

MC78MXX (LM78MXX) (KA78MXX)

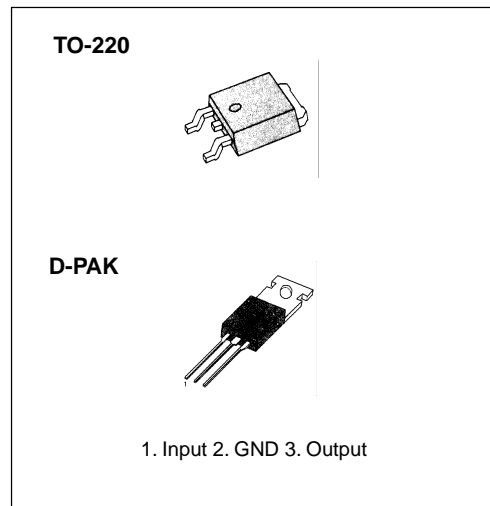
3-Terminal 0.5A Positive Voltage Regulators

Features

- Output Current up to 0.5A
- Output Voltages of 5, 6, 8, 10, 12, 15, 18, 20, 24V
- Thermal Overload Protection
- Short Circuit Protection
- Output Transistor SOA Protection
- Industrial and commercial temperature range

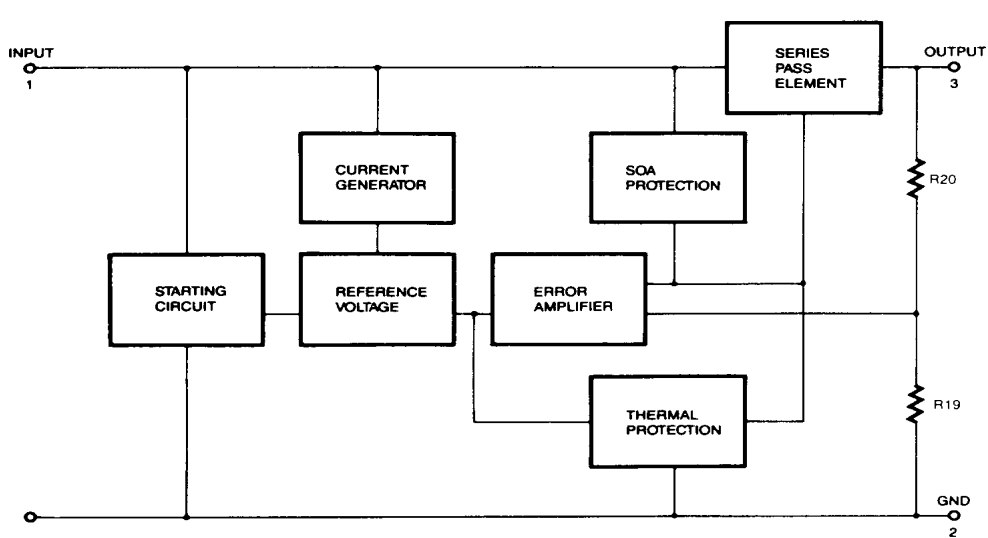
Description

The MC78MXX (LM78MXX) (KA78MXX) series of three-terminal positive regulators are available in the TO-220/D-PAK package with several fixed output voltages making it useful in a wide range of applications.



Fixed Voltage Regulator (Positive)

Internal Block Diagram



Fixed Voltage Regulator (Positive)

Absolute Maximum Ratings ($T_a=+25^{\circ}\text{C}$, Unless otherwise specified)

Parameter	Symbol	Value	Unit
Input Voltage (for $V_O = 5\text{V}$ to 18V) (for $V_O = 24\text{V}$)	V_I	35	V
	V_I	40	V
Thermal Resistance Junction-Cases	$R_{\theta JC}$	5	$^{\circ}\text{C}/\text{W}$
Thermal Resistance Junction-Air	$R_{\theta JA}$	65	$^{\circ}\text{C}/\text{W}$
Operating Temperature Range KA78MXXI/RI KA78MXX/R	T_{OPR}	-40~ + 125	$^{\circ}\text{C}$
		0~ + 125	$^{\circ}\text{C}$
Storage Temperature Range	T_{STG}	-65~ + 150	$^{\circ}\text{C}$

