# **9** PLANETA

## 78L00A Series

#### The Linear IC's

# **Three-Terminal Low Current Positive Voltage Regulators**

#### **DESCRIPTION**

The 78L00A Series of three terminal positive voltage regulators is available with several fixed output voltages making them useful in a wide range of applications. These regulators are inexpensive, vise-to-use devices suitable for a multitude of applications that require a regulated supply of up to 100 mA. These regulators feature internal current limiting and thermal shutdown making them remarkably rugged. No external components are required with the 78L00A devices in many applications.

These devices offer a substantial performance advantage over the traditional zener diode-resistor combination, as output impedance and quiescent current are substantionally reduced.

The voltages available allow the 78L00A to be used in logic systems, instrumentation, HiFi, and other solid state electronic equipment.

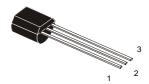
The 78L00A is available in 3-Pin plastic package SOT54 (Z), 3-Pin mini power plastic package SOT89 (F) and the 8-Pin plastic package SO8 (D) offers superior quality and performance at low cost.

#### **FEATURES**

- High Output Current I<sub>0</sub>= 100 mA
- Fixed Output Voltage V<sub>o</sub>= 5 V, 6 V, 8 V, 12 V, 15 V
- Complementary Negative Regulators 79L00A Series
- > Available in either ±5% (AC) Selection

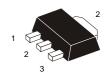
#### **DEVICE TYPE / NOMINAL VOLTAGE**

5% Output Voltage	Voltage	Package					
Accuracy		Z Suffix	F Suffix	D Suffix			
78L05AC	5	78L05ACZ	78L05ACF	78L05ACD			
78L06AC	6	78L06ACZ	78L06ACF	78L06ACD			
78L08AC	8	78L08ACZ	78L08ACF	78L08ACD			
78L09AC	9	78L09ACZ	78L09ACF	78L09ACD			
78L12AC	12	78L12ACZ	78L12ACF	78L12ACD			
78L15AC	15	78L15ACZ	78L15ACF	78L15ACD			



- 1 Output
- 2 Common
- 3 Input

	SOT54
JEDEC EIAJ GOST	TO-92 SC-43 KT-26
Weight:	0.3g



- 1 Output
- 2 Common
- 3 Input

	SOT89
JEDEC EIAJ GOST	TO-243 SC-62 KT-47
Weight:	0.055g



	SOT96-1
JEDEC EIAJ	MS-012 -
GOST	4303.8-1
Weight:	0.08 ã

- 1 Output, 2 Common,
- 3 Common, 4 No Connect,
- 5 No Connect, 6 Common,
- 7 Common, 4 Input

### 78L00AC Series

### ABSOLUTE MAXIMUM RATINGS $(T_A = 25 \, ^{\circ}C)$

Rating	Symbol	Value	Unit
Input Voltage	V <sub>i</sub>		V
$V_0 = 5 \text{ V to } 9 \text{ V}$		30	
$V_0 = 12 \text{ V to } 15 \text{ V}$		35	
Output Current	I <sub>o</sub>	100	mA
Maximum Power Dissipation	P <sub>D</sub>		mW
Case KT-26 (TO-92) Z Suffix		500	
Case KT-47 (SOT-89) F Suffix		350	
Case 4303.8-1 (SO-8) D Suffix		500	
Junction Temperature	T <sub>JMAX</sub>	150	°C
Operating Junction Temperature Range	T <sub>OPR</sub>	-30 to +85	°C
Storage Temperature Range	T <sub>STG</sub>	-40 to +150	°C

#### **ORDERING INFORMATION**

Device	Marking	Package	Quantity	Packing Style
78LXXACZ*	78LXXACZ*	SOT-54	1 Kpcs / plastic bags / carton box	In bulk
78LXXACF*	8LXX*	SOT-89	5 Kpcs / plastic bags / carton box	In bulk
78LXXACF-T1*	8LXX*	SOT-89	1 Kpcs / Reel	Embossed tape 12-mm wide 7" dia. Pin 2 (Common) towards the windung. Perforation on the right.
78LXXACD*	78LXXACD*	SO-8	5 Kpcs / plastic bags / carton box	In bulk
78LXXACD-R1*	78LXXACD*	SO-8	500 pcs / Reel	Embossed tape 12-mm wide 7" dia. Pin 1 (Output) face to perforation side of the tape.
78LXXACD-R2*	78LXXACD*	SO-8	2.5 Kpcs / Reel	Embossed tape 12-mm wide 13" dia. Pin 1 (Output) face to perforation side of the tape.

