2.525 | V |
| | | $I_O$ = 5 mA $V_I$ = 4.5 V $T_A$=-25 to 85°C | | 2.45 | | 2.55 | |
| $V_I$ | Operating Input Voltage | $I_O$ = 250 mA | | | | 20 | V |
| $I_{out}$ | Output Current Limit | | | | 300 | | mA |
| $\Delta V_O$ | Line Regulation | $V_I$ = 3.2 to 20 V $I_O$ = 0.5 mA | | | 3 | 15 | mV |
| $\Delta V_O$(*) | Load Regulation | $V_I$ = 3.4 V $I_O$ = 0.5 to 250 mA | | | 3 | 15 | mV |
| $I_d$ | Quiescent Current ON MODE | $V_I$ = 3.4 to 20 V $I_O$ = 0 mA | | | 0.6 | 1 | mA |
| | | $V_I$ = 3.4 to 20 V $I_O$ = 250 mA | | | 4 | 6 | |
| | OFF MODE | $V_I$ = 6 V | | | 50 | 100 | µA |
| SVR | Supply Voltage Rejection | $I_O$ = 5 mA $V_I$ = 4.4 ± 1 V | f = 120 Hz | | 75 | | dB |
| | | | f = 1 KHz | | 72 | | |
| | | | f = 10 KHz | | 55 | | |
| eN | Output Noise Voltage | B =10 Hz to 100 KHz | | | 50 | | µV |
| $V_d$(*) | Dropout Voltage | $I_O$ = 250 mA | | | 0.4 | 0.6 | V |
| | | $I_O$ = 250 mA $T_J$= -40 to 125°C | | | | 0.8 | |
| $V_{IL}$ | Control Input Logic Low | $T_A$= -40 to 125°C | | | | 0.8 | V |
| $V_{IH}$ | Control Input Logic High | $T_A$= -40 to 125°C | | 2 | | | V |
| $I_I$ | Control Input Current | $V_I$ = 6 V, $V_C$ = 6 V | | | 10 | | µA |
| $C_O$ | Output Bypass Capacitance | ESR = 0.1 to 10 Ω $I_O$ = 0 to 250 mA | | 2 | 10 | | µF |

(*) For SO-8 package the maximum limit of load regulation and dropout is increased by 20 mV.

**ELECTRICAL CHARACTERISTICS OF L4931Cxx25** (refer to the test circuits, $T_J$ = 25°C, $C_I$ = 0.1 µF, $C_O$ = 2.2 µF unless otherwise specified).

| Symbol | Parameter | Test Conditions | | Min. | Typ. | Max. | Unit |
|---|---|---|---|---|---|---|---|
| $V_O$ | Output Voltage | $I_O$ = 5 mA $V_I$ = 4.5 V | | 2.45 | 2.5 | 2.55 | V |
| | | $I_O$ = 5 mA $V_I$ = 4.5 V $T_A$=-25 to 85°C | | 2.4 | | 2.6 | |
| $V_I$ | Operating Input Voltage | $I_O$ = 250 mA | | | | 20 | V |
| $I_{out}$ | Output Current Limit | | | | 300 | | mA |
| $\Delta V_O$ | Line Regulation | $V_I$ = 3.3 to 20 V $I_O$ = 0.5 mA | | | 3 | 18 | mV |
| $\Delta V_O$(*) | Load Regulation | $V_I$ = 3.5 V $I_O$ = 0.5 to 250 mA | | | 3 | 18 | mV |
| $I_d$ | Quiescent Current ON MODE | $V_I$ = 3.5 to 20 V $I_O$ = 0 mA | | | 0.6 | 1 | mA |
| | | $V_I$ = 3.5 to 20 V $I_O$ = 250 mA | | | 4 | 6 | |
| | OFF MODE | $V_I$ = 6 V | | | 50 | 100 | µA |
| SVR | Supply Voltage Rejection | $I_O$ = 5 mA $V_I$ = 4.4 ± 1 V | f = 120 Hz | | 75 | | dB |
| | | | f = 1 KHz | | 72 | | |
| | | | f = 10 KHz | | 55 | | |
| eN | Output Noise Voltage | B =10 Hz to 100 KHz | | | 50 | | µV |
| $V_d$(*) | Dropout Voltage | $I_O$ = 250 mA | | | 0.4 | 0.6 | V |
| | | $I_O$ = 250 mA $T_J$= -40 to 125°C | | | | 0.8 | |
| $V_{IL}$ | Control Input Logic Low | $T_A$= -40 to 125°C | | | | 0.8 | V |
| $V_{IH}$ | Control Input Logic High | $T_A$= -40 to 125°C | | 2 | | | V |
| $I_I$ | Control Input Current | $V_I$ = 6 V, $V_C$ = 6 V | | | 10 | | µA |
| $C_O$ | Output Bypass Capacitance | ESR = 0.1 to 10 Ω $I_O$ = 0 to 250 mA | | 2 | 10 | | µF |

(*) For SO-8 package the maximum limit of load regulation and dropout is increased by 20 mV.

**ELECTRICAL CHARACTERISTICS OF L4931ABxx27** (refer to the test circuits, $T_J$ = 25°C, $C_I$ = 0.1 µF, $C_O$ = 2.2 µF unless otherwise specified).

| Symbol | Parameter | Test Conditions | | Min. | Typ. | Max. | Unit |
|---|---|---|---|---|---|---|---|
| $V_O$ | Output Voltage | $I_O$ = 5 mA $V_I$ = 4.7 V | | 2.673 | 2.7 | 2.727 | V |
| | | $I_O$ = 5 mA $V_I$ = 4.7 V $T_A$=-25 to 85°C | | 2.646 | | 2.754 | |
| $V_I$ | Operating Input Voltage | $I_O$ = 250 mA | | | | 20 | V |
| $I_{out}$ | Output Current Limit | | | | 300 | | mA |
| $\Delta V_O$ | Line Regulation | $V_I$ = 3.4 to 20 V $I_O$ = 0.5 mA | | | 3 | 15 | mV |
| $\Delta V_O$(*) | Load Regulation | $V_I$ = 3.6 V $I_O$ = 0.5 to 250 mA | | | 3 | 15 | mV |
| $I_d$ | Quiescent Current ON MODE | $V_I$ = 3.6 to 20 V $I_O$ = 0 mA | | | 0.6 | 1 | mA |
| | | $V_I$ = 3.6 to 20 V $I_O$ = 250 mA | | | 4 | 6 | |
| | OFF MODE | $V_I$ = 6 V | | | 50 | 100 | µA |
| SVR | Supply Voltage Rejection | $I_O$ = 5 mA $V_I$ = 4.6 ± 1 V | f = 120 Hz | | 74 | | dB |
| | | | f = 1 KHz | | 71 | | |
| | | | f = 10 KHz | | 55 | | |
| eN | Output Noise Voltage | B =10 Hz to 100 KHz | | | 50 | | µV |
| $V_d$(*) | Dropout Voltage | $I_O$ = 250 mA | | | 0.4 | 0.6 | V |
| | | $I_O$ = 250 mA $T_J$= -40 to 125°C | | | | 0.8 | |
| $V_{IL}$ | Control Input Logic Low | $T_A$= -40 to 125°C | | | | 0.8 | V |
| $V_{IH}$ | Control Input Logic High | $T_A$= -40 to 125°C | | 2 | | | V |
| $I_I$ | Control Input Current | $V_I$ = 6 V, $V_C$ = 6 V | | | 10 | | µA |
| $C_O$ | Output Bypass Capacitance | ESR = 0.1 to 10 Ω $I_O$ = 0 to 250 mA | | 2 | 10 | | µF |

(*) For SO-8 package the maximum limit of load regulation and dropout is increased by 20 mV.

**ELECTRICAL CHARACTERISTICS OF L4931Cxx27** (refer to the test circuits, $T_J$ = 25°C, $C_I$ = 0.1 µF, $C_O$ = 2.2 µF unless otherwise specified).

| Symbol | Parameter | Test Conditions | | Min. | Typ. | Max. | Unit |
|---|---|---|---|---|---|---|---|
| $V_O$ | Output Voltage | $I_O$ = 5 mA $V_I$ = 4.7 V | | 2.646 | 2.7 | 2.754 | V |
| | | $I_O$ = 5 mA $V_I$ = 4.7 V $T_A$=-25 to 85°C | | 2.592 | | 2.808 | |
| $V_I$ | Operating Input Voltage | $I_O$ = 250 mA | | | | 20 | V |
| $I_{out}$ | Output Current Limit | | | | 300 | | mA |
| $\Delta V_O$ | Line Regulation | $V_I$ = 3.4 to 20 V $I_O$ = 0.5 mA | | | 3 | 18 | mV |
| $\Delta V_O$(*) | Load Regulation | $V_I$ = 3.6 V $I_O$ = 0.5 to 250 mA | | | 3 | 18 | mV |
| $I_d$ | Quiescent Current ON MODE | $V_I$ = 3.6 to 20 V $I_O$ = 0 mA | | | 0.6 | 1 | mA |
| | | $V_I$ = 3.6 to 20 V $I_O$ = 250 mA | | | 4 | 6 | |
| | OFF MODE | $V_I$ = 6 V | | | 50 | 100 | µA |
| SVR | Supply Voltage Rejection | $I_O$ = 5 mA $V_I$ = 4.6 ± 1 V | f = 120 Hz | | 74 | | dB |
| | | | f = 1 KHz | | 71 | | |
| | | | f = 10 KHz | | 55 | | |
| eN | Output Noise Voltage | B =10 Hz to 100 KHz | | | 50 | | µV |
| $V_d$(*) | Dropout Voltage | $I_O$ = 250 mA | | | 0.4 | 0.6 | V |
| | | $I_O$ = 250 mA $T_J$= -40 to 125°C | | | | 0.8 | |
| $V_{IL}$ | Control Input Logic Low | $T_A$= -40 to 125°C | | | | 0.8 | V |
| $V_{IH}$ | Control Input Logic High | $T_A$= -40 to 125°C | | 2 | | | V |
| $I_I$ | Control Input Current | $V_I$ = 6 V, $V_C$ = 6 V | | | 10 | | µA |
| $C_O$ | Output Bypass Capacitance | ESR = 0.1 to 10 Ω $I_O$ = 0 to 250 mA | | 2 | 10 | | µF |

(*) For SO-8 package the maximum limit of load regulation and dropout is increased by 20 mV.

**ELECTRICAL CHARACTERISTICS OF L4931ABxx30** (refer to the test circuits, $T_J$ = 25°C, $C_I$ = 0.1 µF, $C_O$ = 2.2 µF unless otherwise specified).

| Symbol | Parameter | Test Conditions | | Min. | Typ. | Max. | Unit |
|---|---|---|---|---|---|---|---|
| $V_O$ | Output Voltage | $I_O$ = 5 mA $V_I$ = 5 V | | 2.97 | 3 | 3.03 | V |
| | | $I_O$ = 5 mA $V_I$ = 5 V $T_A$=-25 to 85°C | | 2.94 | | 3.06 | |
| $V_I$ | Operating Input Voltage | $I_O$ = 250 mA | | | | 20 | V |
| $I_{out}$ | Output Current Limit | | | | 300 | | mA |
| $\Delta V_O$ | Line Regulation | $V_I$ = 3.7 to 20 V $I_O$ = 0.5 mA | | | 3 | 15 | mV |
| $\Delta V_O$(*) | Load Regulation | $V_I$ = 3.9 V $I_O$ = 0.5 to 250 mA | | | 3 | 15 | mV |
| $I_d$ | Quiescent Current ON MODE | $V_I$ = 3.9 to 20 V $I_O$ = 0 mA | | | 0.6 | 1 | mA |
| | | $V_I$ = 3.9 to 20 V $I_O$ = 250 mA | | | 4 | 6 | |
| | OFF MODE | $V_I$ = 6 V | | | 50 | 100 | µA |
| SVR | Supply Voltage Rejection | $I_O$ = 5 mA $V_I$ = 4.9 ± 1 V | f = 120 Hz | | 74 | | dB |
| | | | f = 1 KHz | | 71 | | |
| | | | f = 10 KHz | | 55 | | |
| eN | Output Noise Voltage | B =10 Hz to 100 KHz | | | 50 | | µV |
| $V_d$(*) | Dropout Voltage | $I_O$ = 250 mA | | | 0.4 | 0.6 | V |
| | | $I_O$ = 250 mA $T_J$= -40 to 125°C | | | | 0.8 | |
| $V_{IL}$ | Control Input Logic Low | $T_A$= -40 to 125°C | | | | 0.8 | V |
| $V_{IH}$ | Control Input Logic High | $T_A$= -40 to 125°C | | 2 | | | V |
| $I_I$ | Control Input Current | $V_I$ = 6 V, $V_C$ = 6 V | | | 10 | | µA |
| $C_O$ | Output Bypass Capacitance | ESR = 0.1 to 10 Ω $I_O$ = 0 to 250 mA | | 2 | 10 | | µF |

(*) For SO-8 package the maximum limit of load regulation and dropout is increased by 20 mV.

