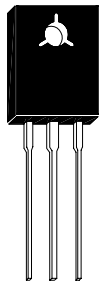
Three Terminal Medium Current Positive Voltage Regulators

PL78M05XT3



TO-126

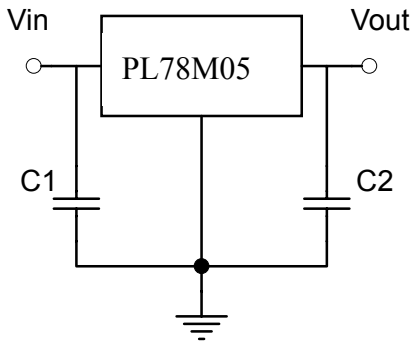
Description

These regulators employ internal current-limiting and thermal-shutdown, making them essentially indestructible. They can deliver up to 500mA output current, if the case temperature can be kept at Tc=25°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 PL78M05XT3 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 (Ta=25°C)

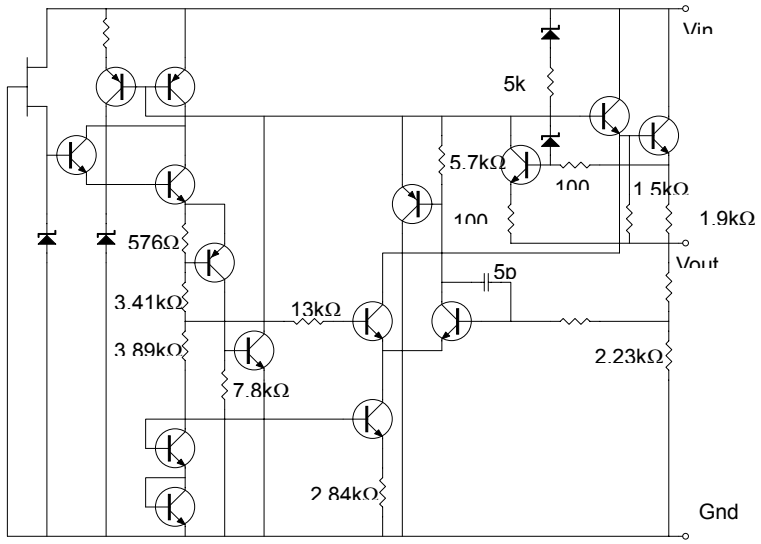
- Input Voltage..... 35 V
- Total Power Dissipation..... Internally limited
- Operating Temperature Range..... 0 °C to +125 °C
- Maximum Junction Temperature.....125 °C
- Storage Temperature Range.....-55 °C to +150 °C
- Lead Temperature (Soldering 10S)..... .....260 °C

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 Range
PL78M05AT3	4.8V～4.9V
PL78M05BT3	4.9V～5.1V
PL78M05CT3	5.1V～5.2V

Electrical Characteristics

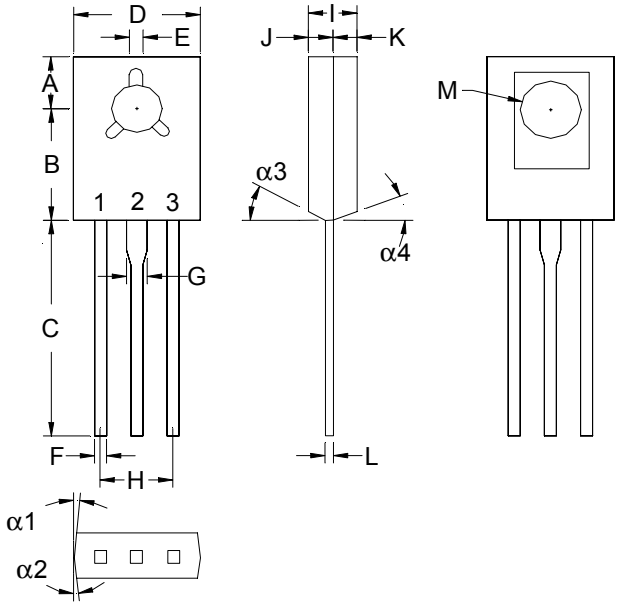
Vin=10V, Iout=350mA, P_D≤5W,0°C≤Tj≤125°C, Cin=0.33uF, Cout=0.1uF (unless otherwise noted)

