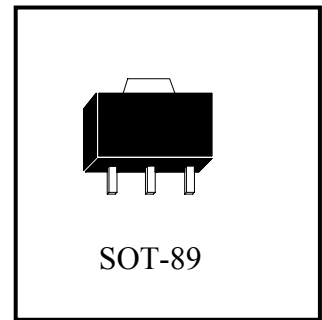


Low Current Positive Voltage Regulator

PL78L06XM3



Description

The PL78L06XM3 series of surface mount regulators are easy-to-use devices suitable for multitude of applications that require a regulated supply of up to 100mA. These regulators feature internal current limiting and thermal shutdown, making them remarkably rugged. No external components are required with the PL78L06XM3 devices in many applications. These devices offer a substantial performance advantage over the traditional zener diode resistor combination, as output impedance and quiescent current are substantially reduced.

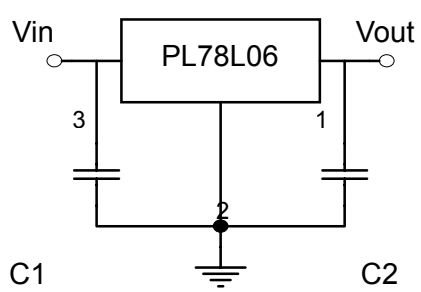
Features:

- Wide Range Of Available, Fixed Output Voltages
- Internal Short-Circuit Current Limiting
- Internal Thermal Overload Protection
- No External Components Required

Absolute Maximum Ratings (Ta=25°C)

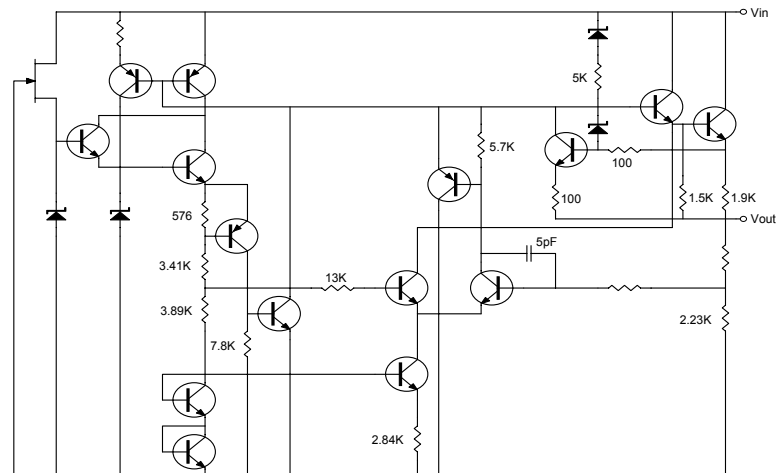
- Input Voltage 30 V
- Total Power Dissipation Internally limited
- Operating Temperature Range 0 °C to +125 °C
- Maximum Junction Temperature 125 °C
- Storage Temperature Range -55 °C to +150 °C
- Lead Temperature (Soldering 10S) 260 °C

Typical Application



A common ground is required between the input and the output voltages. The input voltage must remain typically 2.0V above the output voltage even during the low point on the input ripple voltage.
 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**

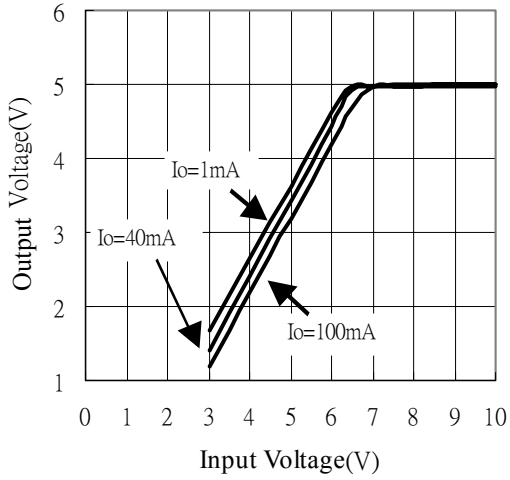
Vin=12V, Io=40mA, 0°C ≤Tj≤125°C PD≤750mW, unless otherwise specified