**ELECTRICAL CHARACTERISTICS OF L4931Cxx30** (refer to the test circuits, $T_J$ = 25°C, $C_I$ = 0.1 µF, $C_O$ = 2.2 µF unless otherwise specified).

| Symbol | Parameter | Test Conditions | | Min. | Typ. | Max. | Unit |
|---|---|---|---|---|---|---|---|
| $V_O$ | Output Voltage | $I_O$ = 5 mA $V_I$ = 5 V | | 2.94 | 3 | 3.06 | V |
| | | $I_O$ = 5 mA $V_I$ = 5 V $T_A$=-25 to 85°C | | 2.88 | | 3.12 | |
| $V_I$ | Operating Input Voltage | $I_O$ = 250 mA | | | | 20 | V |
| $I_{out}$ | Output Current Limit | | | | 300 | | mA |
| $\Delta V_O$ | Line Regulation | $V_I$ = 3.8 to 20 V $I_O$ = 0.5 mA | | | 3 | 18 | mV |
| $\Delta V_O$(*) | Load Regulation | $V_I$ = 4 V $I_O$ = 0.5 to 250 mA | | | 3 | 18 | mV |
| $I_d$ | Quiescent Current ON MODE | $V_I$ = 4 to 20 V $I_O$ = 0 mA | | | 0.6 | 1 | mA |
| | | $V_I$ = 4 to 20 V $I_O$ = 250 mA | | | 4 | 6 | |
| | OFF MODE | $V_I$ = 6 V | | | 50 | 100 | µA |
| SVR | Supply Voltage Rejection | $I_O$ = 5 mA $V_I$ = 5 ± 1 V | f = 120 Hz | | 74 | | dB |
| | | | f = 1 KHz | | 71 | | |
| | | | f = 10 KHz | | 55 | | |
| eN | Output Noise Voltage | B =10 Hz to 100 KHz | | | 50 | | µV |
| $V_d$(*) | Dropout Voltage | $I_O$ = 250 mA | | | 0.4 | 0.6 | V |
| | | $I_O$ = 250 mA $T_J$= -40 to 125°C | | | | 0.8 | |
| $V_{IL}$ | Control Input Logic Low | $T_A$= -40 to 125°C | | | | 0.8 | V |
| $V_{IH}$ | Control Input Logic High | $T_A$= -40 to 125°C | | 2 | | | V |
| $I_I$ | Control Input Current | $V_I$ = 6 V, $V_C$ = 6 V | | | 10 | | µA |
| $C_O$ | Output Bypass Capacitance | ESR = 0.1 to 10 Ω $I_O$ = 0 to 250 mA | | 2 | 10 | | µF |

(*) For SO-8 package the maximum limit of load regulation and dropout is increased by 20 mV.

**ELECTRICAL CHARACTERISTICS OF L4931ABxx33** (refer to the test circuits, $T_J$ = 25°C, $C_I$ = 0.1 µF, $C_O$ = 2.2 µF unless otherwise specified).

| Symbol | Parameter | Test Conditions | | Min. | Typ. | Max. | Unit |
|---|---|---|---|---|---|---|---|
| $V_O$ | Output Voltage | $I_O$ = 5 mA $V_I$ = 5.3 V | | 3.267 | 3.3 | 3.333 | V |
| | | $I_O$ = 5 mA $V_I$ = 5.3 V $T_A$=-25 to 85°C | | 3.234 | | 3.366 | |
| $V_I$ | Operating Input Voltage | $I_O$ = 250 mA | | | | 20 | V |
| $I_{out}$ | Output Current Limit | | | | 300 | | mA |
| $\Delta V_O$ | Line Regulation | $V_I$ = 4 to 20 V $I_O$ = 0.5 mA | | | 3 | 15 | mV |
| $\Delta V_O$(*) | Load Regulation | $V_I$ = 4.2 V $I_O$ = 0.5 to 250 mA | | | 3 | 15 | mV |
| $I_d$ | Quiescent Current ON MODE | $V_I$ = 4.2 to 20 V $I_O$ = 0 mA | | | 0.6 | 1 | mA |
| | | $V_I$ = 4.2 to 20 V $I_O$ = 250 mA | | | 4 | 6 | |
| | OFF MODE | $V_I$ = 6 V | | | 50 | 100 | µA |
| SVR | Supply Voltage Rejection | $I_O$ = 5 mA $V_I$ = 5.2 ± 1 V | f = 120 Hz | | 73 | | dB |
| | | | f = 1 KHz | | 70 | | |
| | | | f = 10 KHz | | 55 | | |
| eN | Output Noise Voltage | B =10 Hz to 100 KHz | | | 50 | | µV |
| $V_d$(*) | Dropout Voltage | $I_O$ = 250 mA | | | 0.4 | 0.6 | V |
| | | $I_O$ = 250 mA $T_J$= -40 to 125°C | | | | 0.8 | |
| $V_{IL}$ | Control Input Logic Low | $T_A$= -40 to 125°C | | | | 0.8 | V |
| $V_{IH}$ | Control Input Logic High | $T_A$= -40 to 125°C | | 2 | | | V |
| $I_I$ | Control Input Current | $V_I$ = 6 V, $V_C$ = 6 V | | | 10 | | µA |
| $C_O$ | Output Bypass Capacitance | ESR = 0.1 to 10 Ω $I_O$ = 0 to 250 mA | | 2 | 10 | | µF |

(*) For SO-8 package the maximum limit of load regulation and dropout is increased by 20 mV.

**ELECTRICAL CHARACTERISTICS OF L4931Cxx33** (refer to the test circuits, $T_J$ = 25°C, $C_I$ = 0.1 µF, $C_O$ = 2.2 µF unless otherwise specified).

| Symbol | Parameter | Test Conditions | | Min. | Typ. | Max. | Unit |
|---|---|---|---|---|---|---|---|
| $V_O$ | Output Voltage | $I_O$ = 5 mA $V_I$ = 5.3 V | | 3.234 | 3.3 | 3.366 | V |
| | | $I_O$ = 5 mA $V_I$ = 5.3 V $T_A$=-25 to 85°C | | 3.168 | | 3.432 | |
| $V_I$ | Operating Input Voltage | $I_O$ = 250 mA | | | | 20 | V |
| $I_{out}$ | Output Current Limit | | | | 300 | | mA |
| $\Delta V_O$ | Line Regulation | $V_I$ = 4.1 to 20 V $I_O$ = 0.5 mA | | | 3 | 18 | mV |
| $\Delta V_O$(*) | Load Regulation | $V_I$ = 4.3 V $I_O$ = 0.5 to 250 mA | | | 3 | 18 | mV |
| $I_d$ | Quiescent Current ON MODE | $V_I$ = 4.3 to 20 V $I_O$ = 0 mA | | | 0.6 | 1 | mA |
| | | $V_I$ = 4.3 to 20 V $I_O$ = 250 mA | | | 4 | 6 | |
| | OFF MODE | $V_I$ = 6 V | | | 50 | 100 | µA |
| SVR | Supply Voltage Rejection | $I_O$ = 5 mA $V_I$ = 5.3 ± 1 V | f = 120 Hz | | 73 | | dB |
| | | | f = 1 KHz | | 70 | | |
| | | | f = 10 KHz | | 55 | | |
| eN | Output Noise Voltage | B =10 Hz to 100 KHz | | | 50 | | µV |
| $V_d$(*) | Dropout Voltage | $I_O$ = 250 mA | | | 0.4 | 0.6 | V |
| | | $I_O$ = 250 mA $T_J$= -40 to 125°C | | | | 0.8 | |
| $V_{IL}$ | Control Input Logic Low | $T_A$= -40 to 125°C | | | | 0.8 | V |
| $V_{IH}$ | Control Input Logic High | $T_A$= -40 to 125°C | | 2 | | | V |
| $I_I$ | Control Input Current | $V_I$ = 6 V, $V_C$ = 6 V | | | 10 | | µA |
| $C_O$ | Output Bypass Capacitance | ESR = 0.1 to 10 Ω $I_O$ = 0 to 250 mA | | 2 | 10 | | µF |

(*) For SO-8 package the maximum limit of load regulation and dropout is increased by 20 mV.

**ELECTRICAL CHARACTERISTICS OF L4931ABxx35** (refer to the test circuits, $T_J$ = 25°C, $C_I$ = 0.1 µF, $C_O$ = 2.2 µF unless otherwise specified).

| Symbol | Parameter | Test Conditions | | Min. | Typ. | Max. | Unit |
|---|---|---|---|---|---|---|---|
| $V_O$ | Output Voltage | $I_O$ = 5 mA $V_I$ = 5.5 V | | 3.465 | 3.5 | 3.535 | V |
| | | $I_O$ = 5 mA $V_I$ = 5.5 V $T_A$=-25 to 85°C | | 3.43 | | 3.57 | |
| $V_I$ | Operating Input Voltage | $I_O$ = 250 mA | | | | 20 | V |
| $I_{out}$ | Output Current Limit | | | | 300 | | mA |
| $\Delta V_O$ | Line Regulation | $V_I$ = 4.2 to 20 V $I_O$ = 0.5 mA | | | 3 | 15 | mV |
| $\Delta V_O$(*) | Load Regulation | $V_I$ = 4.4 V $I_O$ = 0.5 to 250 mA | | | 3 | 15 | mV |
| $I_d$ | Quiescent Current ON MODE | $V_I$ = 4.4 to 20 V $I_O$ = 0 mA | | | 0.6 | 1 | mA |
| | | $V_I$ = 4.4 to 20 V $I_O$ = 250 mA | | | 4 | 6 | |
| | OFF MODE | $V_I$ = 6 V | | | 50 | 100 | µA |
| SVR | Supply Voltage Rejection | $I_O$ = 5 mA $V_I$ = 5.4 ± 1 V | f = 120 Hz | | 73 | | dB |
| | | | f = 1 KHz | | 70 | | |
| | | | f = 10 KHz | | 55 | | |
| eN | Output Noise Voltage | B =10 Hz to 100 KHz | | | 50 | | µV |
| $V_d$(*) | Dropout Voltage | $I_O$ = 250 mA | | | 0.4 | 0.6 | V |
| | | $I_O$ = 250 mA $T_J$= -40 to 125°C | | | | 0.8 | |
| $V_{IL}$ | Control Input Logic Low | $T_A$= -40 to 125°C | | | | 0.8 | V |
| $V_{IH}$ | Control Input Logic High | $T_A$= -40 to 125°C | | 2 | | | V |
| $I_I$ | Control Input Current | $V_I$ = 6 V, $V_C$ = 6 V | | | 10 | | µA |
| $C_O$ | Output Bypass Capacitance | ESR = 0.1 to 10 Ω $I_O$ = 0 to 250 mA | | 2 | 10 | | µF |

(*) For SO-8 package the maximum limit of load regulation and dropout is increased by 20 mV.

**ELECTRICAL CHARACTERISTICS OF L4931Cxx35** (refer to the test circuits, $T_J$ = 25°C, $C_I$ = 0.1 µF, $C_O$ = 2.2 µF unless otherwise specified).

| Symbol | Parameter | Test Conditions | | Min. | Typ. | Max. | Unit |
|---|---|---|---|---|---|---|---|
| $V_O$ | Output Voltage | $I_O$ = 5 mA $V_I$ = 5.5 V | | 3.43 | 3.5 | 3.57 | V |
| | | $I_O$ = 5 mA $V_I$ = 5.5 V $T_A$=-25 to 85°C | | 3.36 | | 3.64 | |
| $V_I$ | Operating Input Voltage | $I_O$ = 250 mA | | | | 20 | V |
| $I_{out}$ | Output Current Limit | | | | 300 | | mA |
| $\Delta V_O$ | Line Regulation | $V_I$ = 4.3 to 20 V $I_O$ = 0.5 mA | | | 3 | 18 | mV |
| $\Delta V_O$(*) | Load Regulation | $V_I$ = 4.5 V $I_O$ = 0.5 to 250 mA | | | 3 | 18 | mV |
| $I_d$ | Quiescent Current ON MODE | $V_I$ = 4.5 to 20 V $I_O$ = 0 mA | | | 0.6 | 1 | mA |
| | | $V_I$ = 4.5 to 20 V $I_O$ = 250 mA | | | 4 | 6 | |
| | OFF MODE | $V_I$ = 6 V | | | 50 | 100 | µA |
| SVR | Supply Voltage Rejection | $I_O$ = 5 mA $V_I$ = 5.5 ± 1 V | f = 120 Hz | | 73 | | dB |
| | | | f = 1 KHz | | 70 | | |
| | | | f = 10 KHz | | 55 | | |
| eN | Output Noise Voltage | B =10 Hz to 100 KHz | | | 50 | | µV |
| $V_d$(*) | Dropout Voltage | $I_O$ = 250 mA | | | 0.4 | 0.6 | V |
| | | $I_O$ = 250 mA $T_J$= -40 to 125°C | | | | 0.8 | |
| $V_{IL}$ | Control Input Logic Low | $T_A$= -40 to 125°C | | | | 0.8 | V |
| $V_{IH}$ | Control Input Logic High | $T_A$= -40 to 125°C | | 2 | | | V |
| $I_I$ | Control Input Current | $V_I$ = 6 V, $V_C$ = 6 V | | | 10 | | µA |
| $C_O$ | Output Bypass Capacitance | ESR = 0.1 to 10 Ω $I_O$ = 0 to 250 mA | | 2 | 10 | | µF |

(*) For SO-8 package the maximum limit of load regulation and dropout is increased by 20 mV.