Symbol	Parameter	Conditions	PL78M05A			Units
			Min	Typ	Max	
Vo	Output Voltage	Tj=25°C	4.80	-	4.90	V
		5mA≤Io≤350mA and 7V≤Vin≤20V	4.75	-	5.25	
ΔVo	Line Regulation	Tj=25°C, 7V≤Vin≤25V	-	3	100	mV
		Tj=25°C, 8V≤Vin≤25V	-	-	50	
ΔVo	Load Regulation	Tj=25°C, 5mA≤Io≤500mA	-	15	100	mV
		Tj=25°C, 5mA≤Io≤200mA	-	-	50	
IQ	Quiescent Current	Tj=25°C	-	3.2	6	mA
ΔIQ	Quiescent Current Change	5mA≤Io≤350mA	-	-	0.5	mA
		8V≤Vin≤25V,Io=200mA	-	-	0.8	
Vn	Output Noise Voltage	Ta=25°C, 10Hz≤f≤10KHz	-	40	100	uV
RR	Ripple Rejection	8V≤Vin≤18V,Io=300mA, f=120Hz	62	78	-	dB
VD	Dropout Voltage	Tj=25°C,Io=500mA	-	2	-	V
IOS	Output Short Circuit Current	Tj=25℃,Vin=35V		300		mA
IMAX	Peak Output Current	Tj=25℃		700		mA
TCVo	Temperature Coefficient of Output Voltage	Io=5mA		-1.1		mV/℃

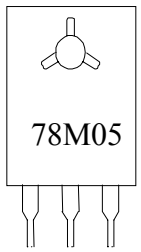
Symbol	Parameter	Conditions	PL78M05B			Units
			Min	Typ	Max	
Vo	Output Voltage	Tj=25°C	4.90	5.00	5.1	V
		5mA≤Io≤350mA and 7V≤Vin≤20V	4.75	-	5.25	
ΔVo	Line Regulation	Tj=25°C, 7V≤Vin≤25V	-	3	100	mV
		Tj=25°C, 8V≤Vin≤25V	-	-	50	
ΔVo	Load Regulation	Tj=25°C, 5mA≤Io≤500mA	-	15	100	mV
		Tj=25°C, 5mA≤Io≤200mA	-	-	50	
IQ	Quiescent Current	Tj=25°C	-	3.2	6	mA
ΔIQ	Quiescent Current Change	5mA≤Io≤350mA	-	-	0.5	mA
		8V≤Vin≤25V,Io=200mA	-	-	0.8	
Vn	Output Noise Voltage	Ta=25°C, 10Hz≤f≤10KHz	-	40	100	uV
RR	Ripple Rejection	8V≤Vin≤18V,Io=300mA, f=120Hz	62	78	-	dB
VD	Dropout Voltage	Tj=25°C,Io=500mA	-	2	-	V
IOS	Output Short Circuit Current	Tj=25℃,Vin=35V		300		mA
IMAX	Peak Output Current	Tj=25℃		700		mA
TCVo	Temperature Coefficient of Output Voltage	Io=5mA		-1.1		mV/℃

Symbol	Parameter	Conditions	PL78M05C			Units
			Min	Typ	Max	
Vo	Output Voltage	Tj=25°C	5.10	-	5.2	V
		5mA≤Io≤350mA and 7V≤Vin≤20V	5.05	-	5.25	
ΔVo	Line Regulation	Tj=25°C, 7V≤Vin≤25V	-	3	100	mV
		Tj=25°C, 8V≤Vin≤25V	-	-	50	
ΔVo	Load Regulation	Tj=25°C, 5mA≤Io≤500mA	-	15	100	mV
		Tj=25°C, 5mA≤Io≤200mA	-	-	50	
IQ	Quiescent Current	Tj=25°C	-	3.2	6	mA
ΔIQ	Quiescent Current Change	5mA≤Io≤350mA	-	-	0.5	mA
		8V≤Vin≤25V,Io=200mA	-	-	0.8	
Vn	Output Noise Voltage	Ta=25°C, 10Hz≤f≤10KHz	-	40	100	uV
RR	Ripple Rejection	8V≤Vin≤18V,Io=300mA, f=120Hz	62	78	-	dB
VD	Dropout Voltage	Tj=25°C,Io=500mA	-	2	-	V
IOS	Output Short Circuit Current	Tj=25℃,Vin=35V		300		mA
IMAX	Peak Output Current	Tj=25℃		700		mA
TCVo	Temperature Coefficient of Output Voltage	Io=5mA		-1.1		mV/℃

TO-126 Dimension



Marking:



Style: Pin 1. Vin 2. Ground 3. Vout

3-Lead TO-126 Plastic Package
CYStek Package Code: T3

*: Typical

DIM	Inches		Millimeters		DIM	Inches		Millimeters	
	Min.	Max.	Min.	Max.		Min.	Max.	Min.	Max.
α1	-	*3°	-	*3°	F	0.0280	0.0319	0.71	0.81
α2	-	*3°	-	*3°	G	0.0480	0.0520	1.22	1.32
α3	-	*3°	-	*3°	H	0.1709	0.1890	4.34	4.80
α4	-	*3°	-	*3°	I	0.0950	0.1050	2.41	2.66
A	0.1500	0.1539	3.81	3.91	J	0.0450	0.0550	1.14	1.39
B	0.2752	0.2791	6.99	7.09	K	0.0450	0.0550	1.14	1.39
C	0.5315	0.6102	13.50	15.50	L	-	*0.0217	-	*0.55
D	0.2854	0.3039	7.52	7.72	M	0.1378	0.1520	3.50	3.86
E	0.0374	0.0413	0.95	1.05					

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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