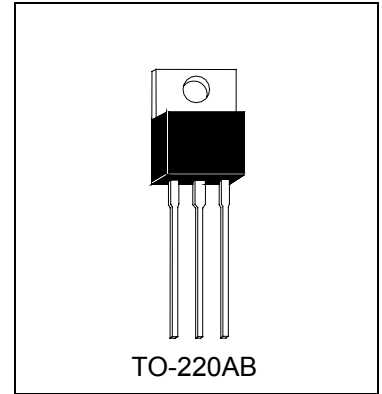


**3-TERMINAL POSITIVE VOLTAGE REGULATOR**

# LM7805XE3



## Description

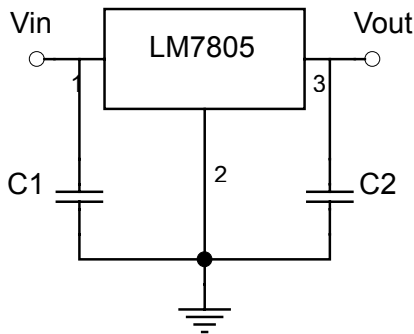
The LM7805XE3 series of three-terminal positive regulators are available in the TO-220AB package. These regulators can provide local on-card regulation, eliminating the distribution problems associated with single point regulation. Each employs internal current limiting, thermal shutdown and safe operating 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.

LM7805XE3 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)

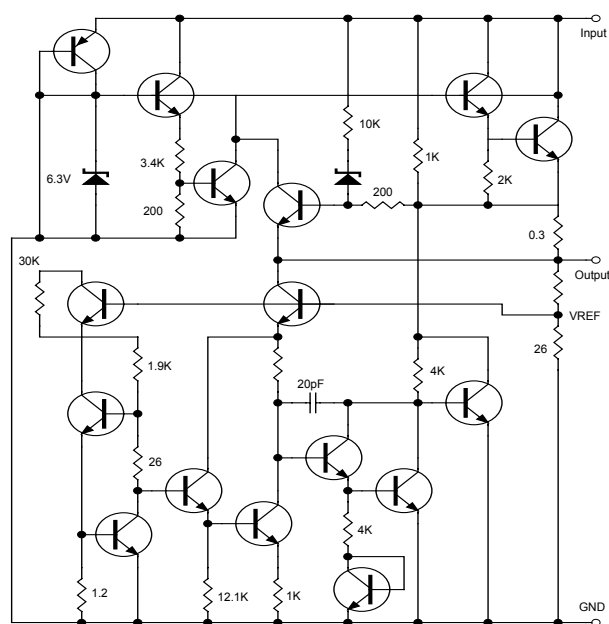
- Input Voltage ..... 35 V
- Total Power Dissipation ..... Internally limited
- Operating Temperature Range ..... 0 °C to +125 °C
- Maximum Junction Temperature ..... 125 °C
- Storage Temperature Range ..... -55 °C to +150 °C
- Lead Temperature (Soldering 10S)..... 230 °C