**ELECTRICAL CHARACTERISTICS OF L4931ABxx40** (refer to the test circuits, $T_J$ = 25°C, $C_I$ = 0.1 µF, $C_O$ = 2.2 µF unless otherwise specified).

| Symbol | Parameter | Test Conditions | | Min. | Typ. | Max. | Unit |
|---|---|---|---|---|---|---|---|
| $V_O$ | Output Voltage | $I_O$ = 5 mA $V_I$ = 6 V | | 3.96 | 4 | 4.04 | V |
| | | $I_O$ = 5 mA $V_I$ = 6 V $T_A$=-25 to 85°C | | 3.92 | | 4.08 | |
| $V_I$ | Operating Input Voltage | $I_O$ = 250 mA | | | | 20 | V |
| $I_{out}$ | Output Current Limit | | | | 300 | | mA |
| $\Delta V_O$ | Line Regulation | $V_I$ = 4.7 to 20 V $I_O$ = 0.5 mA | | | 3.5 | 17.5 | mV |
| $\Delta V_O$(*) | Load Regulation | $V_I$ = 4.9 V $I_O$ = 0.5 to 250 mA | | | 3 | 15 | mV |
| $I_d$ | Quiescent Current ON MODE | $V_I$ = 4.9 to 20 V $I_O$ = 0 mA | | | 0.6 | 1 | mA |
| | | $V_I$ = 4.9 to 20 V $I_O$ = 250 mA | | | 4 | 6 | |
| | OFF MODE | $V_I$ = 6 V | | | 50 | 100 | µA |
| SVR | Supply Voltage Rejection | $I_O$ = 5 mA $V_I$ = 5.9 ± 1 V | f = 120 Hz | | 72 | | dB |
| | | | f = 1 KHz | | 69 | | |
| | | | f = 10 KHz | | 55 | | |
| eN | Output Noise Voltage | B =10 Hz to 100 KHz | | | 50 | | µV |
| $V_d$(*) | Dropout Voltage | $I_O$ = 250 mA | | | 0.4 | 0.6 | V |
| | | $I_O$ = 250 mA $T_J$= -40 to 125°C | | | | 0.8 | |
| $V_{IL}$ | Control Input Logic Low | $T_A$= -40 to 125°C | | | | 0.8 | V |
| $V_{IH}$ | Control Input Logic High | $T_A$= -40 to 125°C | | 2 | | | V |
| $I_I$ | Control Input Current | $V_I$ = 6 V, $V_C$ = 6 V | | | 10 | | µA |
| $C_O$ | Output Bypass Capacitance | ESR = 0.1 to 10 Ω $I_O$ = 0 to 250 mA | | 2 | 10 | | µF |

(*) For SO-8 package the maximum limit of load regulation and dropout is increased by 20 mV.

**ELECTRICAL CHARACTERISTICS OF L4931Cxx40** (refer to the test circuits, $T_J$ = 25°C, $C_I$ = 0.1 µF, $C_O$ = 2.2 µF unless otherwise specified).

| Symbol | Parameter | Test Conditions | | Min. | Typ. | Max. | Unit |
|---|---|---|---|---|---|---|---|
| $V_O$ | Output Voltage | $I_O$ = 5 mA $V_I$ = 6 V | | 3.92 | 4 | 4.08 | V |
| | | $I_O$ = 5 mA $V_I$ = 6 V $T_A$=-25 to 85°C | | 3.84 | | 4.16 | |
| $V_I$ | Operating Input Voltage | $I_O$ = 250 mA | | | | 20 | V |
| $I_{out}$ | Output Current Limit | | | | 300 | | mA |
| $\Delta V_O$ | Line Regulation | $V_I$ = 4.8 to 20 V $I_O$ = 0.5 mA | | | 3.5 | 21 | mV |
| $\Delta V_O$(*) | Load Regulation | $V_I$ = 5 V $I_O$ = 0.5 to 250 mA | | | 3 | 18 | mV |
| $I_d$ | Quiescent Current ON MODE | $V_I$ = 5 to 20 V $I_O$ = 0 mA | | | 0.6 | 1 | mA |
| | | $V_I$ = 5 to 20 V $I_O$ = 250 mA | | | 4 | 6 | |
| | OFF MODE | $V_I$ = 6 V | | | 50 | 100 | µA |
| SVR | Supply Voltage Rejection | $I_O$ = 5 mA $V_I$ = 6 ± 1 V | f = 120 Hz | | 72 | | dB |
| | | | f = 1 KHz | | 69 | | |
| | | | f = 10 KHz | | 55 | | |
| eN | Output Noise Voltage | B =10 Hz to 100 KHz | | | 50 | | µV |
| $V_d$(*) | Dropout Voltage | $I_O$ = 250 mA | | | 0.4 | 0.6 | V |
| | | $I_O$ = 250 mA $T_J$= -40 to 125°C | | | | 0.8 | |
| $V_{IL}$ | Control Input Logic Low | $T_A$= -40 to 125°C | | | | 0.8 | V |
| $V_{IH}$ | Control Input Logic High | $T_A$= -40 to 125°C | | 2 | | | V |
| $I_I$ | Control Input Current | $V_I$ = 6 V, $V_C$ = 6 V | | | 10 | | µA |
| $C_O$ | Output Bypass Capacitance | ESR = 0.1 to 10 Ω $I_O$ = 0 to 250 mA | | 2 | 10 | | µF |

(*) For SO-8 package the maximum limit of load regulation and dropout is increased by 20 mV.

**ELECTRICAL CHARACTERISTICS OF L4931ABxx45** (refer to the test circuits, $T_J$ = 25°C, $C_I$ = 0.1 µF, $C_O$ = 2.2 µF unless otherwise specified).

| Symbol | Parameter | Test Conditions | | Min. | Typ. | Max. | Unit |
|---|---|---|---|---|---|---|---|
| $V_O$ | Output Voltage | $I_O$ = 5 mA $V_I$ = 6.5 V | | 4.455 | 4.5 | 4.545 | V |
| | | $I_O$ = 5 mA $V_I$ = 6.5 V $T_A$=-25 to 85°C | | 4.41 | | 4.59 | |
| $V_I$ | Operating Input Voltage | $I_O$ = 250 mA | | | | 20 | V |
| $I_{out}$ | Output Current Limit | | | | 300 | | mA |
| $\Delta V_O$ | Line Regulation | $V_I$ = 5.2 to 20 V $I_O$ = 0.5 mA | | | 3.5 | 17.5 | mV |
| $\Delta V_O$(*) | Load Regulation | $V_I$ = 5.4 V $I_O$ = 0.5 to 250 mA | | | 3 | 15 | mV |
| $I_d$ | Quiescent Current ON MODE | $V_I$ = 5.4 to 20 V $I_O$ = 0 mA | | | 0.6 | 1 | mA |
| | | $V_I$ = 5.4 to 20 V $I_O$ = 250 mA | | | 4 | 6 | |
| | OFF MODE | $V_I$ = 6 V | | | 50 | 100 | µA |
| SVR | Supply Voltage Rejection | $I_O$ = 5 mA $V_I$ = 6.4 ± 1 V | f = 120 Hz | | 71 | | dB |
| | | | f = 1 KHz | | 68 | | |
| | | | f = 10 KHz | | 55 | | |
| eN | Output Noise Voltage | B =10 Hz to 100 KHz | | | 50 | | µV |
| $V_d$(*) | Dropout Voltage | $I_O$ = 250 mA | | | 0.4 | 0.6 | V |
| | | $I_O$ = 250 mA $T_J$= -40 to 125°C | | | | 0.8 | |
| $V_{IL}$ | Control Input Logic Low | $T_A$= -40 to 125°C | | | | 0.8 | V |
| $V_{IH}$ | Control Input Logic High | $T_A$= -40 to 125°C | | 2 | | | V |
| $I_I$ | Control Input Current | $V_I$ = 6 V, $V_C$ = 6 V | | | 10 | | µA |
| $C_O$ | Output Bypass Capacitance | ESR = 0.1 to 10 Ω $I_O$ = 0 to 250 mA | | 2 | 10 | | µF |

(*) For SO-8 package the maximum limit of load regulation and dropout is increased by 20 mV.

**ELECTRICAL CHARACTERISTICS OF L4931Cxx45** (refer to the test circuits, $T_J$ = 25°C, $C_I$ = 0.1 µF, $C_O$ = 2.2 µF unless otherwise specified).

| Symbol | Parameter | Test Conditions | | Min. | Typ. | Max. | Unit |
|---|---|---|---|---|---|---|---|
| $V_O$ | Output Voltage | $I_O$ = 5 mA $V_I$ = 6.5 V | | 4.41 | 4.5 | 4.59 | V |
| | | $I_O$ = 5 mA $V_I$ = 6.5 V $T_A$=-25 to 85°C | | 4.32 | | 4.68 | |
| $V_I$ | Operating Input Voltage | $I_O$ = 250 mA | | | | 20 | V |
| $I_{out}$ | Output Current Limit | | | | 300 | | mA |
| $\Delta V_O$ | Line Regulation | $V_I$ = 5.3 to 20 V $I_O$ = 0.5 mA | | | 3.5 | 21 | mV |
| $\Delta V_O$(*) | Load Regulation | $V_I$ = 5.5 V $I_O$ = 0.5 to 250 mA | | | 3 | 18 | mV |
| $I_d$ | Quiescent Current ON MODE | $V_I$ = 5.5 to 20 V $I_O$ = 0 mA | | | 0.6 | 1 | mA |
| | | $V_I$ = 5.5 to 20 V $I_O$ = 250 mA | | | 4 | 6 | |
| | OFF MODE | $V_I$ = 6 V | | | 50 | 100 | µA |
| SVR | Supply Voltage Rejection | $I_O$ = 5 mA $V_I$ = 6.5 ± 1 V | f = 120 Hz | | 71 | | dB |
| | | | f = 1 KHz | | 68 | | |
| | | | f = 10 KHz | | 55 | | |
| eN | Output Noise Voltage | B =10 Hz to 100 KHz | | | 50 | | µV |
| $V_d$(*) | Dropout Voltage | $I_O$ = 250 mA | | | 0.4 | 0.6 | V |
| | | $I_O$ = 250 mA $T_J$= -40 to 125°C | | | | 0.8 | |
| $V_{IL}$ | Control Input Logic Low | $T_A$= -40 to 125°C | | | | 0.8 | V |
| $V_{IH}$ | Control Input Logic High | $T_A$= -40 to 125°C | | 2 | | | V |
| $I_I$ | Control Input Current | $V_I$ = 6 V, $V_C$ = 6 V | | | 10 | | µA |
| $C_O$ | Output Bypass Capacitance | ESR = 0.1 to 10 Ω $I_O$ = 0 to 250 mA | | 2 | 10 | | µF |

(*) For SO-8 package the maximum limit of load regulation and dropout is increased by 20 mV.

**ELECTRICAL CHARACTERISTICS OF L4931ABxx47** (refer to the test circuits, $T_J$ = 25°C, $C_I$ = 0.1 µF, $C_O$ = 2.2 µF unless otherwise specified).

| Symbol | Parameter | Test Conditions | | Min. | Typ. | Max. | Unit |
|---|---|---|---|---|---|---|---|
| $V_O$ | Output Voltage | $I_O$ = 5 mA $V_I$ = 6.7 V | | 4.653 | 4.7 | 4.747 | V |
| | | $I_O$ = 5 mA $V_I$ = 6.7 V $T_A$=-25 to 85°C | | 4.606 | | 4.794 | |
| $V_I$ | Operating Input Voltage | $I_O$ = 250 mA | | | | 20 | V |
| $I_{out}$ | Output Current Limit | | | | 300 | | mA |
| $\Delta V_O$ | Line Regulation | $V_I$ = 5.4 to 20 V $I_O$ = 0.5 mA | | | 3.5 | 17.5 | mV |
| $\Delta V_O$(*) | Load Regulation | $V_I$ = 5.6 V $I_O$ = 0.5 to 250 mA | | | 3 | 15 | mV |
| $I_d$ | Quiescent Current ON MODE | $V_I$ = 5.6 to 20 V $I_O$ = 0 mA | | | 0.6 | 1 | mA |
| | | $V_I$ = 5.6 to 20 V $I_O$ = 250 mA | | | 4 | 6 | |
| | OFF MODE | $V_I$ = 6 V | | | 50 | 100 | µA |
| SVR | Supply Voltage Rejection | $I_O$ = 5 mA $V_I$ = 6.6 ± 1 V | f = 120 Hz | | 71 | | dB |
| | | | f = 1 KHz | | 68 | | |
| | | | f = 10 KHz | | 55 | | |
| eN | Output Noise Voltage | B =10 Hz to 100 KHz | | | 50 | | µV |
| $V_d$(*) | Dropout Voltage | $I_O$ = 250 mA | | | 0.4 | 0.6 | V |
| | | $I_O$ = 250 mA $T_J$= -40 to 125°C | | | | 0.8 | |
| $V_{IL}$ | Control Input Logic Low | $T_A$= -40 to 125°C | | | | 0.8 | V |
| $V_{IH}$ | Control Input Logic High | $T_A$= -40 to 125°C | | 2 | | | V |
| $I_I$ | Control Input Current | $V_I$ = 6 V, $V_C$ = 6 V | | | 10 | | µA |
| $C_O$ | Output Bypass Capacitance | ESR = 0.1 to 10 Ω $I_O$ = 0 to 250 mA | | 2 | 10 | | µF |

(*) For SO-8 package the maximum limit of load regulation and dropout is increased by 20 mV.

