

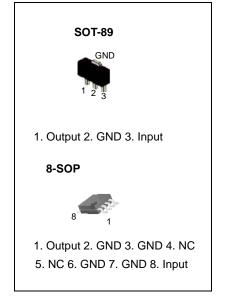
KA78L05AI 3-Terminal 0.1A 5V Positive Voltage Regulator

Features

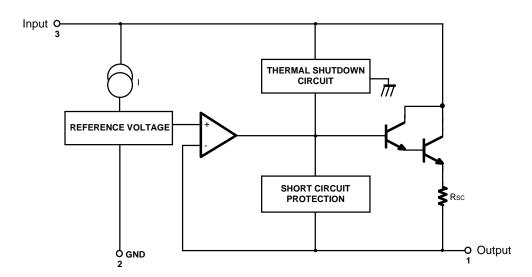
- Maximum Output Current of 100mA
- Output Voltage of 5V
- Thermal Overload Protection
- Short Circuit Current Limiting
- Output Voltage Offered in ±5% Tolerance

Description

The KA78L05AI 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	VI	30	V
Maximum Operating Junction Temperature	Tj	150	°C
Operating Temperature Range	TOPR	-40 ~ +125	°C
Storage Temperature Range	TSTG	-65 ~ +150	°C
Thermal Resistance Junction-Air SOT-89 8-SOP	Reja	225 160	°C/W °C/W

Electrical Characteristics

(VI = 10V, IO = 40mA, -40°C \leq TJ \leq 125°C, CI = 0.33 μ F, CO = 0.1 μ F, unless otherwise specified. (Note1))

Parameter		Symbol	Conditions		Min.	Тур.	Max.	Unit
Output Voltage		Vo	TJ = 25°C		4.8	5.0	5.2	V
Line Regulation (Note1)		ΔVο	TJ = 25°C	$7V \le V_I \le 20V$	-	8	150	mV
				$8V \le V_I \le 20V$	-	6	100	mV
Load Regulation (Note1)		ΔV_{O} T _J = 25°C	$1mA \le IO \le 100mA$	-	11	60	mV	
			$1 J = 25^{\circ} C$	$1mA \le I_O \le 40mA$	-	5.0	30	mV
Output Voltage			$7V \leq V_I \leq 20V$	$1mA \le IO \le 40mA$	4.75	-	5.25	V
		Vo	$7V \le V_I \le V_{MAX}$ (Note2)	$1mA \le IO \le 70mA$	4.75	-	5.25	V
Quiescent Current		lq	T _J = 25°C		-	2.0	5.5	mA
Change	With Line	ΔlQ	$8V \leq V_I \leq 20V$		-	-	1.5	mA
	With Load	ΔlQ	$1mA \le IO \le 40 mA(Note3)$		-	-	0.5	mA
Output Noise Voltag	e(Note3)	VN	$T_A = 25^{\circ}C$, $10Hz \le f \le 100kHz$		-	40	-	μV/Vo
Temperature Coefficient of VO (Note3)		ΔVο/ΔΤ	IO = 5mA		-	-0.65	-	mV/°C
Ripple Rejection(No	Rejection(Note3,4)RRf = 120Hz, $8V \le VI \le 18V$, $TJ = 25^{\circ}C$		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.

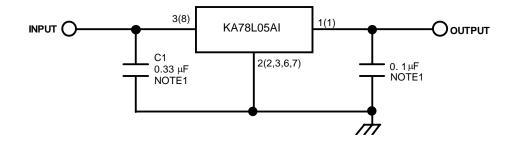
2. Power dissipation $P_D \leq 0.75 W.$

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.

Typical Application



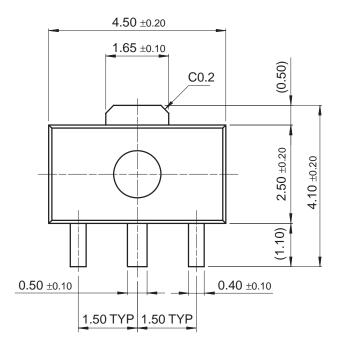
'()': 8SOP Type

Note:

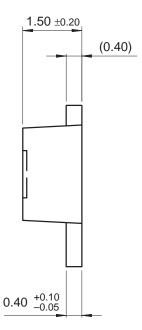
1. Bypass Capacitors are recommend for optimum stability and transient response and should be located as close as possible to the regulator

Mechanical Dimensions

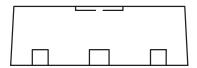
Package



SOT-89



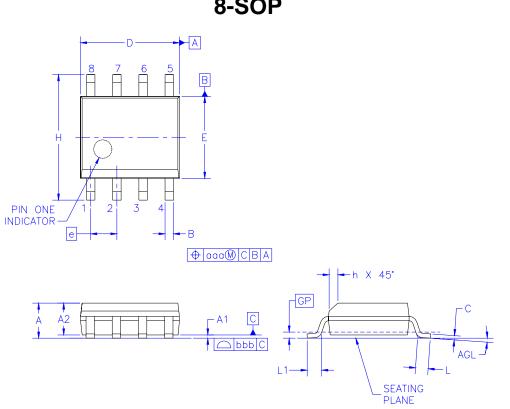
Dimensions in millimeters



Dimensions in millimeters

Mechanical Dimensions (Continued)

Package



8-SOP

Symbol	Min	Nom	Мах	
А	-	-	1.75	
A1	0.10	0.15	0.25	
A2	1.25	1.45	1.50	
В	0.35	0.37	0.51	
С	0.19	0.20	0.25	
D	4.80	4.90	5.00	
E	3.80	3.90	4.00	
е	1.27BSC			
Н	5.79	5.99	6.20	
h	0.25	-	0.50	
L	0.50	0.70	0.90	
GP	0.36 BSC			
q	0	-	8	
aaa	-	-	0.25	
bbb	-	-	0.10	

Ordering Information

Product Number	Package	Output Voltage Tolerance	Operating Temperature
KA78L05AIMTF	SOT-89	5%	-40 ~ +125°C
KA78L05AIDTF	8-SOP	5%	-40 ~ +123 C

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