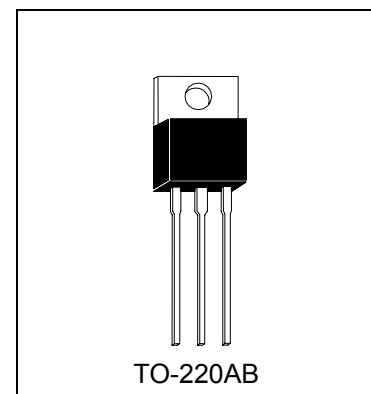


3-TERMINAL POSITIVE VOLTAGE REGULATOR

PL7824XE3

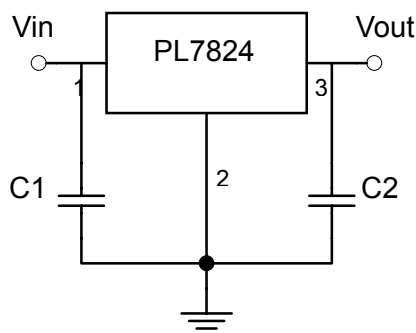

Description

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.

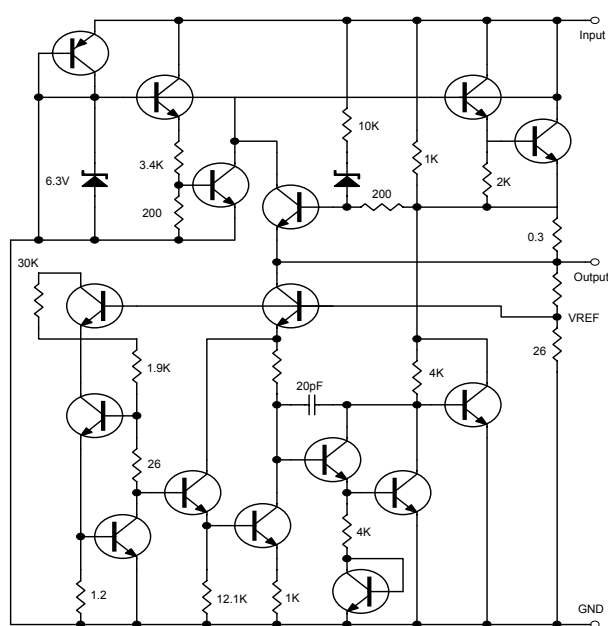
PL7824XE3 is characterized for operation from 0°C to +125°C, and if operating temperature is always high, please refer to the power dissipation curve.

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 induced on the loop.

Schematic Diagram




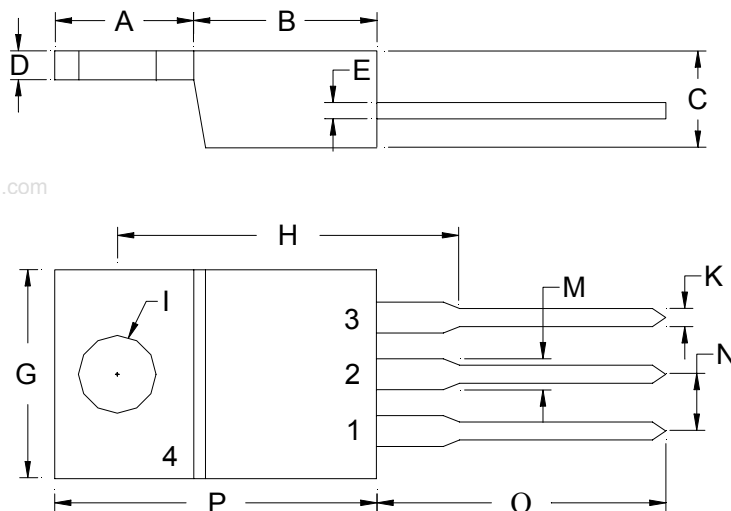
Electrical Characteristics

$V_{in}=33V$, $I_o=500mA$, $0^{\circ}C \leq T_j \leq 125^{\circ}C$ (unless otherwise noted)

