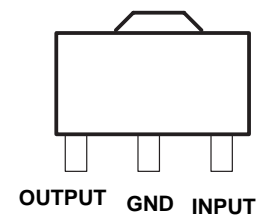
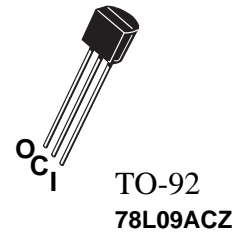


- 3-Terminal Regulators
- Output Current up to 100 mA
- No External Components
- Internal Thermal-Overload Protection
- Internal Short-Circuit Current Limiting
- Direct Replacements for Fairchild  $\mu$ A78L09 Series

### description

This series of fixed-voltage integrated-circuit voltage regulators is designed for a wide range of applications. These applications include on-card regulation for elimination of noise and distribution problems associated with single-point regulation. In addition, they can be used with power-pass elements to make high-current voltage regulators. One of these regulators can deliver up to 100 mA of output current. The internal limiting and thermal-shutdown features of these regulators make them essentially immune to overload. When used as a replacement for a zener diode-resistor combination, an effective improvement in output impedance can be obtained, together with lower bias current.



SOT-89  
78L09CPK

### electrical characteristics at specified virtual junction temperature, $V_I = 16V$ , $I_O = 40mA$ (unless otherwise noted)

PARAMETER	TEST CONDITIONS	T ‡	78L09			UNIT
			MIN	TYP	MAX	
Output voltage	$I_O = 1mA$ to $40mA$ , $V_I = 12V$ to $24V$	$25^\circ C$	8.6	9	9.4	V
		Full range	8.55	9	9.45	
		Full range	8.55	9	9.45	
Input voltage regulation	$V_I = 12V$ to $24V$ $V_I = 13V$ to $24V$	$25^\circ C$		45	175	mV
				40	125	
Ripple rejection	$V_I = 15V$ to $25V$ $f = 120$ Hz	$25^\circ C$	38	45		dB
Output voltage regulation	$I_O = 1$ mA to $100$ mA $I_O = 1$ mA to $40$ mA	$25^\circ C$		19	90	mV
				11	40	
Output noise voltage	$f = 10$ Hz to $100$ kHz	$25^\circ C$		58		$\mu V$
Dropout voltage		$25^\circ C$		1.7		V
Bias current		$25^\circ C$		4.1	6	mA
		$125^\circ C$			5.5	
Bias current change	$V_I = 13V$ to $24V$ $I_O = 1$ mA to $40$ mA	Full range			1.5	mA
					0.1	

‡ Pulse-testing techniques maintain  $T_J$  as close to  $T_A$  as possible. Thermal effects must be taken into account separately. All characteristics are measured with a  $0.33\text{-}\mu F$  capacitor across the input and a  $0.1\text{-}\mu F$  capacitor across the output. Full range for the 78L05 is  $T_J = 0^\circ C$  to  $70^\circ C$

# WS 78L09

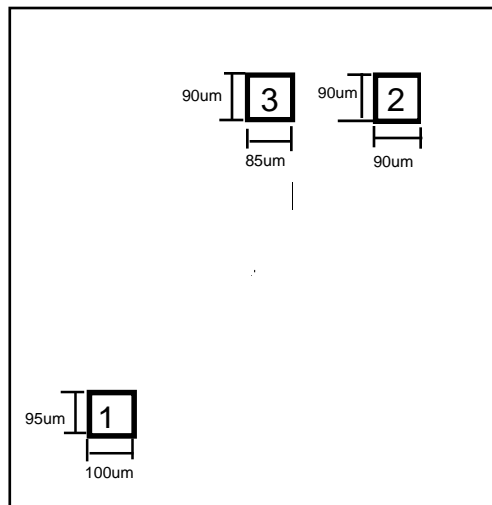
## absolute maximum ratings over operating temperature range (unless otherwise noted)

78L09	PARAMETER	UNIT
Input voltage, $V_I$	30	V
Virtual junction temperature range, $T_J$	150	°C
Lead temperature 1,6 mm (1/16 inch) from case for 10 seconds	260	°C
Storage temperature range, $T_{stg}$	-65 to 150	°C

## recommended operating conditions

78L09	MIN	MAX	UNIT
Input voltage, $V_I$	11.5	24	V
Output current, $I_O$		100	mA
Operating virtual junction temperature, $T_J$	0	70	°C

### Pad Location 78L09



Chip size 1.0 x 1.2 mm

Pad N	Pad Name	X (um)	Y (um)
1	Ground	95	100
2	Input	820	1010
3	Output	535	1015