### Typical Application



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

### Schematic Diagram





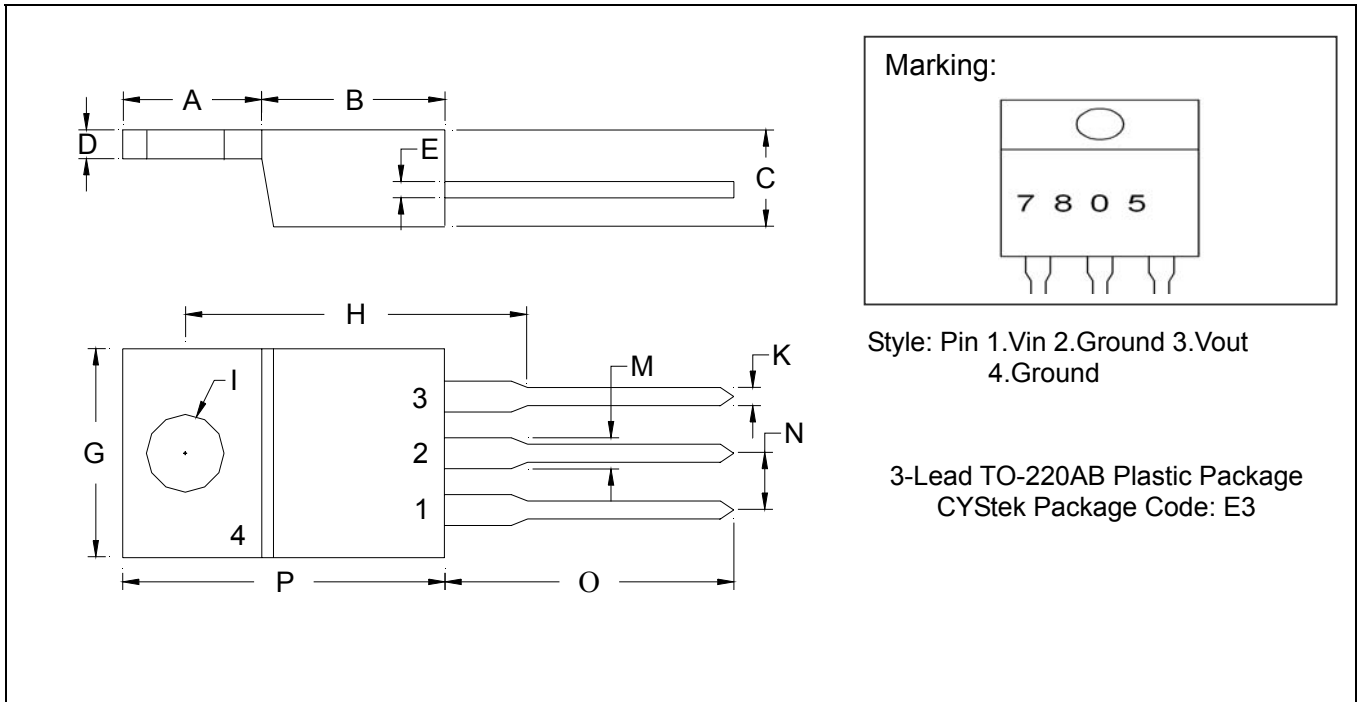
**Electrical Characteristics**

$V_{in}=10V, I_o=500mA, 0^{\circ}C \leq T_j \leq 125^{\circ}C$  (unless otherwise noted)

Symbol	Parameter	Conditions	LM7805A			Units
			Min	Typ	Max	
Vo	Output Voltage	Tj=25°C	4.85	5	5.15	V
		P <sub>D</sub> ≤15W, 5mA≤I <sub>o</sub> ≤1A	4.85	5	5.15	
ΔVo	Line Regulation	Tj=25°C, 7V≤Vin≤25V	-	4	50	mV
		Tj=25°C, 8V≤Vin≤25V	-	1.6	25	
ΔVo	Load Regulation	5mA≤I <sub>o</sub> ≤1.5A	-	-	100	mV
		250mA≤I <sub>o</sub> ≤750mA	-	-	50	
I <sub>q</sub>	Quiescent Current	I <sub>o</sub> ≤1A, Tj=25°C	-	5.5	8	mA
ΔI <sub>q</sub>	Quiescent Current Change	5mA≤I <sub>o</sub> ≤1A	-	-	0.5	mA
		7V≤Vin≤25V	-	-	1.3	
V <sub>n</sub>	Output Noise Voltage	T <sub>a</sub> =25°C, 10Hz≤f≤100KHz	-	40	200	μV
RR	Ripple Rejection	8V≤Vin≤18V, f=120Hz	-	68	-	dB
V <sub>D</sub>	Dropout Voltage	Tj=25°C, I <sub>o</sub> =1A	-	2	-	V
I <sub>sc</sub>	Short Circuit Current	Tj=25°C	-	1.5	-	A
I <sub>pk</sub>	Peak Output Current	Tj=25°C	1.7	-	-	A
ΔVo / ΔT	Average T <sub>c</sub> of V <sub>out</sub>	0°C≤Tj≤+125°C, I <sub>o</sub> =5mA	-	-0.8	-	mV/°C

Symbol	Parameter	Conditions	LM7805B			Units
			Min	Typ	Max	
Vo	Output Voltage	Tj=25°C	4.8	5	5.2	V
		P <sub>D</sub> ≤15W, 5mA≤I <sub>o</sub> ≤1A	4.75	5	5.25	
ΔVo	Line Regulation	Tj=25°C, 7V≤Vin≤25V	-	4	100	mV
		Tj=25°C, 8V≤Vin≤25V	-	1.6	50	
ΔVo	Load Regulation	5mA≤I <sub>o</sub> ≤1.5A	-	-	100	mV
		250mA≤I <sub>o</sub> ≤750mA	-	-	50	
I <sub>q</sub>	Quiescent Current	I <sub>o</sub> ≤1A, Tj=25°C	-	5.5	8	mA
ΔI <sub>q</sub>	Quiescent Current Change	5mA≤I <sub>o</sub> ≤1A	-	-	0.5	mA
		7V≤Vin≤25V	-	-	1.3	
V <sub>n</sub>	Output Noise Voltage	T <sub>a</sub> =25°C, 10Hz≤f≤100KHz	-	100	300	μV
RR	Ripple Rejection	8V≤Vin≤18V, f=120Hz	62	73	-	dB
V <sub>D</sub>	Dropout Voltage	Tj=25°C, I <sub>o</sub> =1A	-	2.5	-	V
I <sub>sc</sub>	Short Circuit Current	Tj=25°C	-	1.5	-	A
I <sub>pk</sub>	Peak Output Current	Tj=25°C	1.7	-	-	A
ΔVo / ΔT	Average T <sub>c</sub> of V <sub>out</sub>	0°C≤Tj≤+125°C, I <sub>o</sub> =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

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