AS78LXXACP, AS78LXXCP Characteristics

(Note 2) T_j=0ςC to 125ςC, I_O=40 mA, C_{IN}=0.33 µF, C_O=0.1 µF (unless noted)

AS78LXX Output Voltage, V		5	8	9	12	15	Unit
Input Voltage, V (unless otherwise noted)		10	13	14	19	23	
Parameter	**Conditions**	Min Typ Max	Min Typ Max	Min Typ Max	Min Typ Max	Min Typ Max	
Quiescent Current	T_j=25°C T_j=125°C	3 5.5	3 5 4.7	3 5 4.7	3 5 4.7	3.1 5 4.7	mA mA
Quiescent Current Change	1mA≤I_O≤40mA V_{MIN}≤V_{IN}≤V_{MAX}	0.1 1.5 8≤V_{IN}≤20	0.1 1.0 11≤V_{IN}≤23	0.1 1.0 12≤V_{IN}≤24	0.1 1.0 16≤V_{IN}≤27	0.1 1.0 20≤V_{IN}≤30	mA mA V
Output Noise Voltage	T_j=25°C, (Note 3) f=10 Hz ÷ 10 kHz	40	60	60	80	90	µV
Ripple Rejection	f=120 Hz T_j=25°C	41 49 8≤V_{IN}≤18	36 45 11≤V_{IN}≤23	36 45 12≤V_{IN}≤24	40 54 15≤V_{IN}≤25	37 51 18.5≤V_{IN}≤28.5	dB V
Input Voltage Required to Maintain Line Regulation	T_j=25°C	6.7	10.5	11.5	14.5	17.5	V

Note 1: Thermal resistance of package is 232°C/W θ_{ja} still air. The maximum junction temperature shall not exceed 125°C on Electrical parameters.

Note 2: The maximum steady state usable output current and input voltage are very dependent on the heat sinking and/or lead length of the package. The data above represent pulse test conditions with junction temperatures as indicated at the initiation of test.

Note 3: Recommended minimum load capacitance of 0.01 µF to limit high frequency noise bandwidth.

Note 4: The temperature coefficient of V_{OUT} is typically within ±0.01% V_O/ °C.

AS78LXX Series 3-Terminal Positive Regulators

General Description

The AS78LXX series of three terminal positive regulators is available with several fixed output voltages making them useful in a wide range of applications. When used as a zener diode /resistor combination replacement, the AS78LXX usually results in an effective output impedance improvement of two orders of magnitude, and lower quiescent current. These regulators can provide local on card regulation, eliminating the distribution problems associated with single point regulation. The voltages available allow the AS78LXX to be used in logic systems, instrumentation, Hi-Fi, and other solid state electronic equipment. Although designed primarily as fixed voltage regulators these devices can be used with external components to obtain adjustment voltages and currents.

The AS78LXX is available in the three lead plastic TO-92. With adequate heat sinking the regulator can deliver 100 mA output current. Current limiting is included to limit the peak output current to a safe value. Safe area protection for the output transistors is provided to limit internal power dissipation. If internal power dissipation becomes too high for the heat sinking provided, the thermal shutdown circuit takes over preventing the IC from overheating.

Features

- Output voltage tolerances of ±10% (AS78LXXCP), ±5% (AS78LXXACP) over the temperature range
- Output current of 100 mA
- Internal thermal overload protection
- Output transistor safe area protection
- Internal short circuit current limit
- Available in plastic TO-92

Voltage Range

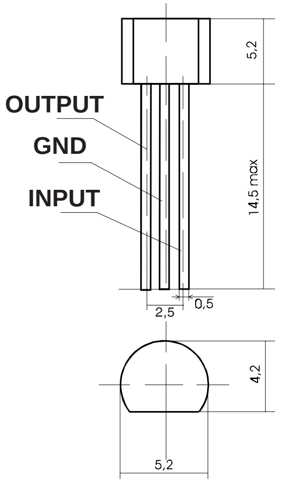
AS78L05 .... 5V
AS78L08 .... 8V
AS78L09 .... 9V
AS78L12 .... 12V
AS78L15 .... 15V