**ELECTRICAL CHARACTERISTICS OF L4931Cxx47** (refer to the test circuits, $T_J$ = 25°C, $C_I$ = 0.1 µF, $C_O$ = 2.2 µF unless otherwise specified).

| Symbol | Parameter | Test Conditions | | Min. | Typ. | Max. | Unit |
|---|---|---|---|---|---|---|---|
| $V_O$ | Output Voltage | $I_O$ = 5 mA $V_I$ = 6.7 V | | 4.606 | 4.7 | 4.794 | V |
| | | $I_O$ = 5 mA $V_I$ = 6.7 V $T_A$=-25 to 85°C | | 4.512 | | 4.888 | |
| $V_I$ | Operating Input Voltage | $I_O$ = 250 mA | | | | 20 | V |
| $I_{out}$ | Output Current Limit | | | | 300 | | mA |
| $\Delta V_O$ | Line Regulation | $V_I$ = 5.5 to 20 V $I_O$ = 0.5 mA | | | 3.5 | 21 | mV |
| $\Delta V_O$(*) | Load Regulation | $V_I$ = 5.7 V $I_O$ = 0.5 to 250 mA | | | 3 | 18 | mV |
| $I_d$ | Quiescent Current ON MODE | $V_I$ = 5.7 to 20 V $I_O$ = 0 mA | | | 0.6 | 1 | mA |
| | | $V_I$ = 5.7 to 20 V $I_O$ = 250 mA | | | 4 | 6 | |
| | OFF MODE | $V_I$ = 6 V | | | 50 | 100 | µA |
| SVR | Supply Voltage Rejection | $I_O$ = 5 mA $V_I$ = 6.7 ± 1 V | f = 120 Hz | | 71 | | dB |
| | | | f = 1 KHz | | 68 | | |
| | | | f = 10 KHz | | 55 | | |
| eN | Output Noise Voltage | B =10 Hz to 100 KHz | | | 50 | | µV |
| $V_d$(*) | Dropout Voltage | $I_O$ = 250 mA | | | 0.4 | 0.6 | V |
| | | $I_O$ = 250 mA $T_J$= -40 to 125°C | | | | 0.8 | |
| $V_{IL}$ | Control Input Logic Low | $T_A$= -40 to 125°C | | | | 0.8 | V |
| $V_{IH}$ | Control Input Logic High | $T_A$= -40 to 125°C | | 2 | | | V |
| $I_I$ | Control Input Current | $V_I$ = 6 V, $V_C$ = 6 V | | | 10 | | µA |
| $C_O$ | Output Bypass Capacitance | ESR = 0.1 to 10 Ω $I_O$ = 0 to 250 mA | | 2 | 10 | | µF |

(*) For SO-8 package the maximum limit of load regulation and dropout is increased by 20 mV.

**ELECTRICAL CHARACTERISTICS OF L4931ABxx50** (refer to the test circuits, $T_J$ = 25°C, $C_I$ = 0.1 µF, $C_O$ = 2.2 µF unless otherwise specified).

| Symbol | Parameter | Test Conditions | | Min. | Typ. | Max. | Unit |
|---|---|---|---|---|---|---|---|
| $V_O$ | Output Voltage | $I_O$ = 5 mA $V_I$ = 7 V | | 4.95 | 5 | 5.05 | V |
| | | $I_O$ = 5 mA $V_I$ = 7 V $T_A$=-25 to 85°C | | 4.9 | | 5.1 | |
| $V_I$ | Operating Input Voltage | $I_O$ = 250 mA | | | | 20 | V |
| $I_{out}$ | Output Current Limit | | | | 300 | | mA |
| $\Delta V_O$ | Line Regulation | $V_I$ = 5.8 to 20 V $I_O$ = 0.5 mA | | | 3.5 | 17.5 | mV |
| $\Delta V_O$(*) | Load Regulation | $V_I$ = 6 V $I_O$ = 0.5 to 250 mA | | | 3 | 15 | mV |
| $I_d$ | Quiescent Current ON MODE | $V_I$ = 6 to 20 V $I_O$ = 0 mA | | | 0.6 | 1 | mA |
| | | $V_I$ = 6 to 20 V $I_O$ = 250 mA | | | 4 | 6 | |
| | OFF MODE | $V_I$ = 6 V | | | 50 | 100 | µA |
| SVR | Supply Voltage Rejection | $I_O$ = 5 mA $V_I$ = 7 ± 1 V | f = 120 Hz | | 70 | | dB |
| | | | f = 1 KHz | | 67 | | |
| | | | f = 10 KHz | | 55 | | |
| eN | Output Noise Voltage | B =10 Hz to 100 KHz | | | 50 | | µV |
| $V_d$(*) | Dropout Voltage | $I_O$ = 250 mA | | | 0.4 | 0.6 | V |
| | | $I_O$ = 250 mA $T_J$= -40 to 125°C | | | | 0.8 | |
| $V_{IL}$ | Control Input Logic Low | $T_A$= -40 to 125°C | | | | 0.8 | V |
| $V_{IH}$ | Control Input Logic High | $T_A$= -40 to 125°C | | 2 | | | V |
| $I_I$ | Control Input Current | $V_I$ = 6 V, $V_C$ = 6 V | | | 10 | | µA |
| $C_O$ | Output Bypass Capacitance | ESR = 0.1 to 10 Ω $I_O$ = 0 to 250 mA | | 2 | 10 | | µF |

(*) For SO-8 package the maximum limit of load regulation and dropout is increased by 20 mV.

**ELECTRICAL CHARACTERISTICS OF L4931Cxx50** (refer to the test circuits, $T_J$ = 25°C, $C_I$ = 0.1 µF, $C_O$ = 2.2 µF unless otherwise specified).

| Symbol | Parameter | Test Conditions | | Min. | Typ. | Max. | Unit |
|---|---|---|---|---|---|---|---|
| $V_O$ | Output Voltage | $I_O$ = 5 mA $V_I$ = 7 V | | 4.9 | 5 | 5.1 | V |
| | | $I_O$ = 5 mA $V_I$ = 7 V $T_A$=-25 to 85°C | | 4.8 | | 5.2 | |
| $V_I$ | Operating Input Voltage | $I_O$ = 250 mA | | | | 20 | V |
| $I_{out}$ | Output Current Limit | | | | 300 | | mA |
| $\Delta V_O$ | Line Regulation | $V_I$ = 5.8 to 20 V $I_O$ = 0.5 mA | | | 3.5 | 17.5 | mV |
| $\Delta V_O$(*) | Load Regulation | $V_I$ = 6 V $I_O$ = 0.5 to 250 mA | | | 3 | 15 | mV |
| $I_d$ | Quiescent Current ON MODE | $V_I$ = 6 to 20 V $I_O$ = 0 mA | | | 0.6 | 1 | mA |
| | | $V_I$ = 6 to 20 V $I_O$ = 250 mA | | | 4 | 6 | |
| | OFF MODE | $V_I$ = 6 V | | | 50 | 100 | µA |
| SVR | Supply Voltage Rejection | $I_O$ = 5 mA $V_I$ = 7 ± 1 V | f = 120 Hz | | 70 | | dB |
| | | | f = 1 KHz | | 67 | | |
| | | | f = 10 KHz | | 55 | | |
| eN | Output Noise Voltage | B =10 Hz to 100 KHz | | | 50 | | µV |
| $V_d$(*) | Dropout Voltage | $I_O$ = 250 mA | | | 0.4 | 0.6 | V |
| | | $I_O$ = 250 mA $T_J$= -40 to 125°C | | | | 0.8 | |
| $V_{IL}$ | Control Input Logic Low | $T_A$= -40 to 125°C | | | | 0.8 | V |
| $V_{IH}$ | Control Input Logic High | $T_A$= -40 to 125°C | | 2 | | | V |
| $I_I$ | Control Input Current | $V_I$ = 6 V, $V_C$ = 6 V | | | 10 | | µA |
| $C_O$ | Output Bypass Capacitance | ESR = 0.1 to 10 Ω $I_O$ = 0 to 250 mA | | 2 | 10 | | µF |

(*) For SO-8 package the maximum limit of load regulation and dropout is increased by 20 mV.

**ELECTRICAL CHARACTERISTICS OF L4931ABxx52** (refer to the test circuits, $T_J$ = 25°C, $C_I$ = 0.1 µF, $C_O$ = 2.2 µF unless otherwise specified).

| Symbol | Parameter | Test Conditions | | Min. | Typ. | Max. | Unit |
|---|---|---|---|---|---|---|---|
| $V_O$ | Output Voltage | $I_O$ = 5 mA $V_I$ = 7.2 V | | 5.148 | 5.2 | 5.252 | V |
| | | $I_O$ = 5 mA $V_I$ = 7.2 V $T_A$=-25 to 85°C | | 5.096 | | 5.304 | |
| $V_I$ | Operating Input Voltage | $I_O$ = 250 mA | | | | 20 | V |
| $I_{out}$ | Output Current Limit | | | | 300 | | mA |
| $\Delta V_O$ | Line Regulation | $V_I$ = 6 to 20 V $I_O$ = 0.5 mA | | | 3.5 | 17.5 | mV |
| $\Delta V_O$(*) | Load Regulation | $V_I$ = 6.2 V $I_O$ = 0.5 to 250 mA | | | 3 | 15 | mV |
| $I_d$ | Quiescent Current ON MODE | $V_I$ = 6.2 to 20 V $I_O$ = 0 mA | | | 0.6 | 1 | mA |
| | | $V_I$ = 6.2 to 20 V $I_O$ = 250 mA | | | 4 | 6 | |
| | OFF MODE | $V_I$ = 6 V | | | 50 | 100 | µA |
| SVR | Supply Voltage Rejection | $I_O$ = 5 mA $V_I$ = 7.2 ± 1 V | f = 120 Hz | | 70 | | dB |
| | | | f = 1 KHz | | 67 | | |
| | | | f = 10 KHz | | 55 | | |
| eN | Output Noise Voltage | B =10 Hz to 100 KHz | | | 50 | | µV |
| $V_d$(*) | Dropout Voltage | $I_O$ = 250 mA | | | 0.4 | 0.6 | V |
| | | $I_O$ = 250 mA $T_J$= -40 to 125°C | | | | 0.8 | |
| $V_{IL}$ | Control Input Logic Low | $T_A$= -40 to 125°C | | | | 0.8 | V |
| $V_{IH}$ | Control Input Logic High | $T_A$= -40 to 125°C | | 2 | | | V |
| $I_I$ | Control Input Current | $V_I$ = 6 V, $V_C$ = 6 V | | | 10 | | µA |
| $C_O$ | Output Bypass Capacitance | ESR = 0.1 to 10 Ω $I_O$ = 0 to 250 mA | | 2 | 10 | | µF |

(*) For SO-8 package the maximum limit of load regulation and dropout is increased by 20 mV.

**ELECTRICAL CHARACTERISTICS OF L4931Cxx52** (refer to the test circuits, $T_J$ = 25°C, $C_I$ = 0.1 µF, $C_O$ = 2.2 µF unless otherwise specified).

| Symbol | Parameter | Test Conditions | | Min. | Typ. | Max. | Unit |
|---|---|---|---|---|---|---|---|
| $V_O$ | Output Voltage | $I_O$ = 5 mA $V_I$ = 7.2 V | | 5.096 | 5.2 | 5.304 | V |
| | | $I_O$ = 5 mA $V_I$ = 7.2 V $T_A$=-25 to 85°C | | 4.992 | | 5.408 | |
| $V_I$ | Operating Input Voltage | $I_O$ = 250 mA | | | | 20 | V |
| $I_{out}$ | Output Current Limit | | | | 300 | | mA |
| $\Delta V_O$ | Line Regulation | $V_I$ = 6 to 20 V $I_O$ = 0.5 mA | | | 3.5 | 21 | mV |
| $\Delta V_O$(*) | Load Regulation | $V_I$ = 6.2 V $I_O$ = 0.5 to 250 mA | | | 3 | 18 | mV |
| $I_d$ | Quiescent Current ON MODE | $V_I$ = 6.2 to 20 V $I_O$ = 0 mA | | | 0.6 | 1 | mA |
| | | $V_I$ = 6.2 to 20 V $I_O$ = 250 mA | | | 4 | 6 | |
| | OFF MODE | $V_I$ = 6 V | | | 50 | 100 | µA |
| SVR | Supply Voltage Rejection | $I_O$ = 5 mA $V_I$ = 7.2 ± 1 V | f = 120 Hz | | 70 | | dB |
| | | | f = 1 KHz | | 67 | | |
| | | | f = 10 KHz | | 55 | | |
| eN | Output Noise Voltage | B =10 Hz to 100 KHz | | | 50 | | µV |
| $V_d$(*) | Dropout Voltage | $I_O$ = 250 mA | | | 0.4 | 0.6 | V |
| | | $I_O$ = 250 mA $T_J$= -40 to 125°C | | | | 0.8 | |
| $V_{IL}$ | Control Input Logic Low | $T_A$= -40 to 125°C | | | | 0.8 | V |
| $V_{IH}$ | Control Input Logic High | $T_A$= -40 to 125°C | | 2 | | | V |
| $I_I$ | Control Input Current | $V_I$ = 6 V, $V_C$ = 6 V | | | 10 | | µA |
| $C_O$ | Output Bypass Capacitance | ESR = 0.1 to 10 Ω $I_O$ = 0 to 250 mA | | 2 | 10 | | µF |

(*) For SO-8 package the maximum limit of load regulation and dropout is increased by 20 mV.