#### Note 1:

XX indicates nominal voltage

<sup>\*</sup>Available in 5, 6, 8, 9, 12 and 15 V devices.

#### 78L05AC ELECTRICAL CHARACTERISTICS

(V<sub>i</sub> = 10 V, I<sub>o</sub> = 40 mA, C<sub>i</sub> = 0.33  $\mu$ F, C<sub>o</sub> = 0.1  $\mu$ F, T<sub>A</sub> = 25 °C unless otherwise noted)

Characteristic	Symbol	Min	Тур	Max	Unit
Output Voltage	V <sub>o</sub>	4.8	5.0	5.2	V
Output Voltage,	V <sub>o</sub>				V
$7.0V < V_1 < 20.0V, 1mA < I_0 < 40mA$		4.75	_	5.25	
Line Regulation,					mV
$7.0V < V_1 < 20.0V$		_	_	150	
Load Regulation,					mV
$1 \text{mA} < I_{\circ} < 100 \text{mA}$		_	_	60	
$1\text{mA} < I_{o} < 40\text{mA}$		_	_	30	
Input Bias Current	l <sub>IB</sub>	_	_	6	mA
Input Bias Current,	$\Delta l_{_{ m IB}}$				mΑ
$8.0V < V_1 < 20.0V$ , $1mA < I_0 < 40mA$	15	_	_	1.5	
Ripple Rejection,	RR				dB
$8.0V < V_1 < 18.0V, I_0 = 40 \text{mA}, f = 120 \text{Hz}$		41	_	_	
Dropout Voltage	$V_{I} - V_{O}$		1.7	_	V

#### 78L06AC ELECTRICAL CHARACTERISTICS

(V  $_{_{I}}$  = 12 V, I  $_{_{O}}$  = 40 mA, C  $_{_{I}}$  = 0.33  $\mu F,$  C  $_{_{O}}$  = 0.1  $\mu F,$  T  $_{_{A}}$  = 25 °C unless otherwise noted)

Characteristic	Symbol	Min	Тур	Max	Unit
Output Voltage	V <sub>o</sub>	5.75	6.0	6.25	V
Output Voltage,	V <sub>o</sub>				V
$8.5V < V_1 < 20.0V$ , $1mA < I_0 < 40mA$		5.7	_	6.3	
Line Regulation,					mV
8.5V < V <sub>1</sub> < 20.0V		_	_	175	
Load Regulation,					mV
$1 \text{mA} < I_0 < 100 \text{mA}$		_	_	80	
$1 \text{mA} < I_{o} < 40 \text{mA}$		_	_	40	
Input Bias Current	l <sub>IB</sub>	_	_	6	mΑ
Input Bias Current,	$\Delta l_{_{\mathrm{IB}}}$				mΑ
$9.0V < V_1 < 20.0V, 1mA < I_0 < 40mA$	15	_	_	1.5	
Ripple Rejection,	RR				dB
$10.0V < V_1 < 20.0V, I_0 = 40 \text{mA}, f = 120 \text{Hz}$		40	_	_	
Dropout Voltage	$V_1 - V_0$		1.7	_	V

#### 78L08AC ELECTRICAL CHARACTERISTICS

(V<sub>I</sub> = 14 V, I<sub>O</sub> = 40 mA, C<sub>I</sub> = 0.33  $\mu$ F, C<sub>O</sub> = 0.1  $\mu$ F, T<sub>A</sub> = 25 °C unless otherwise noted)

