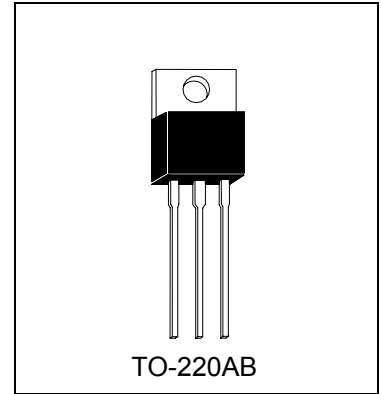


**3-TERMINAL POSITIVE VOLTAGE REGULATOR**

# PL7824XE3



## Description

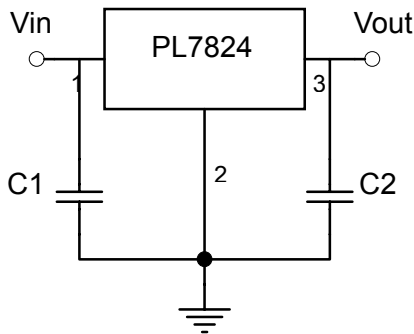
The PL7824XE3 series of three-terminal positive regulators are available in the TO-220AB package. These regulators can provide local on-card regulation, eliminating the distribution problems associated with single point regulation. Each employs internal current limiting, thermal shutdown and safe operating area protection, making it essentially indestructible. If adequate heat sinking is provided, they can deliver over 1A output current. Although designed primarily as fixed voltage regulators, these devices can be used with external components to obtain adjustable voltages and currents.

PL7824XE3 is characterized for operation from 0°C to +125°C, and if operating temperature is always high, please refer to the power dissipation curve.

## Absolute Maximum Ratings (Ta=25°C)

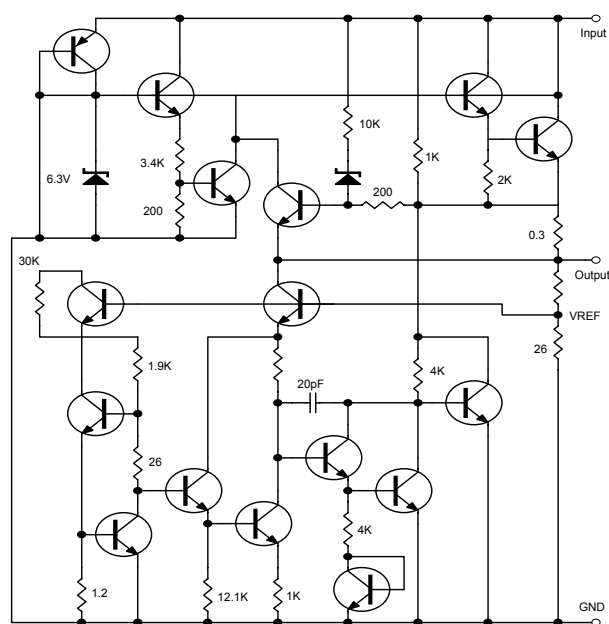
- Input Voltage ..... 40 V
- Total Power Dissipation ..... Internally limited
- Operating Temperature Range ..... 0 °C to +125 °C
- Maximum Junction Temperature ..... 125 °C
- Storage Temperature Range ..... -55 °C to +150 °C
- Lead Temperature (Soldering 10S) ..... 230 °C

### Typical Application



**Note:**  
 C1 and C2 are required if regulator is located far from power supply filter and load, or oscillation may be induced on the loop.