**ELECTRICAL CHARACTERISTICS OF L4931ABxx55** (refer to the test circuits, $T_J$ = 25°C, $C_I$ = 0.1 µF, $C_O$ = 2.2 µF unless otherwise specified).

| Symbol | Parameter | Test Conditions | | Min. | Typ. | Max. | Unit |
|---|---|---|---|---|---|---|---|
| $V_O$ | Output Voltage | $I_O$ = 5 mA $V_I$ = 7.5 V | | 5.445 | 5.5 | 5.555 | V |
| | | $I_O$ = 5 mA $V_I$ = 7.5 V $T_A$=-25 to 85°C | | 5.39 | | 5.61 | |
| $V_I$ | Operating Input Voltage | $I_O$ = 250 mA | | | | 20 | V |
| $I_{out}$ | Output Current Limit | | | | 300 | | mA |
| $\Delta V_O$ | Line Regulation | $V_I$ = 6.3 to 20 V $I_O$ = 0.5 mA | | | 3.5 | 17.5 | mV |
| $\Delta V_O$(*) | Load Regulation | $V_I$ = 6.5 V $I_O$ = 0.5 to 250 mA | | | 3 | 15 | mV |
| $I_d$ | Quiescent Current ON MODE | $V_I$ = 6.5 to 20 V $I_O$ = 0 mA | | | 0.6 | 1 | mA |
| | | $V_I$ = 6.5 to 20 V $I_O$ = 250 mA | | | 4 | 6 | |
| | OFF MODE | $V_I$ = 6 V | | | 50 | 100 | µA |
| SVR | Supply Voltage Rejection | $I_O$ = 5 mA $V_I$ = 7.5 ± 1 V | f = 120 Hz | | 70 | | dB |
| | | | f = 1 KHz | | 67 | | |
| | | | f = 10 KHz | | 55 | | |
| eN | Output Noise Voltage | B =10 Hz to 100 KHz | | | 50 | | µV |
| $V_d$(*) | Dropout Voltage | $I_O$ = 250 mA | | | 0.4 | 0.6 | V |
| | | $I_O$ = 250 mA $T_J$= -40 to 125°C | | | | 0.8 | |
| $V_{IL}$ | Control Input Logic Low | $T_A$= -40 to 125°C | | | | 0.8 | V |
| $V_{IH}$ | Control Input Logic High | $T_A$= -40 to 125°C | | 2 | | | V |
| $I_I$ | Control Input Current | $V_I$ = 6 V, $V_C$ = 6 V | | | 10 | | µA |
| $C_O$ | Output Bypass Capacitance | ESR = 0.1 to 10 Ω $I_O$ = 0 to 250 mA | | 2 | 10 | | µF |

(*) For SO-8 package the maximum limit of load regulation and dropout is increased by 20 mV.

**ELECTRICAL CHARACTERISTICS OF L4931Cxx55** (refer to the test circuits, $T_J$ = 25°C, $C_I$ = 0.1 µF, $C_O$ = 2.2 µF unless otherwise specified).

| Symbol | Parameter | Test Conditions | | Min. | Typ. | Max. | Unit |
|---|---|---|---|---|---|---|---|
| $V_O$ | Output Voltage | $I_O$ = 5 mA $V_I$ = 7.5 V | | 5.39 | 5.5 | 5.61 | V |
| | | $I_O$ = 5 mA $V_I$ = 7.5 V $T_A$=-25 to 85°C | | 5.28 | | 5.72 | |
| $V_I$ | Operating Input Voltage | $I_O$ = 250 mA | | | | 20 | V |
| $I_{out}$ | Output Current Limit | | | | 300 | | mA |
| $\Delta V_O$ | Line Regulation | $V_I$ = 6.3 to 20 V $I_O$ = 0.5 mA | | | 3.5 | 21 | mV |
| $\Delta V_O$(*) | Load Regulation | $V_I$ = 6.5 V $I_O$ = 0.5 to 250 mA | | | 3 | 18 | mV |
| $I_d$ | Quiescent Current ON MODE | $V_I$ = 6.5 to 20 V $I_O$ = 0 mA | | | 0.6 | 1 | mA |
| | | $V_I$ = 6.5 to 20 V $I_O$ = 250 mA | | | 4 | 6 | |
| | OFF MODE | $V_I$ = 6 V | | | 50 | 100 | µA |
| SVR | Supply Voltage Rejection | $I_O$ = 5 mA $V_I$ = 7.5 ± 1 V | f = 120 Hz | | 70 | | dB |
| | | | f = 1 KHz | | 67 | | |
| | | | f = 10 KHz | | 55 | | |
| eN | Output Noise Voltage | B =10 Hz to 100 KHz | | | 50 | | µV |
| $V_d$(*) | Dropout Voltage | $I_O$ = 250 mA | | | 0.4 | 0.6 | V |
| | | $I_O$ = 250 mA $T_J$= -40 to 125°C | | | | 0.8 | |
| $V_{IL}$ | Control Input Logic Low | $T_A$= -40 to 125°C | | | | 0.8 | V |
| $V_{IH}$ | Control Input Logic High | $T_A$= -40 to 125°C | | 2 | | | V |
| $I_I$ | Control Input Current | $V_I$ = 6 V, $V_C$ = 6 V | | | 10 | | µA |
| $C_O$ | Output Bypass Capacitance | ESR = 0.1 to 10 Ω $I_O$ = 0 to 250 mA | | 2 | 10 | | µF |

(*) For SO-8 package the maximum limit of load regulation and dropout is increased by 20 mV.

**ELECTRICAL CHARACTERISTICS OF L4931ABxx60** (refer to the test circuits, $T_J$ = 25°C, $C_I$ = 0.1 µF, $C_O$ = 2.2 µF unless otherwise specified).

| Symbol | Parameter | Test Conditions | | Min. | Typ. | Max. | Unit |
|---|---|---|---|---|---|---|---|
| $V_O$ | Output Voltage | $I_O$ = 5 mA $V_I$ = 8 V | | 5.94 | 6 | 6.06 | V |
| | | $I_O$ = 5 mA $V_I$ = 8 V $T_A$=-25 to 85°C | | 5.88 | | 6.12 | |
| $V_I$ | Operating Input Voltage | $I_O$ = 250 mA | | | | 20 | V |
| $I_{out}$ | Output Current Limit | | | | 300 | | mA |
| $\Delta V_O$ | Line Regulation | $V_I$ = 6.8 to 20 V $I_O$ = 0.5 mA | | | 4 | 20 | mV |
| $\Delta V_O$(*) | Load Regulation | $V_I$ = 7 V $I_O$ = 0.5 to 250 mA | | | 3 | 15 | mV |
| $I_d$ | Quiescent Current ON MODE | $V_I$ = 7 to 20 V $I_O$ = 0 mA | | | 0.8 | 1.6 | mA |
| | | $V_I$ = 7 to 20 V $I_O$ = 250 mA | | | 4.5 | 7 | |
| | OFF MODE | $V_I$ = 6 V | | | 70 | 140 | µA |
| SVR | Supply Voltage Rejection | $I_O$ = 5 mA $V_I$ = 8 ± 1 V | f = 120 Hz | | 69 | | dB |
| | | | f = 1 KHz | | 66 | | |
| | | | f = 10 KHz | | 55 | | |
| eN | Output Noise Voltage | B =10 Hz to 100 KHz | | | 50 | | µV |
| $V_d$(*) | Dropout Voltage | $I_O$ = 250 mA | | | 0.4 | 0.6 | V |
| | | $I_O$ = 250 mA $T_J$= -40 to 125°C | | | | 0.8 | |
| $V_{IL}$ | Control Input Logic Low | $T_A$= -40 to 125°C | | | | 0.8 | V |
| $V_{IH}$ | Control Input Logic High | $T_A$= -40 to 125°C | | 2 | | | V |
| $I_I$ | Control Input Current | $V_I$ = 6 V, $V_C$ = 6 V | | | 10 | | µA |
| $C_O$ | Output Bypass Capacitance | ESR = 0.1 to 10 Ω $I_O$ = 0 to 250 mA | | 2 | 10 | | µF |

(*) For SO-8 package the maximum limit of load regulation and dropout is increased by 20 mV.

**ELECTRICAL CHARACTERISTICS OF L4931Cxx60** (refer to the test circuits, $T_J$ = 25°C, $C_I$ = 0.1 µF, $C_O$ = 2.2 µF unless otherwise specified).

| Symbol | Parameter | Test Conditions | | Min. | Typ. | Max. | Unit |
|---|---|---|---|---|---|---|---|
| $V_O$ | Output Voltage | $I_O$ = 5 mA $V_I$ = 8 V | | 5.88 | 6 | 6.12 | V |
| | | $I_O$ = 5 mA $V_I$ = 8 V $T_A$=-25 to 85°C | | 5.76 | | 6.24 | |
| $V_I$ | Operating Input Voltage | $I_O$ = 250 mA | | | | 20 | V |
| $I_{out}$ | Output Current Limit | | | | 300 | | mA |
| $\Delta V_O$ | Line Regulation | $V_I$ = 6.8 to 20 V $I_O$ = 0.5 mA | | | 4 | 24 | mV |
| $\Delta V_O$(*) | Load Regulation | $V_I$ = 7 V $I_O$ = 0.5 to 250 mA | | | 3 | 18 | mV |
| $I_d$ | Quiescent Current ON MODE | $V_I$ = 7 to 20 V $I_O$ = 0 mA | | | 0.8 | 1.6 | mA |
| | | $V_I$ = 7 to 20 V $I_O$ = 250 mA | | | 4.5 | 7 | |
| | OFF MODE | $V_I$ = 6 V | | | 70 | 140 | µA |
| SVR | Supply Voltage Rejection | $I_O$ = 5 mA $V_I$ = 8 ± 1 V | f = 120 Hz | | 69 | | dB |
| | | | f = 1 KHz | | 66 | | |
| | | | f = 10 KHz | | 55 | | |
| eN | Output Noise Voltage | B =10 Hz to 100 KHz | | | 50 | | µV |
| $V_d$(*) | Dropout Voltage | $I_O$ = 250 mA | | | 0.4 | 0.6 | V |
| | | $I_O$ = 250 mA $T_J$= -40 to 125°C | | | | 0.8 | |
| $V_{IL}$ | Control Input Logic Low | $T_A$= -40 to 125°C | | | | 0.8 | V |
| $V_{IH}$ | Control Input Logic High | $T_A$= -40 to 125°C | | 2 | | | V |
| $I_I$ | Control Input Current | $V_I$ = 6 V, $V_C$ = 6 V | | | 10 | | µA |
| $C_O$ | Output Bypass Capacitance | ESR = 0.1 to 10 Ω $I_O$ = 0 to 250 mA | | 2 | 10 | | µF |

(*) For SO-8 package the maximum limit of load regulation and dropout is increased by 20 mV.