Symbol	Characteristic	PL78L06A			Units
		Min	Typ	Max	
Vo	Output Voltage (Tj=25°C)	5.82	6	6.18	V
	Output Voltage (8V≤Vin≤20V, 1mA≤Io≤40mA)	5.76	6	6.24	
	Output Voltage (8V≤Vin≤30V, 1mA≤Io≤70mA)	5.76	6	6.24	
Regline	Line Regulation (Tj=25°C, 8V≤Vin≤20V)	-	55	150	mV
	Line Regulation (Tj=25°C, 9V≤Vin≤20V)	-	45	100	
Regload	Load Regulation (Tj=25°C, 1mA≤Io≤100mA)	-	10	70	mV
	Load Regulation (Tj=25°C, 1mA≤Io≤40mA)	-	5	35	
IB	Quiescent Current (Tj=25°C)	-	2	5.5	mA
ΔIB	Quiescent Current Change (Tj=25°C, 8V≤Vin≤20V)	-	-	1.5	mA
	Quiescent Current Change (Tj=25°C, 1mA≤Io≤40mA)	-	-	0.1	
RR	Ripple Rejection (9V≤Vin≤19V, f=120Hz)	40	-	-	dB
Vi-Vo	Dropout Voltage (Tj=25°C)	-	1.7	-	V
VN	Output Noise Voltage (Tj=25°C, 10Hz≤f≤100KHz)	-	50	100	uV
Isc	Short Circuit Current Limit (Tj=25°C, Vin=35V)	-	140	-	mA
I _{max}	Peak Output Current (Tj=25°C)	-	140	-	mA
TCVo	Average Temperature Coefficient of Output Voltage, Io=5mA	-	-0.5	-	mV/°C

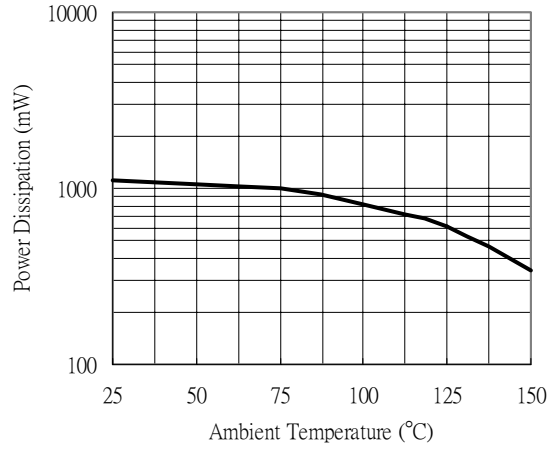
Symbol	Characteristic	PL78L06B			Units
		Min	Typ	Max	
Vo	Output Voltage (Tj=25°C)	5.7	6	6.3	V
	Output Voltage (8V≤Vin≤20V, 1mA≤Io≤40mA)	5.68	6	6.36	
	Output Voltage (8V≤Vin≤30V, 1mA≤Io≤70mA)	5.68	6	6.36	
Regline	Line Regulation (Tj=25°C, 8V≤Vin≤20V)	-	55	175	mV
	Line Regulation (Tj=25°C, 9V≤Vin≤20V)	-	45	125	
Regload	Load Regulation (Tj=25°C, 1mA≤Io≤100mA)	-	10	100	mV
	Load Regulation (Tj=25°C, 1mA≤Io≤40mA)	-	5	50	
IB	Quiescent Current (Tj=25°C)	-	2	6	mA
ΔIB	Quiescent Current Change (Tj=25°C, 8V≤Vin≤20V)	-	-	1.6	mA
	Quiescent Current Change (Tj=25°C, 1mA≤Io≤40mA)	-	-	0.1	
RR	Ripple Rejection (9V≤Vin≤19V, f=120Hz)	40	-	-	dB
Vi-Vo	Dropout Voltage (Tj=25°C)	-	1.7	-	V
VN	Output Noise Voltage (Tj=25°C, 10Hz≤f≤100KHz)	-	50	120	uV
Isc	Short Circuit Current Limit (Tj=25°C, Vin=35V)	-	140	-	mA
I _{max}	Peak Output Current (Tj=25°C)	-	140	-	mA
TCVo	Average Temperature Coefficient of Output Voltage, Io=5mA	-	-0.5	-	mV/°C