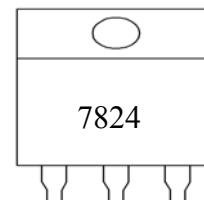
Symbol	Parameter	Conditions	PL7824A			Units
			Min	Typ	Max	
V_o	Output Voltage	$T_j=25^{\circ}C$	23.28	24	24.72	V
		$PD \leq 15W$, $5mA \leq I_o \leq 1A$	23.28	24	24.72	
ΔV_o	Line Regulation	$T_j=25^{\circ}C$, $27V \leq V_{in} \leq 38V$	-	18	240	mV
		$T_j=25^{\circ}C$, $30V \leq V_{in} \leq 36V$	-	6	240	
ΔV_o	Load Regulation	$5mA \leq I_o \leq 1.5A$	-	-	240	mV
		$250mA \leq I_o \leq 750mA$	-	-	120	
I_Q	Quiescent Current	$I_o \leq 1A$, $T_j=25^{\circ}C$	-	5.5	8	mA
ΔI_Q	Quiescent Current Change	$5mA \leq I_o \leq 1A$	-	-	0.5	mA
		$27V \leq V_{in} \leq 38V$	-	-	1.3	
V_n	Output Noise Voltage	$T_a=25^{\circ}C$, $10Hz \leq f \leq 100KHz$	-	-	200	μV
RR	Ripple Rejection	$28V \leq V_{in} \leq 38V$, $f=120Hz$	-	68	-	dB
VD	Dropout Voltage	$T_j=25^{\circ}C$, $I_o=1A$	-	2	-	V
I_{sc}	Short Circuit Current	$T_j=25^{\circ}C$	-	1.5	-	A
I_{pk}	Peak Output Current	$T_j=25^{\circ}C$	1.7	-	-	A
$\Delta V_o / \Delta T$	Average T_c of V_{out}	$0^{\circ}C \leq T_j \leq +125^{\circ}C$, $I_o=5mA$	-	-0.8	-	$mV/^{\circ}C$

Symbol	Parameter	Conditions	PL7824B			Units
			Min	Typ	Max	
V_o	Output Voltage	$T_j=25^{\circ}C$	23	24	25	V
		$PD \leq 15W$, $5mA \leq I_o \leq 1A$	23.8	24	25.2	
ΔV_o	Line Regulation	$T_j=25^{\circ}C$, $27V \leq V_{in} \leq 38V$	-	18	480	mV
		$T_j=25^{\circ}C$, $30V \leq V_{in} \leq 36V$	-	6	240	
ΔV_o	Load Regulation	$5mA \leq I_o \leq 1.5A$	-	-	480	mV
		$250mA \leq I_o \leq 750mA$	-	-	240	
I_Q	Quiescent Current	$I_o \leq 1A$, $T_j=25^{\circ}C$	-	5.5	8	mA
ΔI_Q	Quiescent Current Change	$5mA \leq I_o \leq 1A$	-	-	0.5	mA
		$27V \leq V_{in} \leq 38V$	-	-	1.3	
V_n	Output Noise Voltage	$T_a=25^{\circ}C$, $10Hz \leq f \leq 100KHz$	-	-	300	μV
RR	Ripple Rejection	$28V \leq V_{in} \leq 38V$, $f=120Hz$	62	73	-	dB
VD	Dropout Voltage	$T_j=25^{\circ}C$, $I_o=1A$	-	2.5	-	V
I_{sc}	Short Circuit Current	$T_j=25^{\circ}C$	-	1.5	-	A
I_{pk}	Peak Output Current	$T_j=25^{\circ}C$	1.7	-	-	A
$\Delta V_o / \Delta T$	Average T_c of V_{out}	$0^{\circ}C \leq T_j \leq +125^{\circ}C$, $I_o=5mA$	-	-0.8	-	$mV/^{\circ}C$

TO-220AB Dimension



Marking:



Style: Pin 1.Vin 2.Ground 3.Vout
 4.Ground

3-Lead TO-220AB Plastic Package
 CYStek Package Code: E3

*: 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

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