**ELECTRICAL CHARACTERISTICS OF L4931ABxx80** (refer to the test circuits, $T_J$ = 25°C, $C_I$ = 0.1 µF, $C_O$ = 2.2 µF unless otherwise specified).

| Symbol | Parameter | Test Conditions | | Min. | Typ. | Max. | Unit |
|---|---|---|---|---|---|---|---|
| $V_O$ | Output Voltage | $I_O$ = 5 mA $V_I$ = 10 V | | 7.92 | 8 | 8.08 | V |
| | | $I_O$ = 5 mA $V_I$ = 10 V $T_A$=-25 to 85°C | | 7.84 | | 8.16 | |
| $V_I$ | Operating Input Voltage | $I_O$ = 250 mA | | | | 20 | V |
| $I_{out}$ | Output Current Limit | | | | 300 | | mA |
| $\Delta V_O$ | Line Regulation | $V_I$ = 8.8 to 20 V $I_O$ = 0.5 mA | | | 4 | 20 | mV |
| $\Delta V_O$(*) | Load Regulation | $V_I$ = 9 V $I_O$ = 0.5 to 250 mA | | | 3 | 15 | mV |
| $I_d$ | Quiescent Current ON MODE | $V_I$ = 9 to 20 V $I_O$ = 0 mA | | | 0.8 | 1.6 | mA |
| | | $V_I$ = 9 to 20 V $I_O$ = 250 mA | | | 4.5 | 7 | |
| | OFF MODE | $V_I$ = 6 V | | | 70 | 140 | µA |
| SVR | Supply Voltage Rejection | $I_O$ = 5 mA $V_I$ = 10 ± 1 V | f = 120 Hz | | 67 | | dB |
| | | | f = 1 KHz | | 64 | | |
| | | | f = 10 KHz | | 55 | | |
| eN | Output Noise Voltage | B =10 Hz to 100 KHz | | | 50 | | µV |
| $V_d$(*) | Dropout Voltage | $I_O$ = 250 mA | | | 0.4 | 0.6 | V |
| | | $I_O$ = 250 mA $T_J$= -40 to 125°C | | | | 0.8 | |
| $V_{IL}$ | Control Input Logic Low | $T_A$= -40 to 125°C | | | | 0.8 | V |
| $V_{IH}$ | Control Input Logic High | $T_A$= -40 to 125°C | | 2 | | | V |
| $I_I$ | Control Input Current | $V_I$ = 6 V, $V_C$ = 6 V | | | 10 | | µA |
| $C_O$ | Output Bypass Capacitance | ESR = 0.1 to 10 Ω $I_O$ = 0 to 250 mA | | 2 | 10 | | µF |

(*) For SO-8 package the maximum limit of load regulation and dropout is increased by 20 mV.

**ELECTRICAL CHARACTERISTICS OF L4931Cxx80** (refer to the test circuits, $T_J$ = 25°C, $C_I$ = 0.1 µF, $C_O$ = 2.2 µF unless otherwise specified).

| Symbol | Parameter | Test Conditions | | Min. | Typ. | Max. | Unit |
|---|---|---|---|---|---|---|---|
| $V_O$ | Output Voltage | $I_O$ = 5 mA $V_I$ = 10 V | | 7.84 | 8 | 8.16 | V |
| | | $I_O$ = 5 mA $V_I$ = 10 V $T_A$=-25 to 85°C | | 7.68 | | 8.32 | |
| $V_I$ | Operating Input Voltage | $I_O$ = 250 mA | | | | 20 | V |
| $I_{out}$ | Output Current Limit | | | | 300 | | mA |
| $\Delta V_O$ | Line Regulation | $V_I$ = 8.9 to 20 V $I_O$ = 0.5 mA | | | 4 | 24 | mV |
| $\Delta V_O$(*) | Load Regulation | $V_I$ = 9.1 V $I_O$ = 0.5 to 250 mA | | | 3 | 18 | mV |
| $I_d$ | Quiescent Current ON MODE | $V_I$ = 9.1 to 20 V $I_O$ = 0 mA | | | 0.8 | 1.6 | mA |
| | | $V_I$ = 9.1 to 20 V $I_O$ = 250 mA | | | 4.5 | 7 | |
| | OFF MODE | $V_I$ = 6 V | | | 70 | 140 | µA |
| SVR | Supply Voltage Rejection | $I_O$ = 5 mA $V_I$ = 10.1 ± 1 V | f = 120 Hz | | 67 | | dB |
| | | | f = 1 KHz | | 64 | | |
| | | | f = 10 KHz | | 55 | | |
| eN | Output Noise Voltage | B =10 Hz to 100 KHz | | | 50 | | µV |
| $V_d$(*) | Dropout Voltage | $I_O$ = 250 mA | | | 0.4 | 0.6 | V |
| | | $I_O$ = 250 mA $T_J$= -40 to 125°C | | | | 0.8 | |
| $V_{IL}$ | Control Input Logic Low | $T_A$= -40 to 125°C | | | | 0.8 | V |
| $V_{IH}$ | Control Input Logic High | $T_A$= -40 to 125°C | | 2 | | | V |
| $I_I$ | Control Input Current | $V_I$ = 6 V, $V_C$ = 6 V | | | 10 | | µA |
| $C_O$ | Output Bypass Capacitance | ESR = 0.1 to 10 Ω $I_O$ = 0 to 250 mA | | 2 | 10 | | µF |

(*) For SO-8 package the maximum limit of load regulation and dropout is increased by 20 mV.

**ELECTRICAL CHARACTERISTICS OF L4931ABxx120** (refer to the test circuits, $T_J$ = 25°C, $C_I$ = 0.1 µF, $C_O$ = 2.2 µF unless otherwise specified).

| Symbol | Parameter | Test Conditions | | Min. | Typ. | Max. | Unit |
|---|---|---|---|---|---|---|---|
| $V_O$ | Output Voltage | $I_O$ = 5 mA $V_I$ = 14 V | | 11.88 | 12 | 12.12 | V |
| | | $I_O$ = 5 mA $V_I$ = 14 V $T_A$=-25 to 85°C | | 11.76 | | 12.24 | |
| $V_I$ | Operating Input Voltage | $I_O$ = 250 mA | | | | 20 | V |
| $I_{out}$ | Output Current Limit | | | | 300 | | mA |
| $\Delta V_O$ | Line Regulation | $V_I$ = 12.8 to 20 V $I_O$ = 0.5 mA | | | 4 | 20 | mV |
| $\Delta V_O$(*) | Load Regulation | $V_I$ = 13 V $I_O$ = 0.5 to 250 mA | | | 3 | 15 | mV |
| $I_d$ | Quiescent Current ON MODE | $V_I$ = 13 to 20 V $I_O$ = 0 mA | | | 0.8 | 1.6 | mA |
| | | $V_I$ = 13 to 20 V $I_O$ = 250 mA | | | 4.5 | 7 | |
| | OFF MODE | $V_I$ = 6 V | | | 90 | 180 | µA |
| SVR | Supply Voltage Rejection | $I_O$ = 5 mA $V_I$ = 14 ± 1 V | f = 120 Hz | | 64 | | dB |
| | | | f = 1 KHz | | 61 | | |
| | | | f = 10 KHz | | 55 | | |
| eN | Output Noise Voltage | B =10 Hz to 100 KHz | | | 50 | | µV |
| $V_d$(*) | Dropout Voltage | $I_O$ = 250 mA | | | 0.4 | 0.6 | V |
| | | $I_O$ = 250 mA $T_J$= -40 to 125°C | | | | 0.8 | |
| $V_{IL}$ | Control Input Logic Low | $T_A$= -40 to 125°C | | | | 0.8 | V |
| $V_{IH}$ | Control Input Logic High | $T_A$= -40 to 125°C | | 2 | | | V |
| $I_I$ | Control Input Current | $V_I$ = 6 V, $V_C$ = 6 V | | | 10 | | µA |
| $C_O$ | Output Bypass Capacitance | ESR = 0.1 to 10 Ω $I_O$ = 0 to 250 mA | | 2 | 10 | | µF |

(*) For SO-8 package the maximum limit of load regulation and dropout is increased by 20 mV.

**ELECTRICAL CHARACTERISTICS OF L4931Cxx120** (refer to the test circuits, $T_J$ = 25°C, $C_I$ = 0.1 µF, $C_O$ = 2.2 µF unless otherwise specified).

| Symbol | Parameter | Test Conditions | | Min. | Typ. | Max. | Unit |
|---|---|---|---|---|---|---|---|
| $V_O$ | Output Voltage | $I_O$ = 5 mA $V_I$ = 14 V | | 11.76 | 12 | 12.24 | V |
| | | $I_O$ = 5 mA $V_I$ = 14 V $T_A$=-25 to 85°C | | 11.52 | | 12.48 | |
| $V_I$ | Operating Input Voltage | $I_O$ = 250 mA | | | | 20 | V |
| $I_{out}$ | Output Current Limit | | | | 300 | | mA |
| $\Delta V_O$ | Line Regulation | $V_I$ = 12.9 to 20 V $I_O$ = 0.5 mA | | | 4 | 24 | mV |
| $\Delta V_O$(*) | Load Regulation | $V_I$ = 13.1 V $I_O$ = 0.5 to 250 mA | | | 3 | 18 | mV |
| $I_d$ | Quiescent Current ON MODE | $V_I$ = 13.1 to 20 V $I_O$ = 0 mA | | | 0.8 | 1.6 | mA |
| | | $V_I$ = 13.1 to 20 V $I_O$ = 250 mA | | | 4.5 | 7 | |
| | OFF MODE | $V_I$ = 6 V | | | 90 | 180 | µA |
| SVR | Supply Voltage Rejection | $I_O$ = 5 mA $V_I$ = 14.1 ± 1 V | f = 120 Hz | | 64 | | dB |
| | | | f = 1 KHz | | 61 | | |
| | | | f = 10 KHz | | 55 | | |
| eN | Output Noise Voltage | B =10 Hz to 100 KHz | | | 50 | | µV |
| $V_d$(*) | Dropout Voltage | $I_O$ = 250 mA | | | 0.4 | 0.6 | V |
| | | $I_O$ = 250 mA $T_J$= -40 to 125°C | | | | 0.8 | |
| $V_{IL}$ | Control Input Logic Low | $T_A$= -40 to 125°C | | | | 0.8 | V |
| $V_{IH}$ | Control Input Logic High | $T_A$= -40 to 125°C | | 2 | | | V |
| $I_I$ | Control Input Current | $V_I$ = 6 V, $V_C$ = 6 V | | | 10 | | µA |
| $C_O$ | Output Bypass Capacitance | ESR = 0.1 to 10 Ω $I_O$ = 0 to 250 mA | | 2 | 10 | | µF |

(*) For SO-8 package the maximum limit of load regulation and dropout is increased by 20 mV.