Characteristic Curves

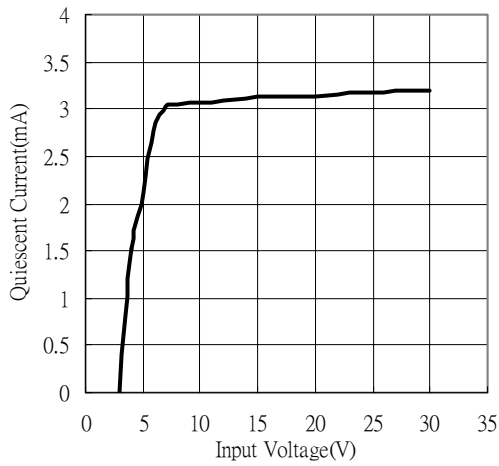
Dropout Characteristics



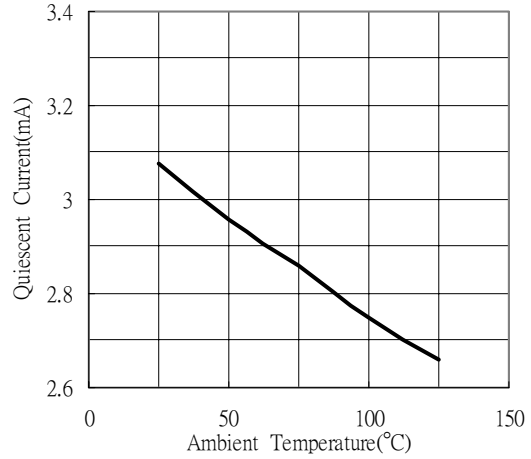
Maximum Average Power Dissipation



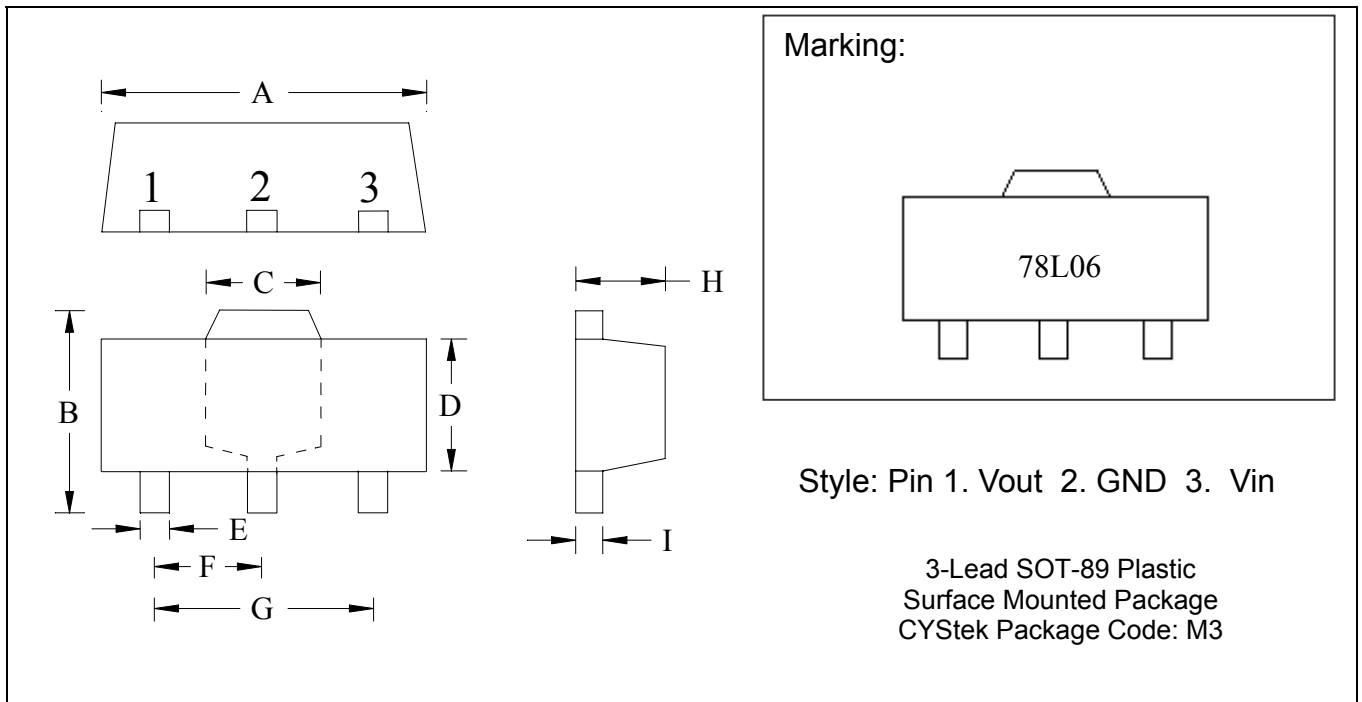
Quiescent Current



Quiescent Current



SOT-89 Dimension



*: Typical

DIM	Inches		Millimeters		DIM	Inches		Millimeters	
	Min.	Max.	Min.	Max.		Min.	Max.	Min.	Max.
A	0.1732	0.1811	4.40	4.60	F	0.0583	0.0598	1.48	1.527
B	0.1594	0.1673	4.05	4.25	G	0.1165	0.1197	2.96	3.04
C	0.0591	0.0663	1.50	1.70	H	0.0551	0.0630	1.40	1.60
D	0.0945	0.1024	2.40	2.60	I	0.0138	0.0161	0.35	0.41
E	0.01417	0.0201	0.36	0.51					

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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