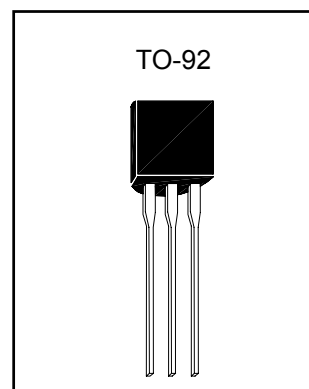


Three Terminal Low Current Positive Voltage Regulators

PL78L06XA3

Description

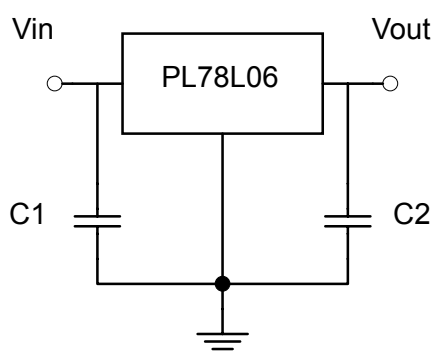
These regulators employ internal current-limiting and thermal-shutdown, making them essentially indestructible. They can deliver up to 100mA output current, if the case temperature can keep in $T_c=25^{\circ}\text{C}$. They are intended as fixed voltage regulators in a wide range of applications including local (on-card) regulation for elimination of noise and distribution problems associated with single-point regulation. In addition, they can be used with power pass elements to make high-current voltage regulators. The PL78L06 used as a Zener diode/resistor combination replacement, offers an effective output impedance improvement of typically two orders of magnitude, along with lower quiescent current and lower noise.



Absolute Maximum Ratings ($T_a=25^{\circ}\text{C}$)

- Input Voltage..... 35 V
- Total Power Dissipation..... Internally limited
- Operating Temperature Range..... 0°C to $+125^{\circ}\text{C}$
- Maximum Junction Temperature..... 125°C
- Storage Temperature Range..... -55°C to $+150^{\circ}\text{C}$
- Lead Temperature (Soldering 10S)..... 260°C

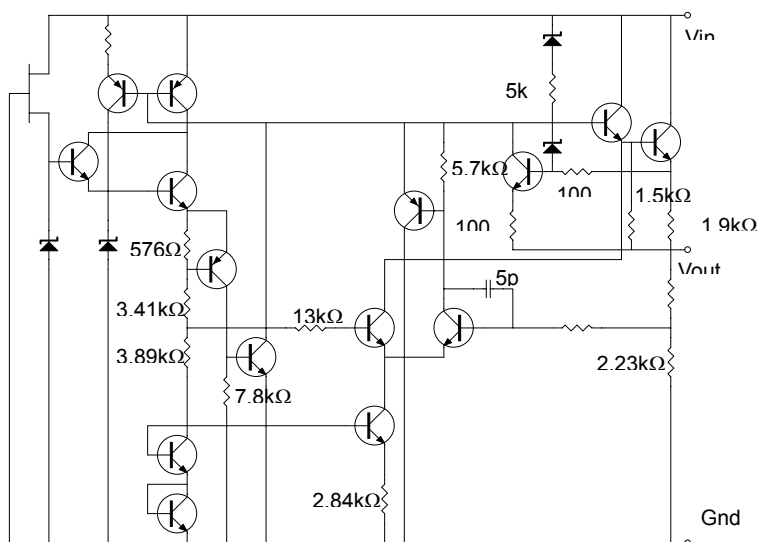
Typical Application



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





Ordering Information

Device	Output Voltage Tolerance
PL78L06AA3	3%
PL78L06BA3	5%

Electrical Characteristics

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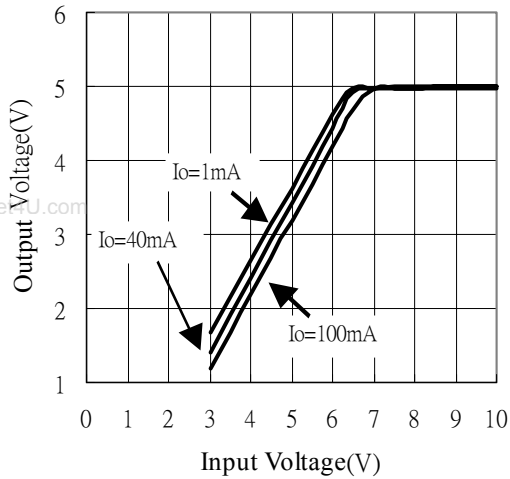
$V_{in}=11V$, $I_{out}=40mA$, $0^{\circ}C \leq T_j \leq 125^{\circ}C$, $C_{in}=0.33\mu F$, $C_{out}=0.1\mu F$ (unless otherwise noted)

