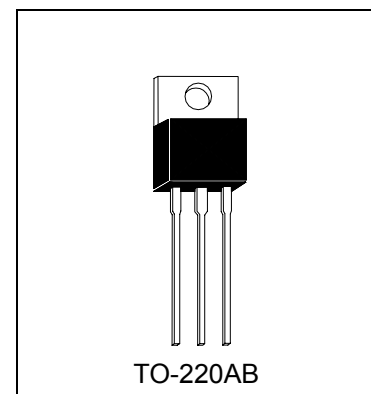


3-TERMINAL NEGATIVE VOLTAGE REGULATOR

PL7906XE3

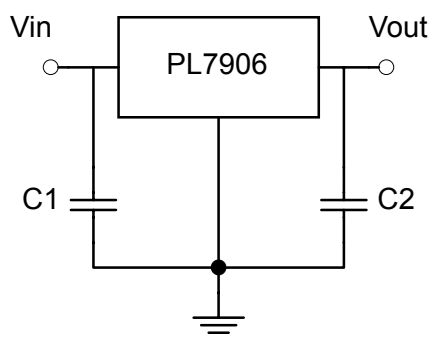

Description

The PL7906XE3 series of three-terminal negative 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.

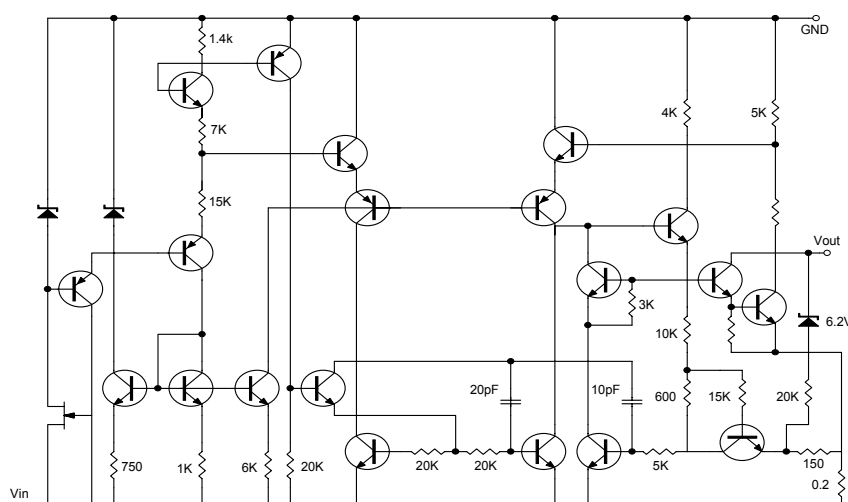
PL7906XE3 is characterized for operation from 0°C to +125°C, and if operating temperature is always high, please refer to the power dissipation curve.

Absolute Maximum Ratings (Ta=25°C)

- Input Voltage -35 V
- Total Power Dissipation Internally limited
- Operating Junction Temperature 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:
Bypass Capacitors are recommended for optimum stability and transient response and should be located as close as possible to the regulator.

