

# KA723/I

# PRECISION VOLTAGE REGULATOR

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The KA723/I are monolithic integrated Circuit voltage regulators featuring high ripple rejection, excellent output and load regulation, excellent temperature stability, and low standby current. The KA723/I are also useful in a wide range of other applications such as a shunt regulator, a current regulator or a temperature controller. The KA723 is characteristic for operation on from 0°C to 70°C, and the KA723I from -25°C to +85°C.

### FEATURES

- Positive or Negative Supply Operation.
- Output voltage adjustable from 2 to 37 volts.
- Output current to 150mA without external pass transistor

### BLOCK DIAGRAM

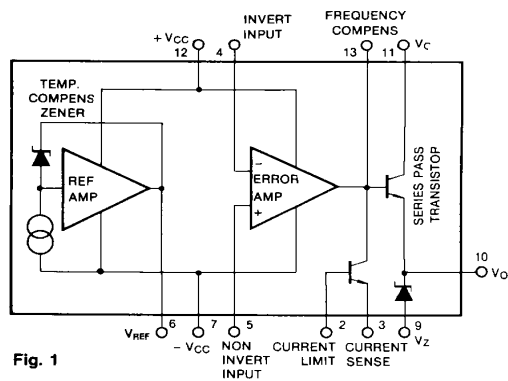
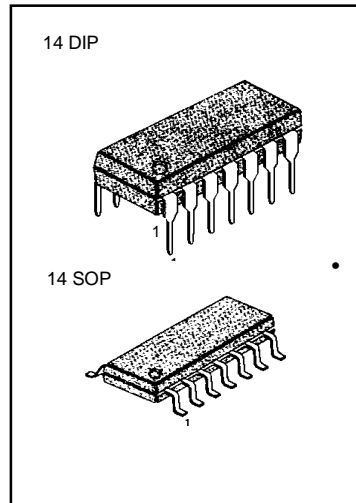


Fig. 1



• 0.01% line and load

### ORDERING INFORMATION

Device	Package	Operating Temperature
KA723	14 DIP	0 ~ +70°C
KA723D	14 SOP	
KA723I	14 DIP	-25 ~ +85°C
KA723ID	14 SOP	

### SCHEMATIC DIAGRAM

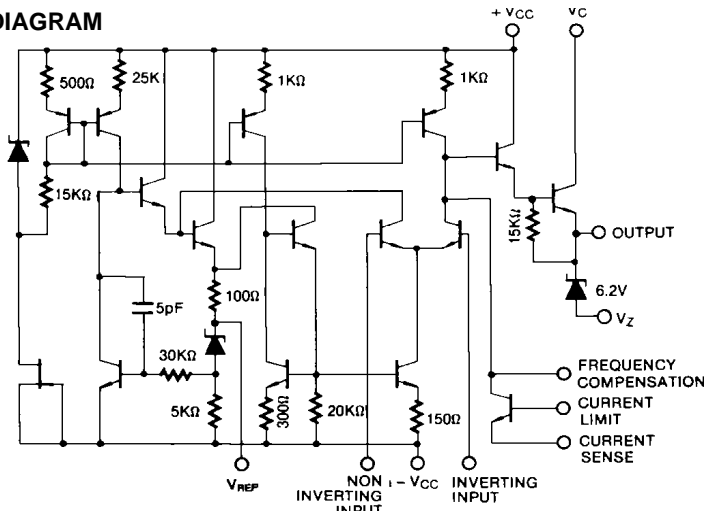


Fig. 2

## ABSOLUTE MAXIMUM RATINGS

Characteristic	Symbol	Value	Unit	
Pulse Voltage from V + to V - (50ms)	$V_{I(P)}$	50	$V_{PEAK}$	
Continuous Voltage from V + to V -	$V_I$	40	V	
Input-Output Voltage Differential	$V_I - V_O$	40	V	
Maximum Output Current	$I_O$	150	mA	
Differential Input Voltage	$V_{ID}$	$\pm 5$	V	
Voltage Between Non-Inverting Input and V -	$V_{IE}$	8	V	
Current from $V_Z$	$I_Z$	25	mA	
Current from $V_{REF}$	$I_{REF}$	15	mA	
Power Dissipation	$P_D$	1000	m/W	
Operating Temperature Range	KA723 KA723I	$T_{OPR}$	0 ~ +70	$^{\circ}C$
			-25 ~ +85	$^{\circ}C$
Storage Temperature Range		$T_{STG}$	-65 ~ + 150	$^{\circ}C$

## ELECTRICAL CHARACTERISTICS

(unless otherwise specified,  $T_A = 25^{\circ}C$ ,  $V_I = V_{CC} = 12V$ ,  $V_O = +5V$ ,  $I_L = 1.0mA$ ,  $R_{SC} = 0$ ,  $C_1 = 100pF$ ,  $C_{REF} = 0$  and divider impedance as seen by error Amplifier  $\leq 10K\Omega$  connected as shown in figure 3)

Characteristic	Symbol	Test Conditions	Min	Typ	Max	Unit
Line Regulation	$\Delta V_O$	$V_I = 12V$ to $15V$		0.01	0.1	%
		$V_I = 12V$ to $40V$		0.1	0.5	
		$T_{MIN} \leq T_A \leq T_{MAX}$ $V_I = 12V$ to $15V$			0.3	
Load Regulation	$\Delta V_O$	$I_O = 1mA$ to $50mA$		0.03	0.2	%
		$T_{MIN} \leq T \leq T_{MAX}$ $I_O = 1$ to $50mA$			0.6	
Ripple Rejection	RR	$f = 100Hz$ to $10KHz$ , $C_{REF} = 0$		74		dB
		$f = 100Hz$ to $10KHz$ , $C_{REF} = 5\mu F$		86		
Average Temperature Coefficient of Output Voltage	$\Delta V_O / \Delta T$	$T_{MIN} \leq T \leq T_{MAX}$		0.003	0.015	$\%/^{\circ}C$
Short Circuit Current Limit	$I_{SC}$	$R_{SC} = 10\Omega$ , $V_O = 0$		65		mA
Reference Voltage	$V_{REF}$		6.80	7.15	7.50	V
Output Noise Voltage	$V_N$	$f = 100Hz$ to $10KHz$ , $C_{REF} = 0$		20		$\mu V_{rms}$
		$f = 100Hz$ to $10KHz$ , $C_{REF} = 5\mu F$		2.5		
Long-term Stability	ST			0.1		$\%/1000HR$
Standby Current Drain	$I_D$	$I_L = 0$ , $V_I = 30V$		2.0	4.0	mA
Input Voltage Range	$V_I$		9.5		40	V
Output Voltage Range	$V_O$		2.0		37	V
Input-Output Voltage Differential	$V_D$		3.0		38	V

\* Note:  $T_{MIN} = 0^{\circ}C$  for KA723  
=  $-25^{\circ}C$  for KA723I

$T_{MAX} = 70^{\circ}C$  for KA723  
=  $85^{\circ}C$  for KA723I

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FASTr™	SuperSOT™-6	
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## PRODUCT STATUS DEFINITIONS

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