Symbol	Parameter	Conditions	PL78L06A			Units
			Min	Typ	Max	
V_o	Output Voltage	$T_j=25^{\circ}C$	5.82	6	6.18	V
		$1mA \leq I_o \leq 70mA$	5.82	-	6.18	
		$1mA \leq I_o \leq 40mA$ and $8V \leq V_{in} \leq 21V$	5.82	-	6.18	
ΔV_o	Line Regulation	$T_j=25^{\circ}C$, $8V \leq V_{in} \leq 21V$	-	65	175	mV
		$T_j=25^{\circ}C$, $9V \leq V_{in} \leq 21V$	-	55	125	
ΔV_o	Load Regulation	$T_j=25^{\circ}C$, $1mA \leq I_o \leq 40mA$	-	6	40	mV
		$T_j=25^{\circ}C$, $1mA \leq I_o \leq 100mA$	-	13	80	
I_Q	Quiescent Current	$T_j=25^{\circ}C$	-	-	5.5	mA
ΔI_Q	Quiescent Current Change	$1mA \leq I_o \leq 40mA$	-	-	0.1	mA
		$9V \leq V_{in} \leq 21V$	-	-	1.5	
V_n	Output Noise Voltage	$T_a=25^{\circ}C$, $10Hz \leq f \leq 10KHz$	-	45	-	μV
$\Delta V_{in} / \Delta V_{out}$	Ripple Rejection	$9V \leq V_{in} \leq 18V$, $f=120Hz$	44	59	-	dB
I_{sc}	Peak Output / Short Circuit Current	$T_j=25^{\circ}C$	-	140	-	mA
V_D	Dropout Voltage	$T_j=25^{\circ}C$	-	1.7	-	V

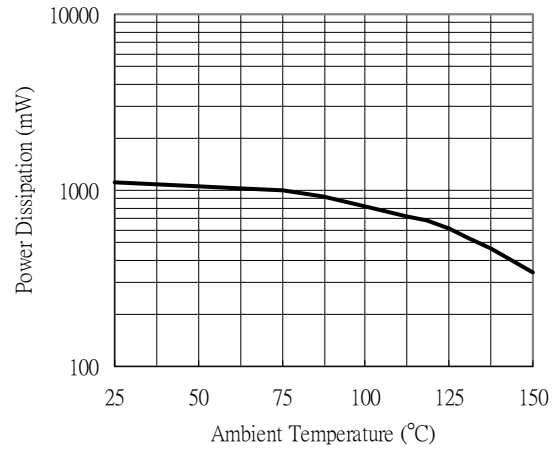
Symbol	Parameter	Conditions	PL78L06B			Units
			Min	Typ	Max	
V_o	Output Voltage	$T_j=25^{\circ}C$	5.75	6	6.25	V
		$1mA \leq I_o \leq 70mA$	5.7	-	6.3	
		$1mA \leq I_o \leq 40mA$ and $8V \leq V_{in} \leq 21V$	5.7	-	6.3	
ΔV_o	Line Regulation	$T_j=25^{\circ}C$, $8V \leq V_{in} \leq 21V$	-	65	175	mV
		$T_j=25^{\circ}C$, $9V \leq V_{in} \leq 21V$	-	55	125	
ΔV_o	Load Regulation	$T_j=25^{\circ}C$, $1mA \leq I_o \leq 40mA$	-	6	40	mV
		$T_j=25^{\circ}C$, $1mA \leq I_o \leq 100mA$	-	13	80	
I_Q	Quiescent Current	$T_j=25^{\circ}C$	-	-	5.5	mA
ΔI_Q	Quiescent Current Change	$1mA \leq I_o \leq 40mA$	-	-	0.1	mA
		$9V \leq V_{in} \leq 21V$	-	-	1.5	
V_n	Output Noise Voltage	$T_a=25^{\circ}C$, $10Hz \leq f \leq 10KHz$	-	45	-	μV
$\Delta V_{in} / \Delta V_{out}$	Ripple Rejection	$9V \leq V_{in} \leq 18V$, $f=120Hz$	44	59	-	dB
I_{sc}	Peak Output / Short Circuit Current	$T_j=25^{\circ}C$	-	140	-	mA
V_D	Dropout Voltage	$T_j=25^{\circ}C$	-	1.7	-	V