Schematic Diagram




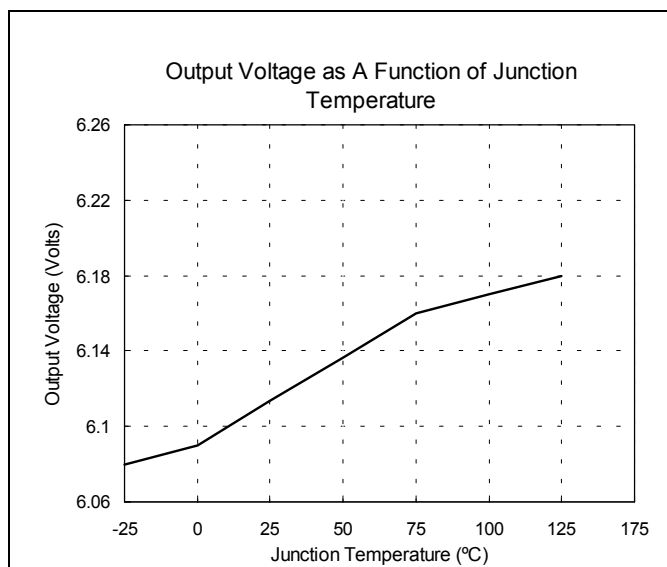
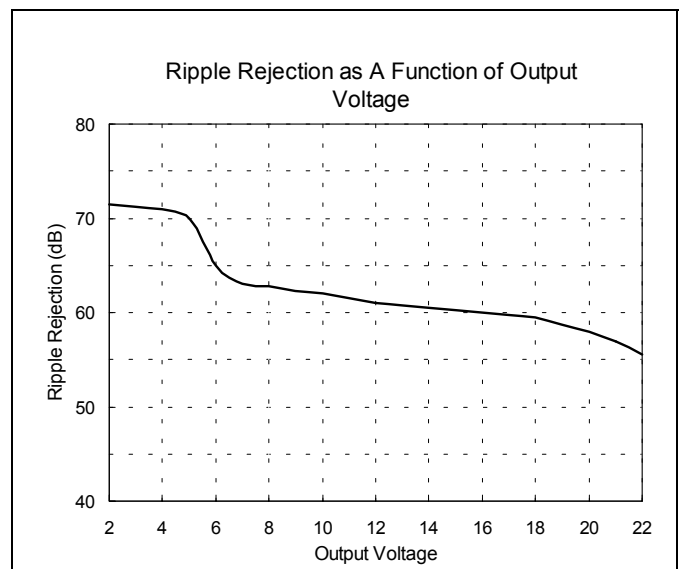
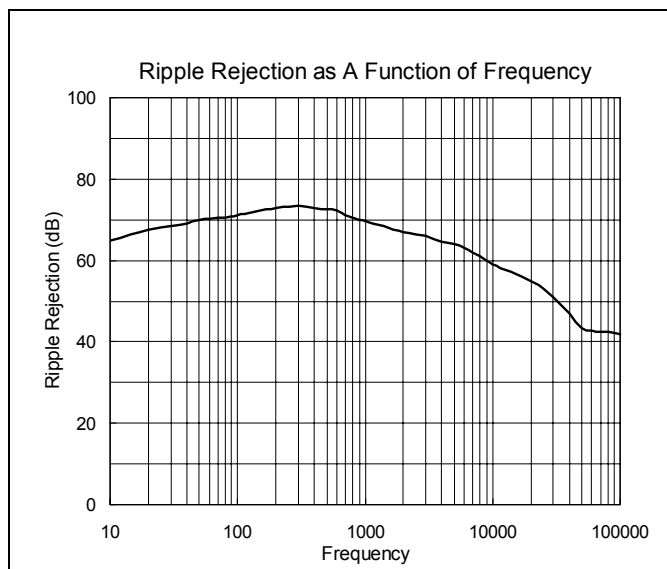
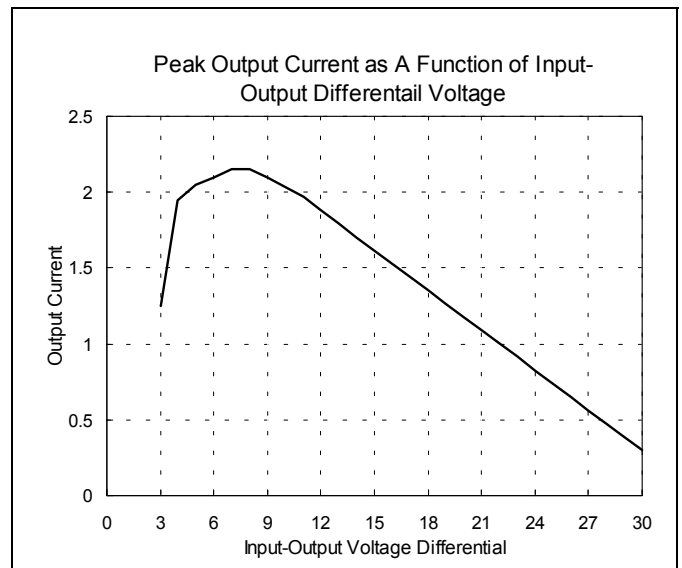
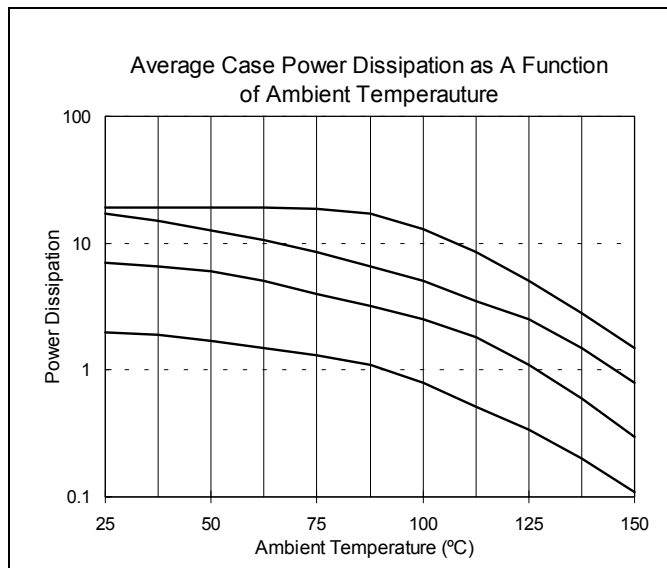
Electrical Characteristics