KA78M05/I/R/RI Electrical Characteristics

(Refer to the test circuits, $T_{MIN} \leq T_J \leq +125^{\circ}\text{C}$, $I_O=350\text{mA}$, $V_I=10\text{V}$, unless otherwise specified, $C_I = 0.33\text{mF}$, $C_O=0.1\text{mF}$)

Parameter	Symbol	Conditions	Min.	Typ.	Max.	Units	
Output Voltage	V_O	$T_J=+25^{\circ}\text{C}$	4.8	5	5.2	V	
		$I_O = 5$ to 350mA $V_I = 7$ to 20V	4.75	5	5.25		
Line Regulation	ΔV_O	$I_O = 200\text{mA}$ $T_J = +25^{\circ}\text{C}$	$V_I = 7$ to 25V	-	-	100	mV
			$V_I = 8$ to 25V	-	-	50	
Load Regulation	ΔV_O	$I_O = 5\text{mA}$ to 0.5A , $T_J = +25^{\circ}\text{C}$	-	-	100	mV	
		$I_O = 5\text{mA}$ to 200mA , $T_J = +25^{\circ}\text{C}$	-	-	50		
Quiescent Current	I_Q	$T_J=+25^{\circ}\text{C}$	-	4.0	6	mA	
Quiescent Current Change	ΔI_Q	$I_O = 5\text{mA}$ to 350mA	-	-	0.5	mA	
		$I_O = 200\text{mA}$ $V_I = 8$ to 25V	-	-	0.8		
Output Voltage Drift	$\Delta V/\Delta T$	$I_O = 5\text{mA}$ $T_J = 0$ to $+125^{\circ}\text{C}$	-	- 0.5	-	$\text{mV}/^{\circ}\text{C}$	
Output Noise Voltage	V_N	$f = 10\text{Hz}$ to 100KHz	-	40	-	mV/V_O	
Ripple Rejection	RR	$f = 120\text{Hz}$, $I_O = 300\text{mA}$ $V_I = 8$ to 18V	62	-	-	dB	
Dropout Voltage	V_D	$T_J=+25^{\circ}\text{C}$, $I_O = 500\text{mA}$	-	2	-	V	
Short Circuit Current	I_{SC}	$T_J=+25^{\circ}\text{C}$, $V_I = 35\text{V}$	-	300	-	mA	
Peak Current	I_{PK}	$T_J = +25^{\circ}\text{C}$	-	700	-	mA	

NOTE:

- $T_{MIN} < T_J < T_{MAX}$
KA78MXX/RI: $T_{MIN} = -40^{\circ}\text{C}$, $T_{MAX} = +125^{\circ}\text{C}$
KA78MXX/R: $T_{MIN} = 0^{\circ}\text{C}$, $T_{MAX} = +125^{\circ}\text{C}$
- Load and line regulation are specified at constant junction temperature. Change in V_O due to heating effects must be taken into account separately. Pulse testing with low duty is used.

Fixed Voltage Regulator (Positive)

KA78M06//R/RI Electrical Characteristics(Refer to the test circuits, $T_{MIN} \leq T_J \leq +125^{\circ}C$, $I_O=350mA$, $V_I=11V$, unless otherwise specified, $C_I = 0.33mF$, $C_O=0.1mF$)

