

MC78L05AB

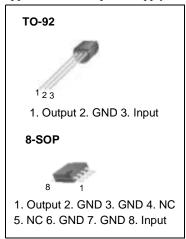
3-Terminal 0.1A 5V Positive Voltage Regulator

Features

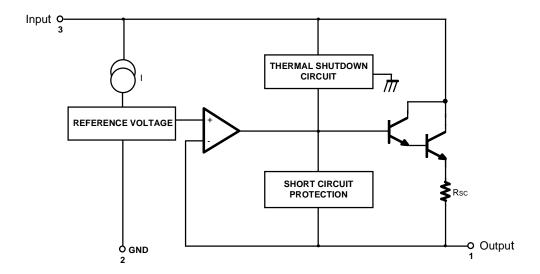
- Maximum Output Current of 100mA
- Output Voltage of 5V
- Thermal Overload Protection
- · Short Circuit Current Limiting
- Output Voltage Offered in ±5% Tolerance

Description

The MC78L05AB series of fixed voltage monolithic integrated circuit voltage regulators are suitable for application that required supply current up to 100mA.



Internal Block Diagram



Absolute Maximum Ratings

(Ta=25°C, Unless otherwise noted, Note 5)

Parameter	Symbol	Value	Unit
Input Voltage	Vı	30	V
Maximum Operating Junction Temperature	TJ	+150	°C
Storage Temperature Range	TSTG	-65 ~ +150	°C

Electrical Characteristics

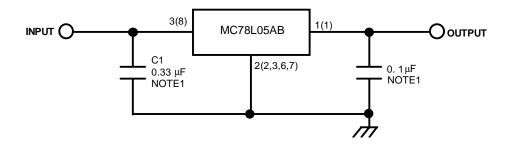
 $(V_I = 10V, I_O = 40\text{mA}, -40^{\circ}\text{C} \le T_J \le 125^{\circ}\text{C}, C_I = 0.33\mu\text{F}, C_O = 0.1\mu\text{F}, unless otherwise specified. (Note 1))}$

Parameter		Symbol	Conditions		Min.	Тур.	Max.	Unit
Output Voltage		Vo	T _J = 25°C		4.8	5.0	5.2	V
Line Regulation (Note1)		ΔVο	T _J = 25°C	7V ≤ V _I ≤ 20V	-	8	150	mV
				8V ≤ V _I ≤ 20V	-	6	100	mV
Load Regulation (Note1)		ΔVο	T _J = 25°C	1mA ≤ I _O ≤ 100mA	-	11	60	mV
				$1mA \le IO \le 40mA$	-	5.0	30	mV
Output Voltage		Vo	7V ≤V _I ≤ 20V	$1mA \le IO \le 40mA$	-	-	5.25	V
			7V ≤V _I ≤ V _{MAX} (Note 2)	1mA ≤ I _O ≤ 70mA	4.75	-	5.25	V
Quiescent Current		IQ	T _J = 25°C		-	2.0	5.5	mA
Quiescent Current Change	with line	ΔlQ	8V ≤VI ≤ 20V		-	-	1.5	mA
	with load	ΔlQ	$1mA \le IO \le 40 mA(Note3)$		-	-	0.5	mA
Output Noise Voltag	Output Noise Voltage(Note3) V_N $T_A = 25^{\circ}C$, $10Hz \le f \le 100kHz$		z ≤ f ≤ 100kHz	-	40	-	μV/Vo	
Temperature Coefficient of VO (Note3)		ΔV0/ΔΤ	IO = 5mA		-	-0.65	-	mV/°C
Ripple Rejection(Note3,4)		RR	$f = 120Hz, 8V \le V_I \le 18V, T_J = 25^{\circ}C$		41	80	-	dB
Dropout Voltage		VD	T _J = 25°C		-	1.7	-	V

Note:

- 1. The maximum steady state usable output current and input voltage are very dependent on the heat sinking and/or lead length of the package. The data above represent pulse test conditions with junction temperature as indicated at the initiation of tests.
- 2. Power dissipation $PD \le 0.75W$.
- 3. These parameters although guaranteed over the recommended operating conditions are not 100% tested in production.
- 4. Recommend minimum load capacitance of 0.01uF to limit high frequency noise.
- 5. Absolute Maximum Ratings indicate limits beyond which damage to the device may occur. Electrical specifications do not apply when operating the device outside of its stated operating conditions.
- * C_I is required if regulator is located an appreciable distance from power supply filter.
- ** C_0 is not needed for stability; however, it does improve transient response.

Typical Application



'()': 8SOP Type

Note:

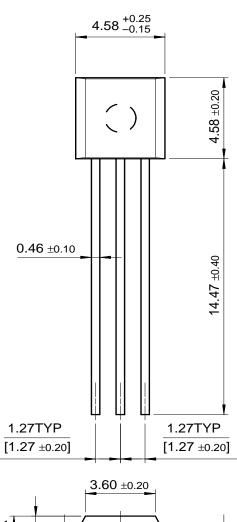
1. Bypass Capacitors are recommend for optimum stability and transient response and should be located as close as possible to the regulator

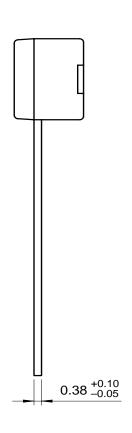
Mechanical Dimensions

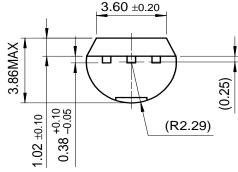
Package

Dimensions in millimeters

TO-92





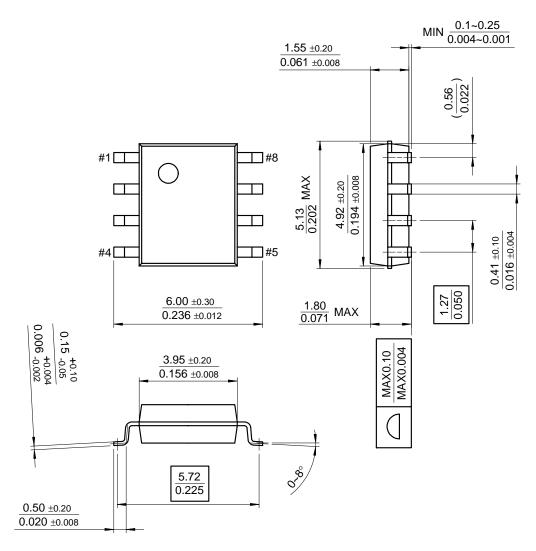


Mechanical Dimensions (Continued)

Package

Dimensions in millimeters

8-SOP



Ordering Information

Product Number	Package	Output Voltage Tolerance	Operating Temperature		
MC78L05ABP	TO-92	5%	-40 ~ +125°C		
MC78L05ABD	8-SOP	J 70	-40 ~ +120 C		

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