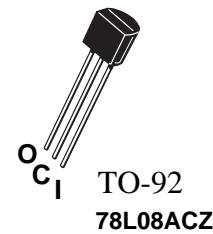




# 78L08

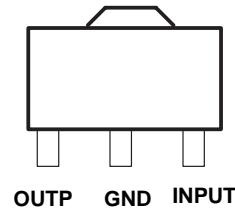
# Positive-Voltage Regulators

- 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  $\mu$ A78L08 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  
78L08CPK

**electrical characteristics at specified virtual junction temperature,  $V_I = 14V$ ,  $I_O = 40$  mA (unless otherwise noted)**

PARAMETER	TEST CONDITIONS	T <sup>‡</sup>	78L08			UNIT
			MIN	TYP	MAX	
Output voltage		25°C	7.7	8	8.3	V
	$I_O = 1$ mA to 40 mA, $V_I = 10.5$ to 23 V	Full range	7.6	8	8.4	
	$I_O = 1$ mA to 70 mA	Full range	7.6	8	8.4	
Input voltage regulation	$V_I = 10.5$ V to 23 V	25°C		42	175	mV
	$V_I = 11$ V to 23 V			36	125	
Ripple rejection	$V_I = 13$ V to 23 V $f = 120$ Hz	25°C	37	46		dB
Output voltage regulation	$I_O = 1$ mA to 100 mA	25°C		18	80	mV
	$I_O = 1$ mA to 40 mA			10	40	
Output noise voltage	$f = 10$ Hz to 100 kHz	25°C		54		μV
Dropout voltage		25°C		1.7		V
Bias current		25°C		4	6	mA
		125°C			5.5	
Bias current change	$V_I = 11$ V to 23 V	Full range			1.5	mA
	$I_O = 1$ mA to 40 mA				0.1	

<sup>‡</sup> 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- $μ$ F capacitor across the input and a 0.1- $μ$ F capacitor across the output. Full range for the 78L05 is  $T_J = 0$ °C to 70°C

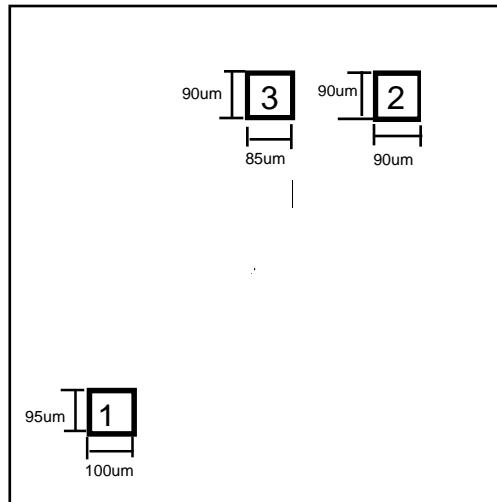
**absolute maximum ratings over operating temperature range (unless otherwise noted)**

78L08	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**

78L08	MIN	MAX	UNIT
Input voltage, $V_I$	10.5	23	V
Output current, $I_O$	100		mA
Operating virtual junction temperature, $T_J$	0	70	°C

Pad Location 78L08



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