Characteristic	Symbol	Min	Тур	Max	Unit
Output Voltage	V <sub>o</sub>	7.7	8.0	8.3	V
Output Voltage,	V <sub>o</sub>				V
$10.5V < V_1 < 23.0V, 1mA < I_0 < 40mA$		7.6	_	8.4	
Line Regulation,					mV
$10.5V < V_1 < 23.0V$		_	_	175	
Load Regulation,					mV
$1 \text{mA} < I_0 < 100 \text{mA}$		_	_	80	
$1\text{mA} < I_{\circ} < 40\text{mA}$		_	_	40	
Input Bias Current	l <sub>IB</sub>	_	_	6	mA
Input Bias Current,	$\Delta I_{_{\mathrm{IB}}}$				mA
$11.0V < V_1 < 23.0V, 1mA < I_0 < 40mA$	الما	_	_	1.5	
Ripple Rejection,	RR				dB
$13.0V < V_1 < 23.0V, I_0 = 40 \text{mA}, f = 120 \text{Hz}$		37	_	_	
Dropout Voltage	$V_1 - V_0$		1.7	_	V

#### 78L09AC ELECTRICAL CHARACTERISTICS

(V<sub>I</sub> = 16 V, I<sub>O</sub> = 40 mA, C<sub>I</sub> = 0.33  $\mu$ F, C<sub>O</sub> = 0.1  $\mu$ F, T<sub>A</sub> = 25 °C unless otherwise noted)

Characteristic	Symbol	Min	Тур	Max	Unit
Output Voltage	V <sub>o</sub>	8.6	9.0	9.4	V
Output Voltage,	V <sub>o</sub>				V
$12.0V < V_1 < 24.0V, 1mA < I_0 < 40mA$		8.55	_	9.45	
Line Regulation,					mV
12.0V < V <sub>1</sub> < 24.0V		_	_	175	
Load Regulation,					mV
$1 \text{mA} < I_{o} < 100 \text{mA}$		_	_	90	
$1\text{mA} < I_{\circ} < 40\text{mA}$		_	_	40	
Input Bias Current	I <sub>IB</sub>	-	_	6	mA
Input Bias Current,	$\Delta l_{_{\mathrm{IB}}}$				mA
$13.0V < V_1 < 24.0V, 1mA < I_0 < 40mA$		_	_	1.5	
Ripple Rejection,	RR				dB
15.0V < V <sub>1</sub> < 25.0V, I <sub>0</sub> =40mA, f=120Hz		37	_	_	
Dropout Voltage	$V_{I} - V_{O}$		1.7	_	V

#### 78L12AC ELECTRICAL CHARACTERISTICS

(V<sub>i</sub> = 19 V, I<sub>o</sub> = 40 mA, C<sub>i</sub> = 0.33  $\mu$ F, C<sub>o</sub> = 0.1  $\mu$ F, T<sub>A</sub> = 25 °C unless otherwise noted)

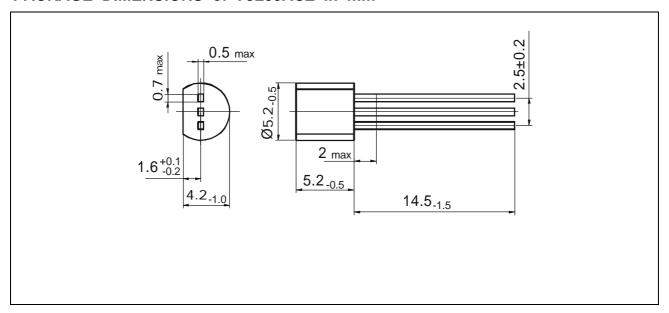
Characteristic	Symbol	Min	Тур	Max	Unit
Output Voltage	V <sub>o</sub>	11.5	12.0	12.5	V
Output Voltage, $14.0V < V_1 < 27.0V$ , $1mA < I_0 < 40mA$	V <sub>o</sub>	11.4	_	12.6	V
Line Regulation, 14.5V < V <sub>1</sub> < 27.0V		_	_	250	mV
Load Regulation,					mV
$1 \text{mA} < I_{o} < 100 \text{mA}$		_	_	100	
$1\text{mA} < I_{\circ} < 40\text{mA}$		_	_	50	
Input Bias Current	l <sub>iB</sub>	_	_	6.5	mA
Input Bias Current,	$\Delta I_{_{\mathrm{IB}}}$				mΑ
$16.0V < V_1 < 27.0V, 1mA < I_0 < 40mA$	J.	_	_	1.5	
Ripple Rejection,	RR				dB
$15.0V < V_1 < 25.0V, I_0 = 40 \text{mA}, f = 120 \text{Hz}$		37	_	_	
Dropout Voltage	$V_1 - V_0$		1.7	_	V

