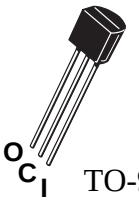
78L08

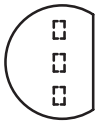
Positive-Voltage Regulators

- **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 μA78L08 Series**

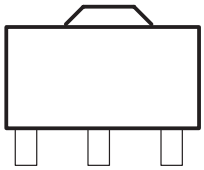


TO-92

78L08ACZ



INPUT
COMMON
OUTPUT



SOT-89

78L08CPK

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.

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

PARAMETER	TEST CONDITIONS	T ‡	78L08			UNIT
			MIN	TYP	MAX	
Output voltage		25°C	7.7	8	8.3	V
	I_O=1mA to 40mA, V_I =10.5 to 23V	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 = 10.5V to 23V	25°C		42	175	mV
	V_I = 11V to 23V			36	125	
Ripple rejection	V_I = 13V to 23V 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 = 11V to 23V	Full range			1.5	mA
	I_O = 1 mA to 40 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-μF capacitor across the input and a 0.1-μF capacitor across the output. Full range for the 78L05 is T_J = 0°C to 70°C

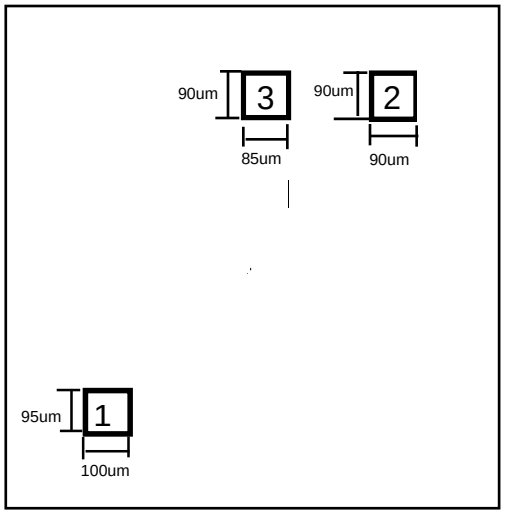
absolute maximum ratings over operating temperature range (unless othewise noted)

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