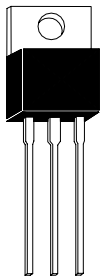
3-TERMINAL POSITIVE VOLTAGE REGULATOR

PL7808XE3



TO-220AB

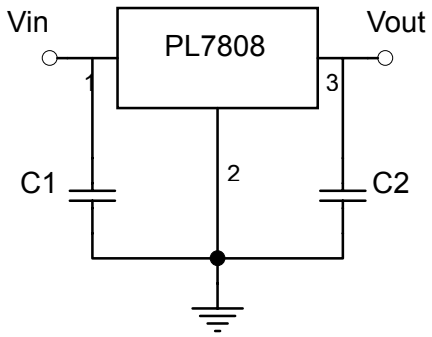
Description

The PL7808XE3 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.
PL7808XE3 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)

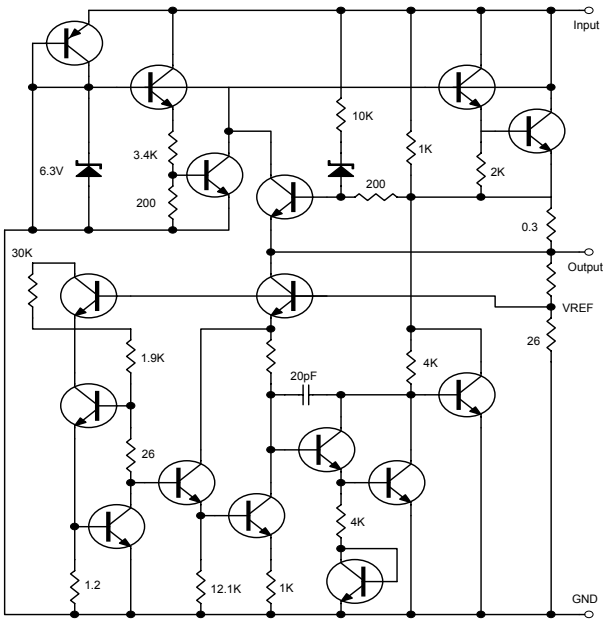
- Input Voltage ..... 35 V
- Total Power Dissipation ..... Internally limited
- Operating Temperature Range ..... 0 °C to +125 °C
- Maximum Junction Temperature ..... 125 °C
- Storage Temperature Range ..... -55 °C to +150 °C
- Lead Temperature (Soldering 10S) ..... 230 °C

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



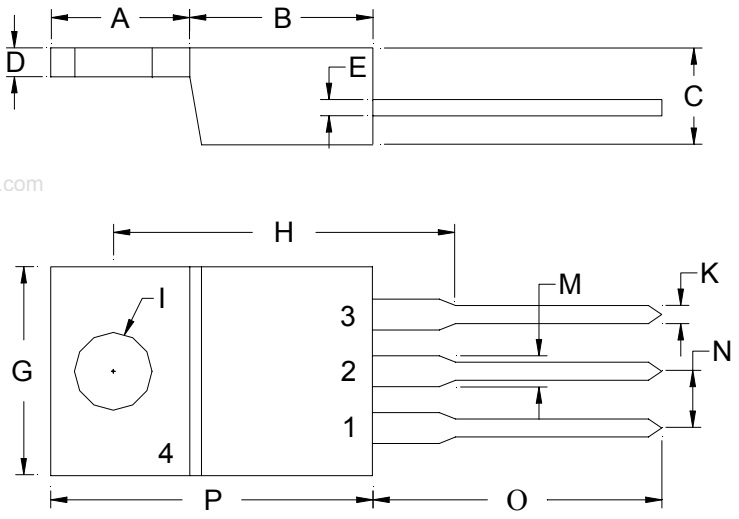
Electrical Characteristics

Vin=14V, Io=500mA, 0°C≤Tj≤125°C (unless otherwise noted)

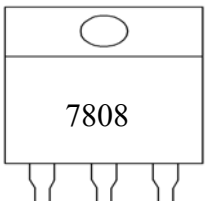
Symbol	Parameter	Conditions	PL7808A			Units
			Min	Typ	Max	
Vo	Output Voltage	Tj=25°C	7.76	8	8.24	V
		PD≤15W, 5mA≤Io≤1A	7.76	8	8.24	
ΔVo	Line Regulation	Tj=25°C, 10.5V≤Vin≤25V	-	5	80	mV
		Tj=25°C, 11.5V≤Vin≤17V	-	5	40	
ΔVo	Load Regulation	5mA≤Io≤1.5A	-	-	100	mV
		250mA≤Io≤750mA	-	-	50	
IQ	Quiescent Current	Io≤1A, Tj=25°C	-	5.5	8	mA
ΔIQ	Quiescent Current Change	5mA≤Io≤1A	-	-	0.5	mA
		10.5V≤Vin≤25V	-	-	1.3	
Vn	Output Noise Voltage	Ta=25°C, 10Hz≤f≤100KHz	-	-	200	uV
RR	Ripple Rejection	11.5V≤Vin≤21.5V, 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	PL7808B			Units
			Min	Typ	Max	
Vo	Output Voltage	Tj=25°C	7.7	8	8.3	V
		PD≤15W, 5mA≤Io≤1A	7.6	8	8.4	
ΔVo	Line Regulation	Tj=25°C, 10.5V≤Vin≤25V	-	5	160	mV
		Tj=25°C, 11.5V≤Vin≤17V	-	2	80	
ΔVo	Load Regulation	5mA≤Io≤1.5A	-	-	160	mV
		250mA≤Io≤750mA	-	-	80	
IQ	Quiescent Current	Io≤1A, Tj=25°C	-	5.5	8	mA
ΔIQ	Quiescent Current Change	5mA≤Io≤1A	-	-	0.5	mA
		10.5V≤Vin≤25V	-	-	1.3	
Vn	Output Noise Voltage	Ta=25°C, 10Hz≤f≤100KHz	-	-	300	uV
RR	Ripple Rejection	11.5V≤Vin≤21.5V, 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



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