$V_{in} = -11V$, $I_o = 500mA$, $C_{in} = 2.2\mu F$, $C_{out} = 1\mu F$, $0^\circ C \leq T_j \leq 125^\circ C$ (unless otherwise noted)

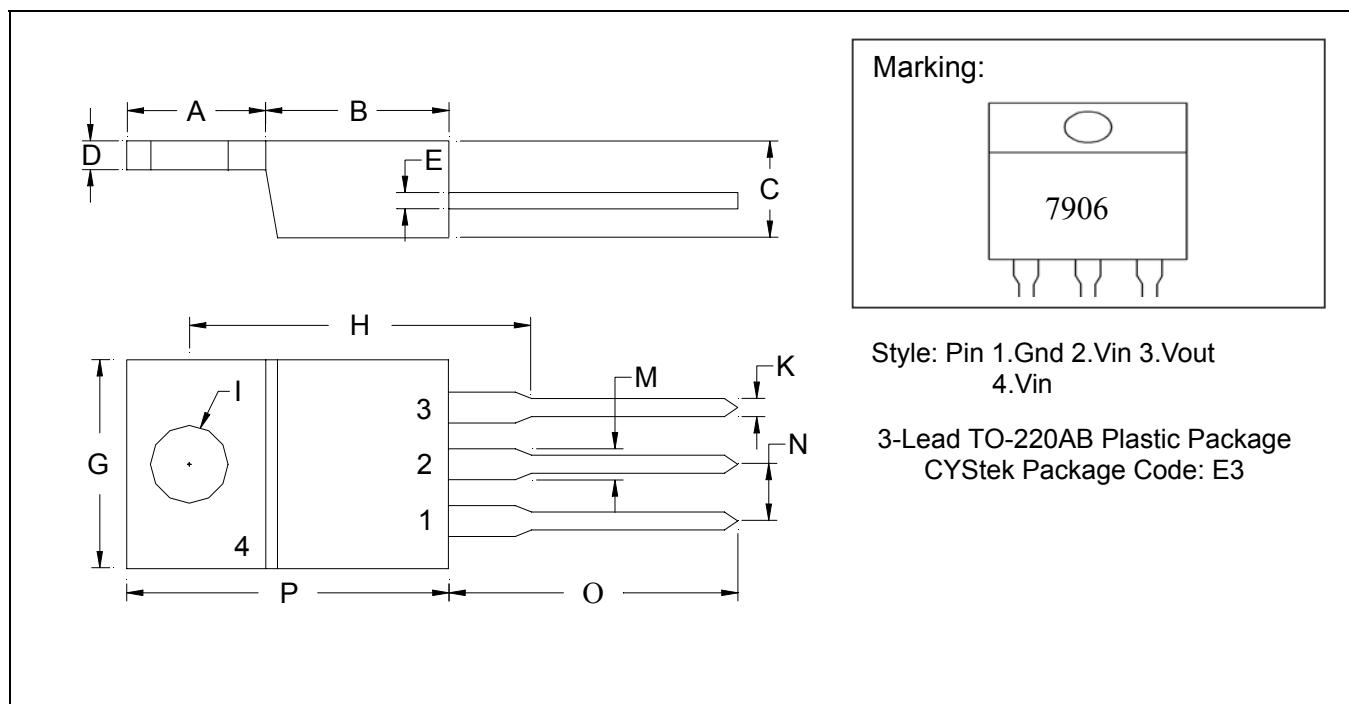
Symbol	Parameter	Conditions	PL7906A			Units
			Min	Typ	Max	
V_o	Output Voltage	$T_j = 25^\circ C$	-5.88	-6	-6.12	V
		$P_D \leq 15W$, $5mA \leq I_o \leq 1A$ $-9.5V \geq V_{in} \geq -21.5V$	-5.82	-6	-6.18	
ΔV_o	Line Regulation	$T_j = 25^\circ C$, $-8.5V \geq V_{in} \geq -25V$	-	-	120	mV
		$T_j = 25^\circ C$, $-9V \geq V_{in} \geq -15V$	-	-	60	
ΔV_o	Load Regulation	$5mA \leq I_o \leq 1.5A$	-	-	120	mV
		$250mA \leq I_o \leq 750mA$	-	-	60	
I_Q	Quiescent Current	$I_o \leq 1A$, $T_j = 25^\circ C$	-	3	8	mA
ΔI_Q	Quiescent Current Change	$5mA \leq I_o \leq 1A$	-	-	0.5	mA
		$-9.5V \geq V_{in} \geq -25V$	-	-	1.3	
$\Delta V_o / \Delta T$	Output Voltage Drift	$I_o = 5mA$	-	-0.4	-	mV/ $^\circ C$
V_n	Output Noise Voltage	$T_a = 25^\circ C$, $10Hz \leq f \leq 100KHz$	-	144	-	μV
RR	Ripple Rejection	$\Delta V_i = 10V$, $f = 120Hz$	54	68	-	dB
VD	Dropout Voltage	$T_j = 25^\circ C$, $I_o = 1A$	-	2	-	V
Isc	Short Circuit Current	$T_j = 25^\circ C$, $V_{in} = -35V$	-	2.2	-	A
Ipk	Peak Output Current	$T_j = 25^\circ C$	1.3	2.2	-	A

