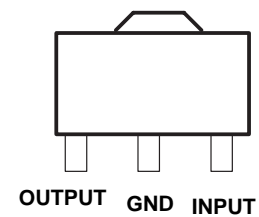
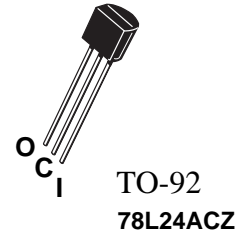


- 3-Terminal Regulators
- Output Current up to 100 mA
- No External Components
- Internal Thermal-Overload Protection
- Internal Short-Circuit Current Limiting
- Provided Pb-Free packages from the end of 2004

**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  
78L24CPK

**electrical characteristics at specified virtual junction temperature,  $V_I = 32V$ ,  $I_O = 40mA$  (unless otherwise noted)**

PARAMETER	TEST CONDITIONS	T ‡	78L24			UNIT
			MIN	TYP	MAX	
Output voltage		25°C	23	24	25	V
	$I_O = 1mA$ to 40mA, $V_I = 26.5$ to 39V	Full range	22.8	24	25.2	
	$I_O = 1$ mA to 70 mA	Full range	22.8	24	25.2	
Input voltage regulation	$V_I = 26.5V$ to 39V	25°C		95	480	mV
	$V_I = 29V$ to 39V			78	400	
Ripple rejection	$V_I = 27.5V$ to 37.5V, $f = 120$ Hz	25°C	30	33		dB
Output voltage regulation	$I_O = 1$ mA to 100 mA	25°C		41	240	mV
	$I_O = 1$ mA to 40 mA			28	120	
Output noise voltage	$f = 10$ Hz to 100 kHz	25°C		97		μV
Dropout voltage		25°C		1.7		V
Bias current		25°C		4.8	6.5	mA
		125°C			6	
Bias current change	$V_I = 28V$ to 39V	Full range			1.5	mA
	$I_O = 1$ mA to 40 mA				0.1	

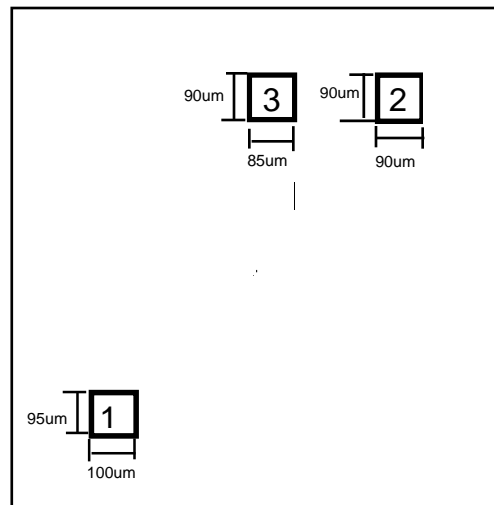
‡ Pulse-testing techniques maintain  $T_J$  as close to  $T_A$  as possible. Thermal effects must be taken into account separately. All characteristics are measured with a 0.33-μF capacitor across the input and a 0.1-μF capacitor across the output. Full range for the 78L05 is  $T_J = 0°C$  to 70°C

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

<b>78L24</b>	PARAMETER	UNIT
Input voltage, $V_I$	40	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**

<b>78L24</b>	MIN	MAX	UNIT
Input voltage, $V_I$	26.5	39	V
Output current, $I_O$		100	mA
Operating virtual junction temperature, $T_J$	0	70	°C

**Pad Location 78L24**


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