**Figure 1 :** Supply Current vs Output Current

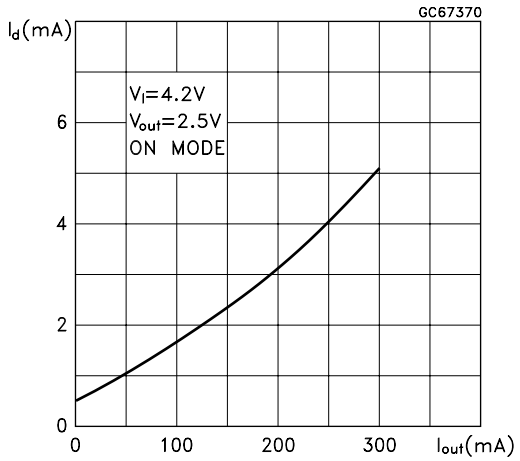



**Figure 2 :** Dropout Voltage vs Temperature

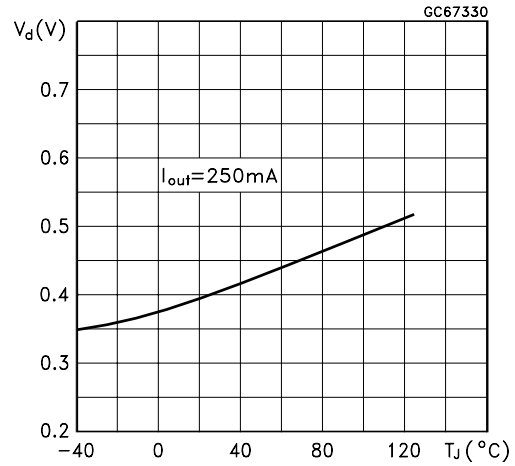



**Figure 3 :** Supply Current vs Input Voltage

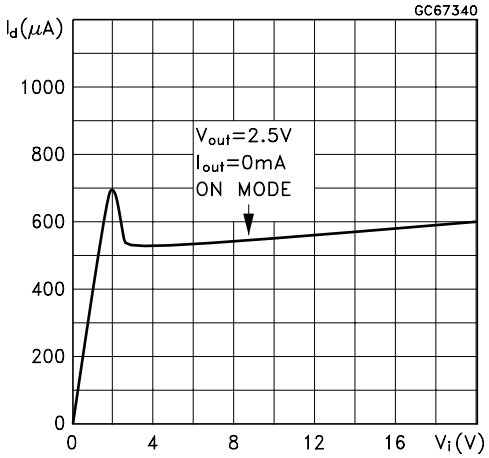



**Figure 4 :** Supply Current vs Temperature

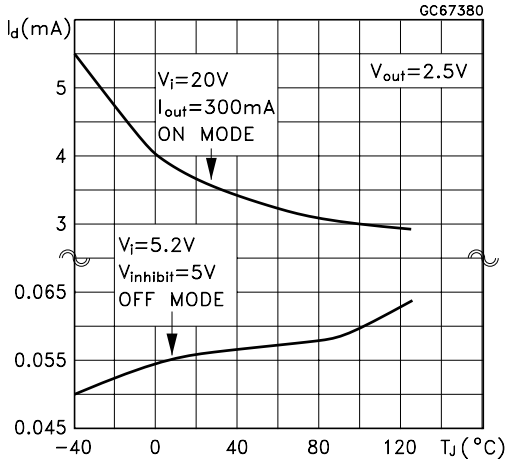



**Figure 5 :** Short Circuit Current vs Dropout Voltage

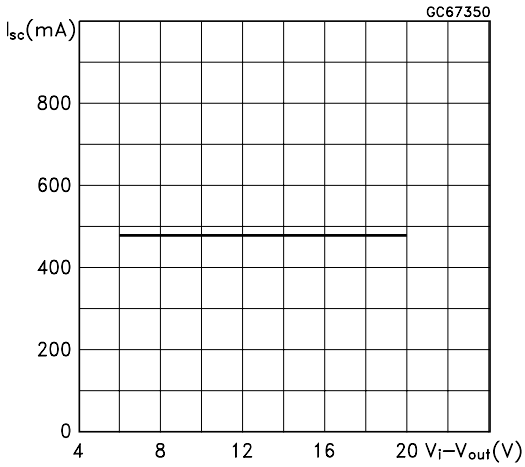
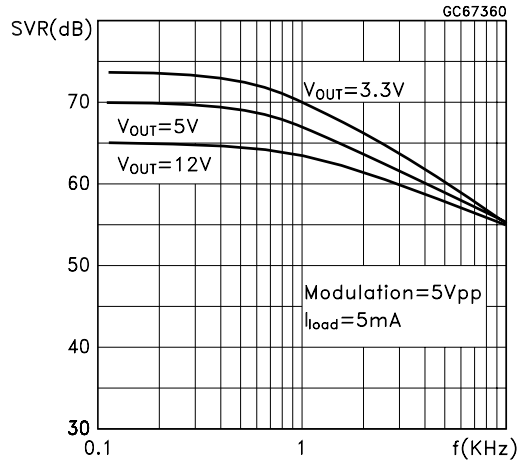
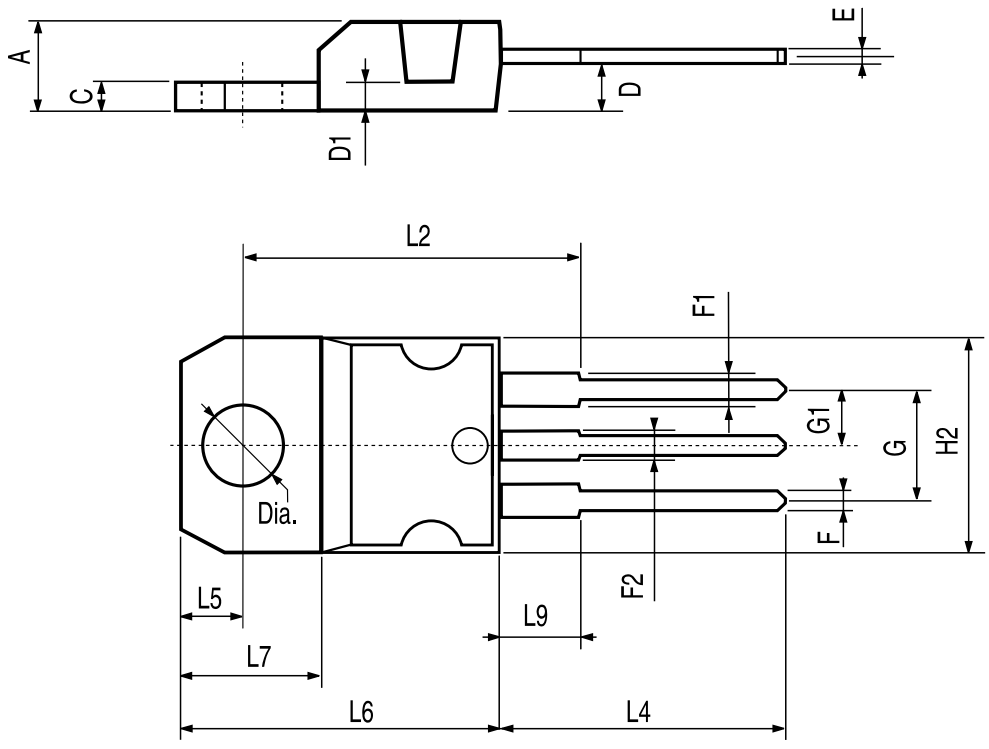



**Figure 6 :** S.V.R. vs Input Voltage Signal Frequency



## TO-220 MECHANICAL DATA

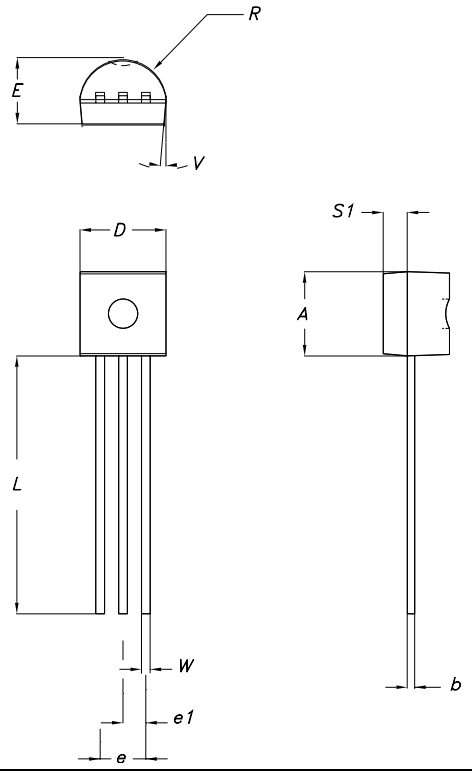
| DIM. | mm. | | | inch | | |
|---|---|---|---|---|---|---|
| | MIN. | TYP | MAX. | MIN. | TYP. | MAX. |
| A | 4.40 | | 4.60 | 0.173 | | 0.181 |
| C | 1.23 | | 1.32 | 0.048 | | 0.051 |
| D | 2.40 | | 2.72 | 0.094 | | 0.107 |
| D1 | | 1.27 | | | 0.050 | |
| E | 0.49 | | 0.70 | 0.019 | | 0.027 |
| F | 0.61 | | 0.88 | 0.024 | | 0.034 |
| F1 | 1.14 | | 1.70 | 0.044 | | 0.067 |
| F2 | 1.14 | | 1.70 | 0.044 | | 0.067 |
| G | 4.95 | | 5.15 | 0.194 | | 0.203 |
| G1 | 2.4 | | 2.7 | 0.094 | | 0.106 |
| H2 | 10.0 | | 10.40 | 0.393 | | 0.409 |
| L2 | | 16.4 | | | 0.645 | |
| L4 | 13.0 | | 14.0 | 0.511 | | 0.551 |
| L5 | 2.65 | | 2.95 | 0.104 | | 0.116 |
| L6 | 15.25 | | 15.75 | 0.600 | | 0.620 |
| L7 | 6.2 | | 6.6 | 0.244 | | 0.260 |
| L9 | 3.5 | | 3.93 | 0.137 | | 0.154 |
| DIA. | 3.75 | | 3.85 | 0.147 | | 0.151 |




P011C

## TO-92 MECHANICA DATA

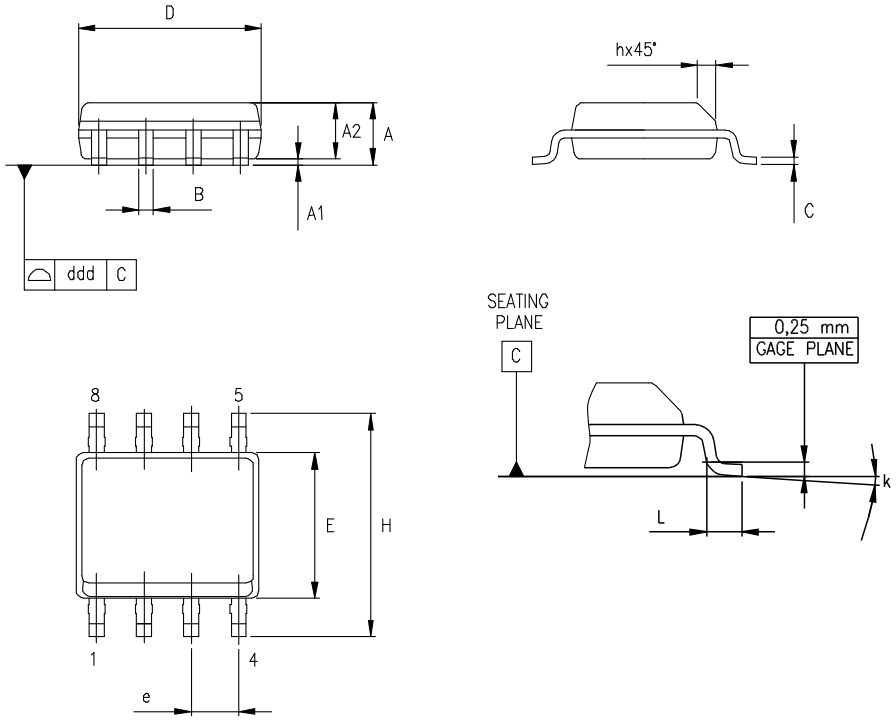
| DIM. | mm. | | | mils | | |
|---|---|---|---|---|---|---|
| | MIN. | TYP | MAX. | MIN. | TYP. | MAX. |
| A | 4.32 | | 4.95 | 170.1 | | 194.9 |
| b | 0.36 | | 0.51 | 14.2 | | 20.1 |
| D | 4.45 | | 4.95 | 175.2 | | 194.9 |
| E | 3.30 | | 3.94 | 129.9 | | 155.1 |
| e | 2.41 | | 2.67 | 94.9 | | 105.1 |
| e1 | 1.14 | | 1.40 | 44.9 | | 55.1 |
| L | 12.7 | | 15.49 | 500.0 | | 609.8 |
| R | 2.16 | | 2.41 | 85.0 | | 94.9 |
| S1 | 0.92 | | 1.52 | 36.2 | | 59.8 |
| W | 0.41 | | 0.56 | 16.1 | | 22.0 |




0102782/C

## SO-8 MECHANICAL DATA

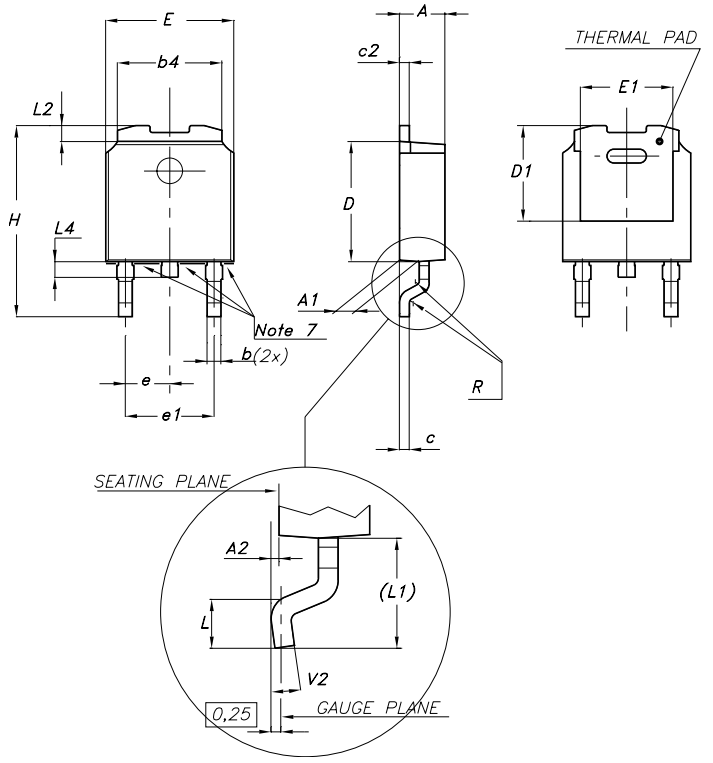
| DIM. | mm. | | | inch | | |
|---|---|---|---|---|---|---|
| | MIN. | TYP | MAX. | MIN. | TYP. | MAX. |
| A | 1.35 | | 1.75 | 0.053 | | 0.069 |
| A1 | 0.10 | | 0.25 | 0.04 | | 0.010 |
| A2 | 1.10 | | 1.65 | 0.043 | | 0.065 |
| B | 0.33 | | 0.51 | 0.013 | | 0.020 |
| C | 0.19 | | 0.25 | 0.007 | | 0.010 |
| D | 4.80 | | 5.00 | 0.189 | | 0.197 |
| E | 3.80 | | 4.00 | 0.150 | | 0.157 |
| e | | 1.27 | | | 0.050 | |
| H | 5.80 | | 6.20 | 0.228 | | 0.244 |
| h | 0.25 | | 0.50 | 0.010 | | 0.020 |
| L | 0.40 | | 1.27 | 0.016 | | 0.050 |
| k | 8° (max.) | | | | | |
| ddd | | | 0.1 | | | 0.04 |