Symbol	Parameter	Conditions	PL7906B			Units
			Min	Typ	Max	
V_o	Output Voltage	$T_j = 25^\circ C$	-5.76	-6	-6.24	V
		$P_D \leq 15W$, $5mA \leq I_o \leq 1A$ $-9.5V \geq V_{in} \geq -21.5V$	-5.7	-6	-6.3	
ΔV_o	Line Regulation	$T_j = 25^\circ C$, $-8.5V \geq V_{in} \geq -25V$	-	-	100	mV
		$T_j = 25^\circ C$, $-9V \geq V_{in} \geq -15V$	-	-	50	
ΔV_o	Load Regulation	$5mA \leq I_o \leq 1.5A$	-	-	100	mV
		$250mA \leq I_o \leq 750mA$	-	-	50	
I_Q	Quiescent Current	$I_o \leq 1A$, $T_j = 25^\circ C$	-	3	8	mA
ΔI_Q	Quiescent Current Change	$5mA \leq I_o \leq 1A$	-	-	0.5	mA
		$-9.5V \geq V_{in} \geq -25V$	-	-	1.3	
$\Delta V_o / \Delta T$	Output Voltage Drift	$I_o = 5mA$	-	-0.4	-	mV/ $^\circ C$
V_n	Output Noise Voltage	$T_a = 25^\circ C$, $10Hz \leq f \leq 100KHz$	-	144	-	μV
RR	Ripple Rejection	$\Delta V_i = 10V$, $f = 120Hz$	54	68	-	dB
VD	Dropout Voltage	$T_j = 25^\circ C$, $I_o = 1A$	-	2	-	V
Isc	Short Circuit Current	$T_j = 25^\circ C$, $V_{in} = -35V$	-	2.2	-	A
Ipk	Peak Output Current	$T_j = 25^\circ C$	1.3	2.2	-	A

Characteristic Curves



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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