Characteristic Curves

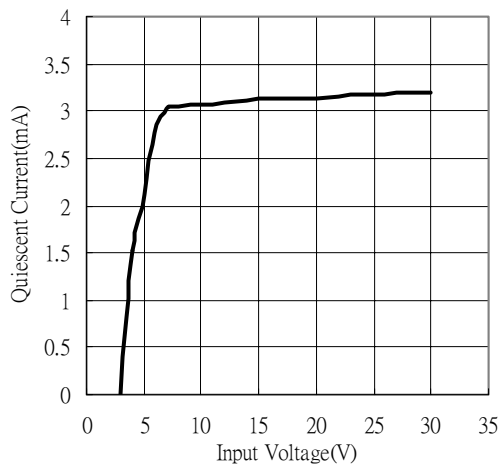
Dropout Characteristics



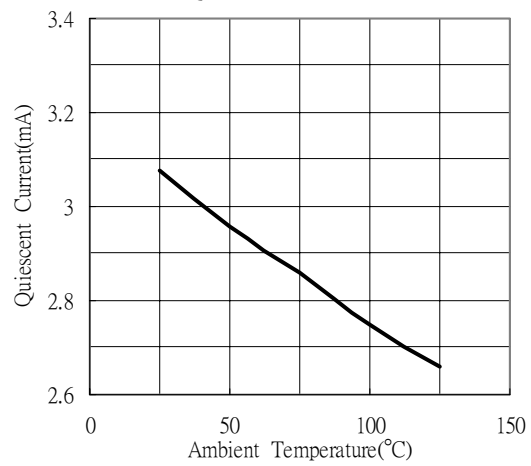
Maximum Average Power Dissipation



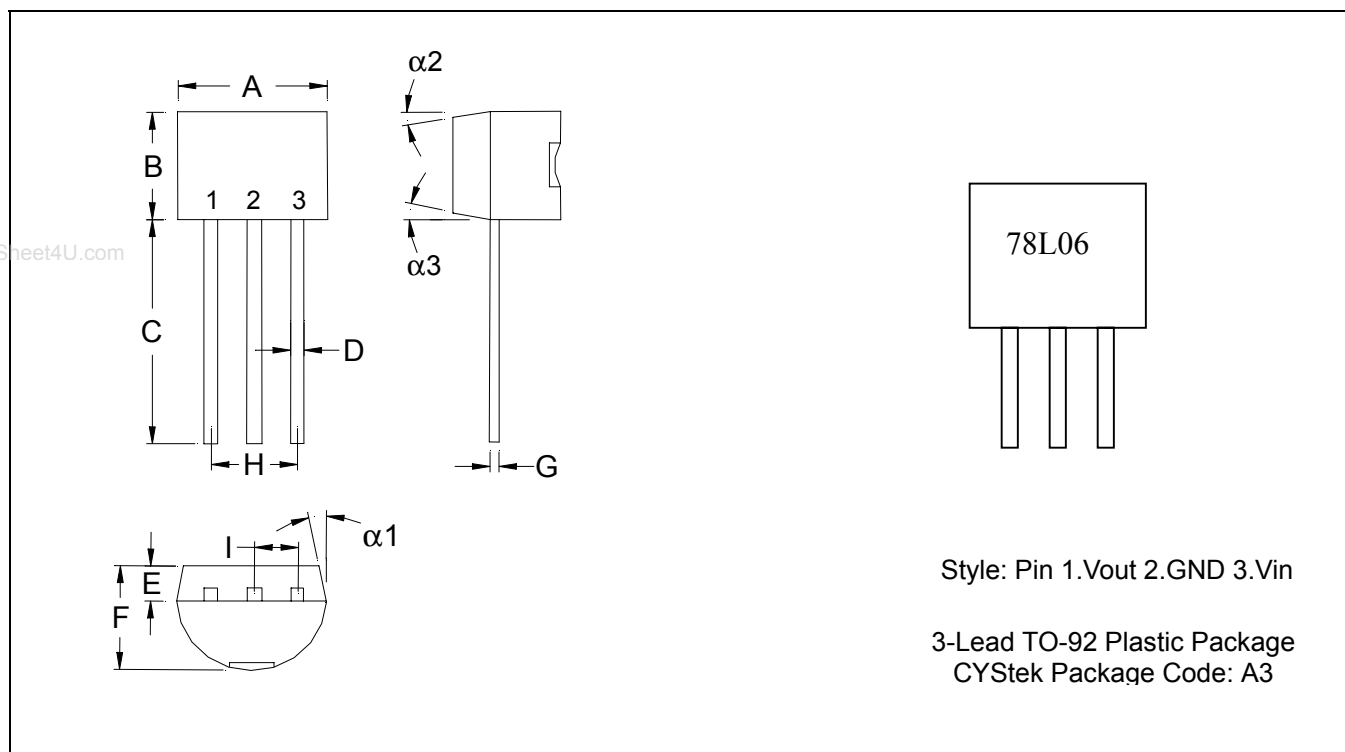
Quiescent Current



Quiescent Current



TO-92 Dimension



*: Typical

DIM	Inches		Millimeters		DIM	Inches		Millimeters	
	Min.	Max.	Min.	Max.		Min.	Max.	Min.	Max.
A	0.1704	0.1902	4.33	4.83	G	0.0142	0.0220	0.36	0.56
B	0.1704	0.1902	4.33	4.83	H	-	*0.1000	-	*2.54
C	0.5000	-	12.70	-	I	-	*0.0500	-	*1.27
D	0.0142	0.0220	0.36	0.56	$\alpha 1$	-	*5°	-	*5°
E	-	*0.0500	-	*1.27	$\alpha 2$	-	*2°	-	*2°
F	0.1323	0.1480	3.36	3.76	$\alpha 3$	-	*2°	-	*2°

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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