Absolute Maximum Ratings

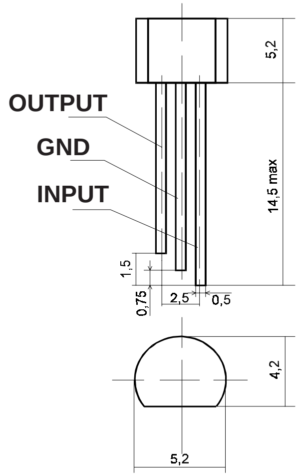
Input Voltage V_O= 5, 8, 9, 12, 15 V	35 V
Internal Power Dissipation (Note 1)	Internally Limited
Operating Temperature Range	0^OC to $+70^OC$
Maximum Junction Temperature	$+125^OC$
Storage Temperature Range	-55^OC to $+150^OC$
Lead Temperature (Soldering, 10 sec.)	$+260^OC$

Connection Diagrams

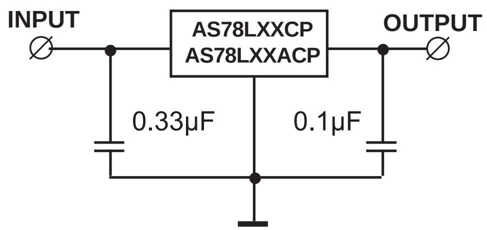
Version 1



Version 2



Order Number:
AS78L05CP
AS78L08CP
AS78L09CP
AS78L12CP
AS78L15CP
AS78L05ACP
AS78L08ACP
AS78L09ACP
AS78L12ACP
AS78L15ACP



AS78LXXACP, AS78LXXCP Characteristics

(Note 2) $T_j=0^OC$ to 125^OC, $I_O=40$ mA, $C_{IN}=0.33$ µF, $C_O=0.1$ µF (unless noted)

AS78LXX Output Voltage, V			5			8			9			12			15			Unit
Input Voltage, V (unless otherwise noted)			10			13			14			19			23			
Parameter		Conditions	Min	Typ	Max	Min	Typ	Max	Min	Typ	Max	Min	Typ	Max	Min	Typ	Max	
Output Voltage (Note 4)	AS78LXXACP	$T_j=25^OC$	4.8	5	5.2	7.7	8	8.3	8.6	9	9.4	11.5	12	12.5	14.4	15	15.6	V
		$1mA \le I_O \le 70mA$	4.75		5.25	7.6		8.4	8.55		9.45	11.4		12.6	14.25		15.75	V
		$1mA \le I_O \le 40mA$ and	4.75		5.25	7.6		8.4	8.55		9.45	11.4		12.6	14.25		15.75	V
		$V_{MIN} \le V_{IN} \le V_{MAX}$	$7 \le V_{IN} \le 20$			$10.5 \le V_{IN} \le 23$			$11.5 \le V_{IN} \le 24$			$14.5 \le V_{IN} \le 27$			$17.5 \le V_{IN} \le 30$			V
	AS78LXXCP	$T_j=25^OC$	4.55	5	5.45	7.36	8	8.64	8.3	9	9.7	11.1	12	12.9	13.8	15	16.2	V
		$1mA \le I_O \le 70mA$	4.5		5.5	7.2		8.8	8.1		9.9	10.8		13.2	13.5		16.5	V
		$1mA \le I_O \le 40mA$ and	4.5		5.5	7.2		8.8	8.1		9.9	10.8		13.2	13.5		16.5	V
		$V_{MIN} \le V_{IN} \le V_{MAX}$	$7 \le V_{IN} \le 20$			$10.5 \le V_{IN} \le 23$			$12 \le V_{IN} \le 24$			$14.5 \le V_{IN} \le 27$			$17.5 \le V_{IN} \le 30$			V
Line Regulation		$T_j=25^OC$		45	100		36	125		36	125		20	110		25	140	mV
			$8 \le V_{IN} \le 20$			$11 \le V_{IN} \le 23$			$12 \le V_{IN} \le 24$			$16 \le V_{IN} \le 27$			$20 \le V_{IN} \le 30$			V
				55	150		42	175		42	175		30	180		37	250	mV
			$7 \le V_{IN} \le 20$			$10.5 \le V_{IN} \le 23$			$11.5 \le V_{IN} \le 24$			$14.5 \le V_{IN} \le 27$			$17.5 \le V_{IN} \le 30$			V
Load Regulation		$T_j=25^OC$, $1mA \le I_O \le 40mA$		5	30		10	40		10	40		10	50		12	75	mV
		$T_j=25^OC$, $1mA \le I_O \le 100mA$		11	60		18	80		18	80		30	100		35	150	mV