#### 78L15AC ELECTRICAL CHARACTERISTICS

(V  $_{_{I}}$  = 23 V, I  $_{_{O}}$  = 40 mA, C  $_{_{I}}$  = 0.33  $\mu F,$  C  $_{_{O}}$  = 0.1  $\mu F,$  T  $_{_{A}}$  = 25 °C unless otherwise noted)

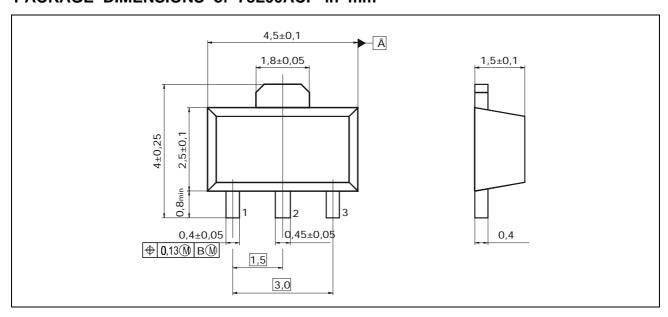
Characteristic	Symbol	Min	Тур	Max	Unit
Output Voltage	V <sub>o</sub>	14.4	15.0	15.6	V
Output Voltage,	V <sub>o</sub>	44.25		4E 7E	V
$17.5V < V_1 < 30.0V, 1mA < I_0 < 40mA$		14.25		15.75	m\/
Line Regulation, $17.5V < V_1 < 30.0V$		_	_	300	mV
Load Regulation,					mV
$1 \text{mA} < I_{0} < 100 \text{mA}$		_	_	150	
$1\text{mA} < I_{o} < 40\text{mA}$		_	_	75	
Input Bias Current	I <sub>IB</sub>	_	_	6.5	mA
Input Bias Current,	$\Delta l_{_{ m IB}}$				mA
$19.0V < V_1 < 30.0V, 1mA < I_0 < 40mA$	IB	_	_	1.5	
Ripple Rejection,	RR				dB
$18.5V < V_1 < 28.5V, I_0 = 40 \text{mA}, f = 120 \text{Hz}$		34	_	_	
Dropout Voltage	$V_1 - V_0$		1.7	_	V

#### PACKAGE DIMENSIONS of 78L00ACZ in mm



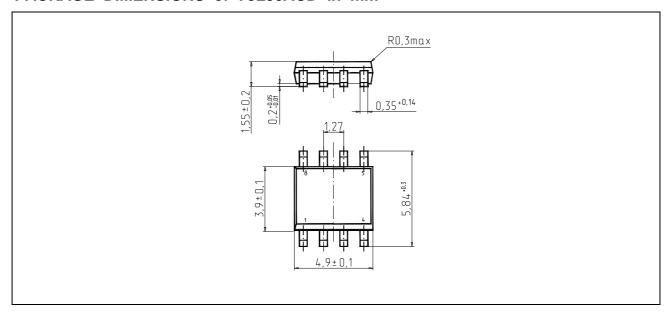
**PLASTIC CASE KT-26** 

#### PACKAGE DIMENSIONS of 78L00ACF in mm



**PLASTIC CASE KT-47** 

#### PACKAGE DIMENSIONS of 78L00ACD in mm



PLASTIC CASE 4303-8.1