0016023/C

## DPAK MECHANICAL DATA

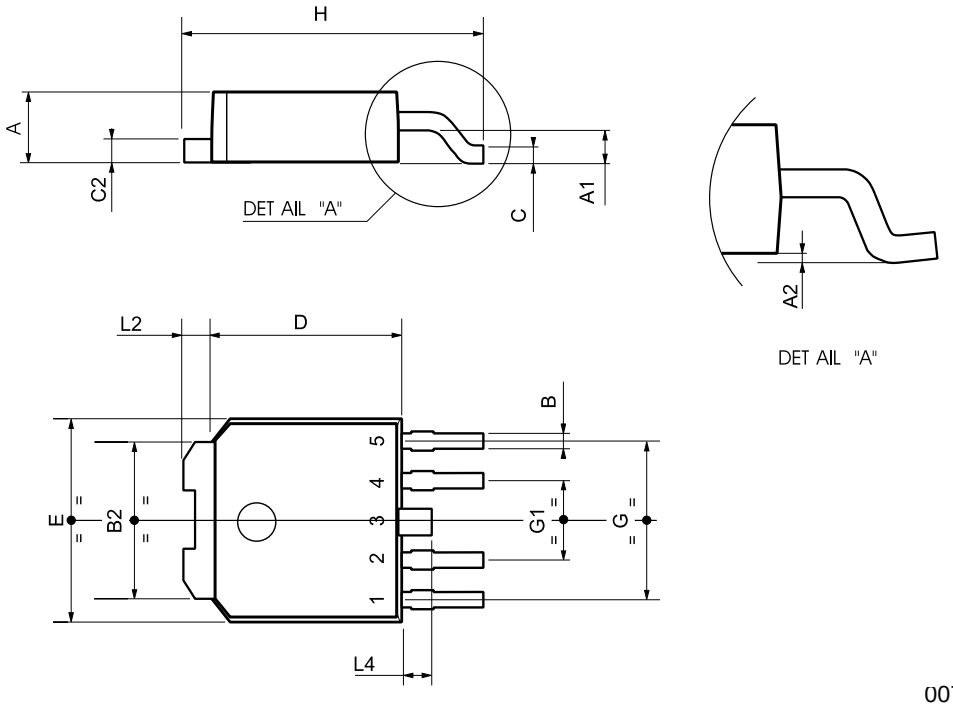
| DIM. | mm. | | | inch | | |
|---|---|---|---|---|---|---|
| | MIN. | TYP | MAX. | MIN. | TYP. | MAX. |
| A | 2.2 | | 2.4 | 0.086 | | 0.094 |
| A1 | 0.9 | | 1.1 | 0.035 | | 0.043 |
| A2 | 0.03 | | 0.23 | 0.001 | | 0.009 |
| B | 0.64 | | 0.9 | 0.025 | | 0.035 |
| B2 | 5.2 | | 5.4 | 0.204 | | 0.212 |
| C | 0.45 | | 0.6 | 0.017 | | 0.023 |
| C2 | 0.48 | | 0.6 | 0.019 | | 0.023 |
| D | 6 | | 6.2 | 0.236 | | 0.244 |
| D1 | | 5.1 | | | 0.200 | |
| E | 6.4 | | 6.6 | 0.252 | | 0.260 |
| E1 | | 4.7 | | | 0.185 | |
| e | | 2.28 | | | 0.090 | |
| e1 | 4.4 | | 4.6 | 0.173 | | 0.181 |
| H | 9.35 | | 10.1 | 0.368 | | 0.397 |
| L | | 1 | | | 0.039 | |
| (L1) | | 2.8 | | | 0.110 | |
| L2 | | 0.8 | | | 0.031 | |
| L4 | 0.6 | | 1 | 0.023 | | 0.039 |




0068772-F

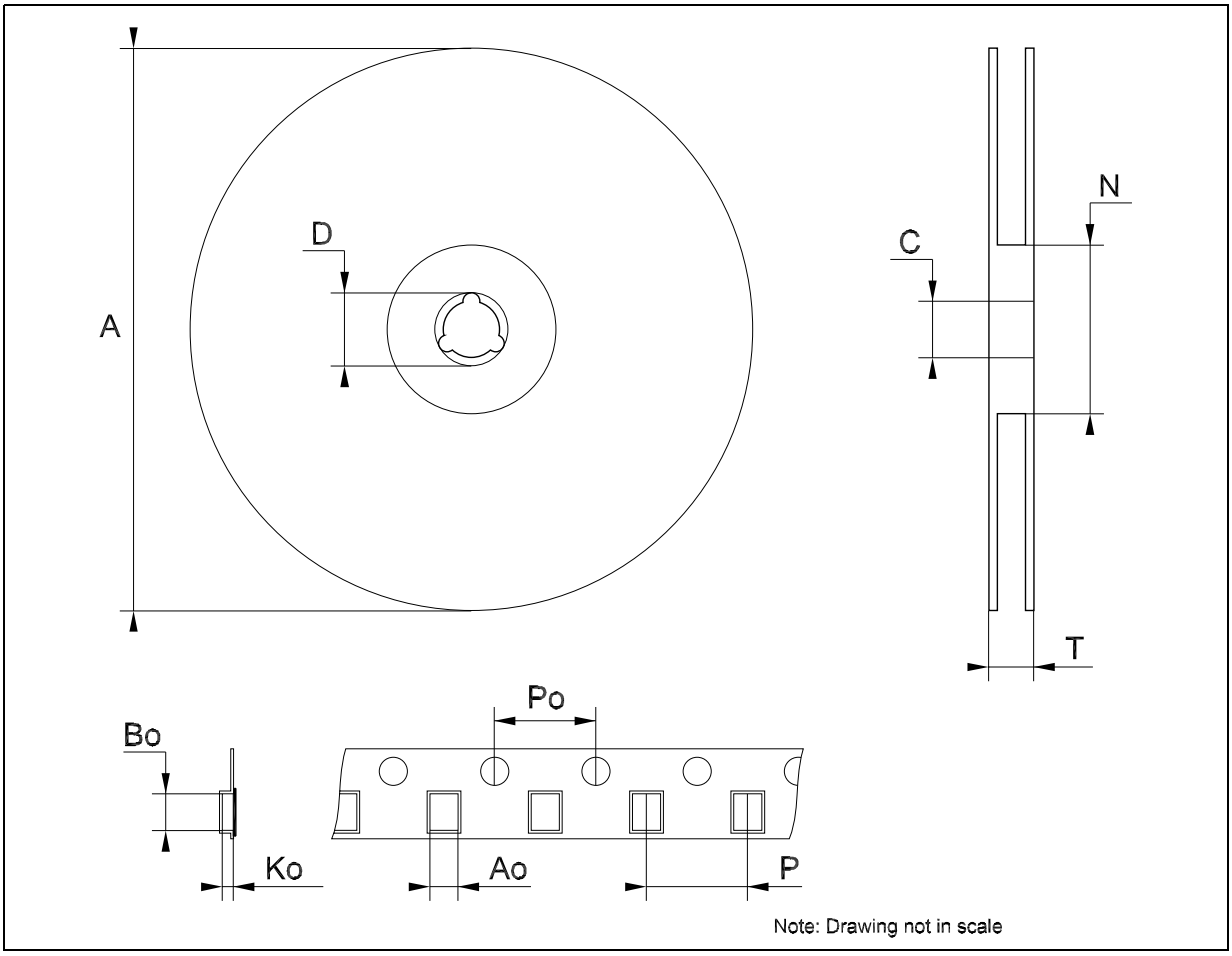
## PPAK MECHANICAL DATA

| DIM. | mm. | | | inch | | |
|---|---|---|---|---|---|---|
| | MIN. | TYP | MAX. | MIN. | TYP. | MAX. |
| A | 2.2 | | 2.4 | 0.086 | | 0.094 |
| A1 | 0.9 | | 1.1 | 0.035 | | 0.043 |
| A2 | 0.03 | | 0.23 | 0.001 | | 0.009 |
| B | 0.4 | | 0.6 | 0.015 | | 0.023 |
| B2 | 5.2 | | 5.4 | 0.204 | | 0.212 |
| C | 0.45 | | 0.6 | 0.017 | | 0.023 |
| C2 | 0.48 | | 0.6 | 0.019 | | 0.023 |
| D | 6 | | 6.2 | 0.236 | | 0.244 |
| E | 6.4 | | 6.6 | 0.252 | | 0.260 |
| G | 4.9 | | 5.25 | 0.193 | | 0.206 |
| G1 | 2.38 | | 2.7 | 0.093 | | 0.106 |
| H | 9.35 | | 10.1 | 0.368 | | 0.397 |
| L2 | | 0.8 | | | 0.031 | |
| L4 | 0.6 | | 1 | 0.023 | | 0.039 |



## Tape & Reel DPAK-PPAK MECHANICAL DATA

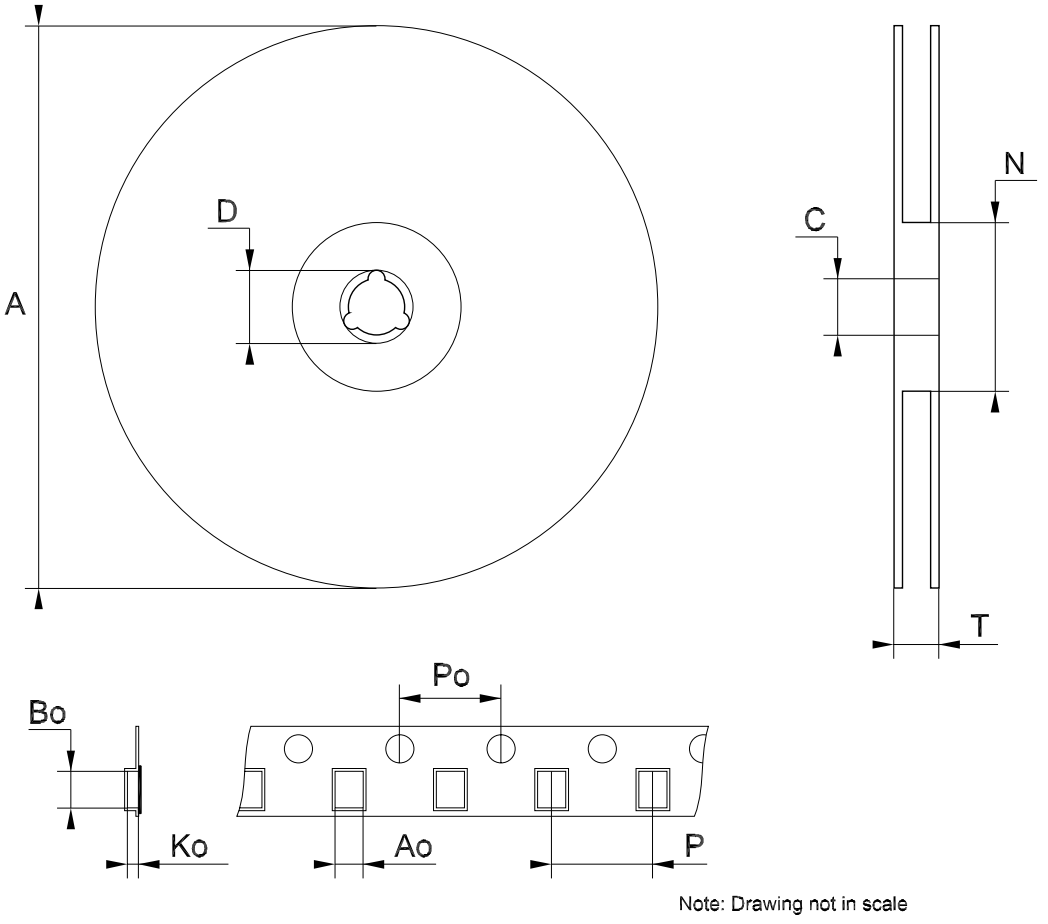
| DIM. | mm. | | | inch | | |
|---|---|---|---|---|---|---|
| | MIN. | TYP | MAX. | MIN. | TYP. | MAX. |
| A | | | 330 | | | 12.992 |
| C | 12.8 | 13.0 | 13.2 | 0.504 | 0.512 | 0.519 |
| D | 20.2 | | | 0.795 | | |
| N | 60 | | | 2.362 | | |
| T | | | 22.4 | | | 0.882 |
| Ao | 6.80 | 6.90 | 7.00 | 0.268 | 0.272 | 0.2.76 |
| Bo | 10.40 | 10.50 | 10.60 | 0.409 | 0.413 | 0.417 |
| Ko | 2.55 | 2.65 | 2.75 | 0.100 | 0.104 | 0.105 |
| Po | 3.9 | 4.0 | 4.1 | 0.153 | 0.157 | 0.161 |
| P | 7.9 | 8.0 | 8.1 | 0.311 | 0.315 | 0.319 |




Note: Drawing not in scale

## Tape & Reel SO-8 MECHANICAL DATA

| DIM. | mm. | | | inch | | |
|---|---|---|---|---|---|---|
| | MIN. | TYP | MAX. | MIN. | TYP. | MAX. |
| A | | | 330 | | | 12.992 |
| C | 12.8 | | 13.2 | 0.504 | | 0.519 |
| D | 20.2 | | | 0.795 | | |
| N | 60 | | | 2.362 | | |
| T | | | 22.4 | | | 0.882 |
| Ao | 8.1 | | 8.5 | 0.319 | | 0.335 |
| Bo | 5.5 | | 5.9 | 0.216 | | 0.232 |
| Ko | 2.1 | | 2.3 | 0.082 | | 0.090 |
| Po | 3.9 | | 4.1 | 0.153 | | 0.161 |
| P | 7.9 | | 8.1 | 0.311 | | 0.319 |




Note: Drawing not in scale

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