### Schematic Diagram





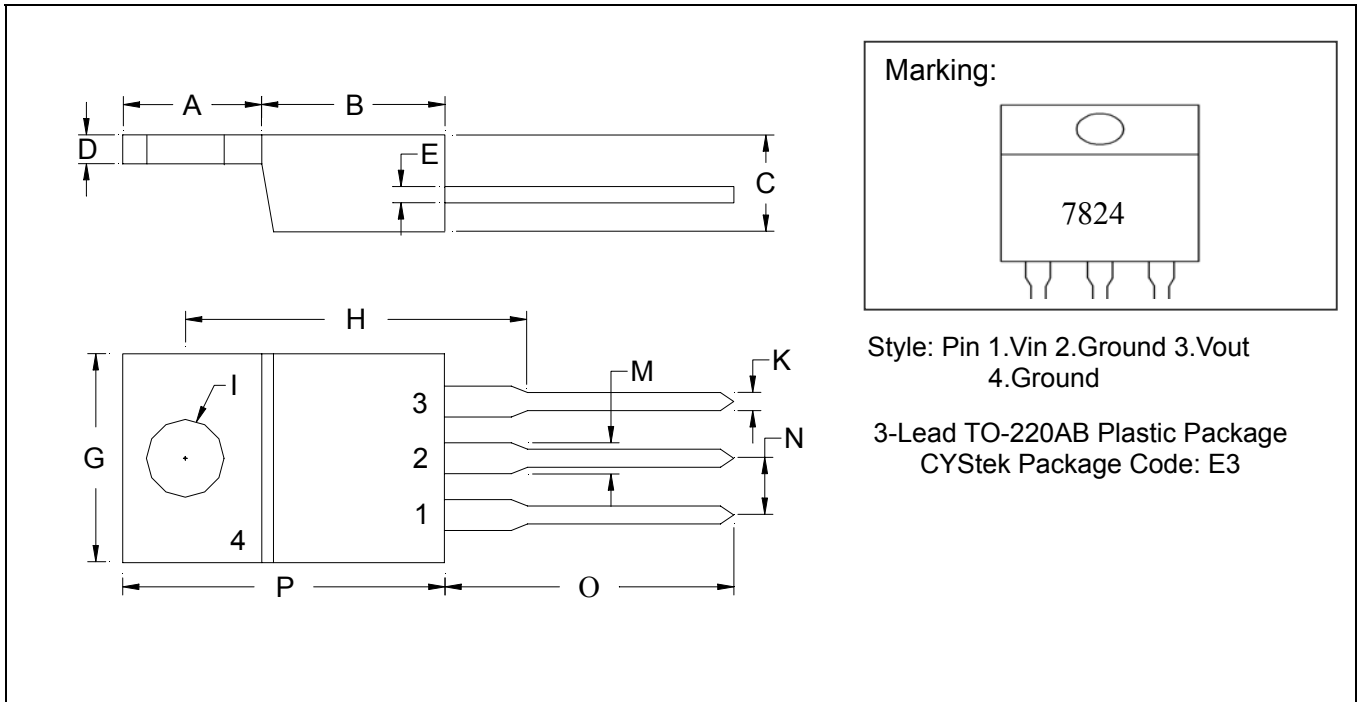
**Electrical Characteristics**

Vin=33V, Io=500mA, 0°C≤Tj≤125°C (unless otherwise noted)

Symbol	Parameter	Conditions	PL7824A			Units
			Min	Typ	Max	
Vo	Output Voltage	Tj=25°C	23.28	24	24.72	V
		PD≤15W, 5mA≤Io≤1A	23.28	24	24.72	
ΔVo	Line Regulation	Tj=25°C, 27V≤Vin≤38V	-	18	240	mV
		Tj=25°C, 30V≤Vin≤36V	-	6	240	
ΔVo	Load Regulation	5mA≤Io≤1.5A	-	-	240	mV
		250mA≤Io≤750mA	-	-	120	
IQ	Quiescent Current	Io≤1A, Tj=25°C	-	5.5	8	mA
ΔIQ	Quiescent Current Change	5mA≤Io≤1A	-	-	0.5	mA
		27V≤Vin≤38V	-	-	1.3	
Vn	Output Noise Voltage	Ta=25°C, 10Hz≤f≤100KHz	-	-	200	uV
RR	Ripple Rejection	28V≤Vin≤38V, f=120Hz	-	68	-	dB
VD	Dropout Voltage	Tj=25°C, Io=1A	-	2	-	V
Isc	Short Circuit Current	Tj=25°C	-	1.5	-	A
Ipk	Peak Output Current	Tj=25°C	1.7	-	-	A
ΔVo / ΔT	Average Tc of Vout	0°C≤Tj≤+125°C, Io=5mA	-	-0.8	-	mV/°C

Symbol	Parameter	Conditions	PL7824B			Units
			Min	Typ	Max	
Vo	Output Voltage	Tj=25°C	23	24	25	V
		PD≤15W, 5mA≤Io≤1A	23.8	24	25.2	
ΔVo	Line Regulation	Tj=25°C, 27V≤Vin≤38V	-	18	480	mV
		Tj=25°C, 30V≤Vin≤36V	-	6	240	
ΔVo	Load Regulation	5mA≤Io≤1.5A	-	-	480	mV
		250mA≤Io≤750mA	-	-	240	
IQ	Quiescent Current	Io≤1A, Tj=25°C	-	5.5	8	mA
ΔIQ	Quiescent Current Change	5mA≤Io≤1A	-	-	0.5	mA
		27V≤Vin≤38V	-	-	1.3	
Vn	Output Noise Voltage	Ta=25°C, 10Hz≤f≤100KHz	-	-	300	uV
RR	Ripple Rejection	28V≤Vin≤38V, f=120Hz	62	73	-	dB
VD	Dropout Voltage	Tj=25°C, Io=1A	-	2.5	-	V
Isc	Short Circuit Current	Tj=25°C	-	1.5	-	A
Ipk	Peak Output Current	Tj=25°C	1.7	-	-	A
ΔVo / ΔT	Average Tc of Vout	0°C≤Tj≤+125°C, Io=5mA	-	-0.8	-	mV/°C

## TO-220AB Dimension



\*: Typical

DIM	Inches		Millimeters		DIM	Inches		Millimeters	
	Min.	Max.	Min.	Max.		Min.	Max.	Min.	Max.
A	0.2197	0.2949	5.58	7.49	I	-	*0.1508	-	*3.83
B	0.3299	0.3504	8.38	8.90	K	0.0295	0.0374	0.75	0.95
C	0.1732	0.185	4.40	4.70	M	0.0449	0.0551	1.14	1.40
D	0.0453	0.0547	1.15	1.39	N	-	*0.1000	-	*2.54
E	0.0138	0.0236	0.35	0.60	O	0.5000	0.5618	12.70	14.27
G	0.3803	0.4047	9.66	10.28	P	0.5701	0.6248	14.48	15.87
H	-	*0.6398	-	*16.25					

**Notes:** 1.Controlling dimension: millimeters.  
 2.Maximum lead thickness includes lead finish thickness, and minimum lead thickness is the minimum thickness of base material.  
 3.If there is any question with packing specification or packing method, please contact your local CYStek sales office.

**Material:**

- Lead: 42 Alloy ; solder plating
- Mold Compound: Epoxy resin family, flammability solid burning class: UL94V-0

**Important Notice:**

- All rights are reserved. Reproduction in whole or in part is prohibited without the prior written approval of CYStek.
- CYStek reserves the right to make changes to its products without notice.
- CYStek **semiconductor products are not warranted to be suitable for use in Life-Support Applications, or systems.**
- CYStek assumes no liability for any consequence of customer product design, infringement of patents, or application assistance.