Parameter	Symbol	Conditions	Min.	Typ.	Max.	Units	
Output Voltage	V_O	$T_J=+25^{\circ}C$	5.75	6	6.25	V	
		$I_O = 5$ to $350mA$ $V_I = 8$ to $21V$	5.7	6	6.3		
Line Regulation	ΔV_O	$I_O = 200mA$ $T_J = +25^{\circ}C$	$V_I = 8$ to $25V$	-	-	100	mV
			$V_I = 9$ to $25V$	-	-	50	
Load Regulation	ΔV_O	$I_O = 5mA$ to $0.5A$, $T_J = +25^{\circ}C$	-	-	120	mV	
		$I_O = 5mA$ to $200mA$, $T_J = +25^{\circ}C$	-	-	60		
Quiescent Current	I_Q	$T_J=+25^{\circ}C$	-	4.0	6	mA	
Quiescent Current Change	ΔI_Q	$I_O = 5mA$ to $350mA$	-	-	0.5	mA	
		$I_O = 200mA$ $V_I = 9$ to $25V$	-	-	0.8		
Output Voltage Drift	$\Delta V/\Delta T$	$I_O = 5mA$ $T_J = 0$ to $+125^{\circ}C$	-	- 0.5	-	mV/ $^{\circ}C$	
Output Noise Voltage	V_N	$f = 10Hz$ to $100KHz$	-	45	-	mV/ V_O	
Ripple Rejection	RR	$f = 120Hz$, $I_O = 300mA$ $V_I = 9$ to $19V$	59	-	-	dB	
Dropout Voltage	V_D	$T_J = +25^{\circ}C$, $I_O = 500mA$	-	2	-	V	
Short Circuit Current	I_{SC}	$T_J = +25^{\circ}C$, $V_I = 35V$	-	300	-	mA	
Peak Current	I_{PK}	$T_J = +25^{\circ}C$	-	700	-	mA	

NOTE:

- T_{MIN} :
KA78MXX/RI: $T_{MIN} = -40^{\circ}C$
KA78MXX/R: $T_{MIN} = 0^{\circ}C$
- Load and line regulation are specified at constant, junction temperature. Change in V_O due to heating effects must be taken into account separately. Pulse testing with low duty is used.

KA78M08//R/RI ELECTRICAL CHARACTERISTICS(Refer to the test circuits, $T_{MIN} \leq T_J \leq +125^{\circ}C$, $I_O=350mA$, $V_I=14V$, unless otherwise specified, $C_I=0.33mF$, $C_O=0.1mF$)

Parameter	Symbol	Conditions	Min.	Typ.	Max.	Units	
Output Voltage	V_O	$T_J=+25^{\circ}C$	7.7	8	8.3	V	
		$I_O = 5$ to $350mA$ $V_I = 10.5$ to $23V$	7.6	8	8.4		
Line Regulation	ΔV_O	$I_O = 200mA$ $T_J = +25^{\circ}C$	$V_I = 10.5$ to $25V$	-	-	100	mV
			$V_I = 11$ to $25V$	-	-	50	
Load Regulation	ΔV_O	$I_O = 5mA$ to $0.5A$, $T_J = +25^{\circ}C$	-	-	160	mV	
		$I_O = 5mA$ to $200mA$, $T_J = +25^{\circ}C$	-	-	80		
Quiescent Current	I_Q	$T_J=+25^{\circ}C$	-	4.0	6	mA	
Quiescent Current Change	ΔI_Q	$I_O = 5mA$ to $350mA$	-	-	0.5	mA	
		$I_O = 200mA$ $V_I = 10.5$ to $25V$	-	-	0.8		
Output Voltage Drift	RR	$I_O = 5mA$ $T_J = 0$ to $+125^{\circ}C$	-	-0.5	-	mV/ $^{\circ}C$	
Output Noise Voltage	V_N	$f = 10Hz$ to $100KHz$	-	52	-	mV/ V_O	
Ripple Rejection	RR	$f = 120Hz$, $I_O = 300mA$ $V_I = 9$ to $19V$	56	-	-	dB	
Dropout Voltage	V_D	$T_J = +25^{\circ}C$, $I_O = 500mA$	-	2	-	V	
Short Circuit Current	I_{SC}	$T_J = +25^{\circ}C$, $V_I = 35V$	-	300	-	mA	
Peak Current	I_{PK}	$T_J = +25^{\circ}C$	-	700	-	mA	

NOTE:

- T_{MIN} :
KA78MXX/RI: $T_{MIN} = -40^{\circ}C$
KA78MXX/R: $T_{MIN} = 0^{\circ}C$
- Load and line regulation are specified at constant, junction temperature. Change in V_O due to heating effects must be taken into account separately. Pulse testing with low duty is used.

Fixed Voltage Regulator (Positive)

KA78M10//R/RI Electrical Characteristics(Refer to the test circuits, $T_{MIN} \leq T_J \leq +125^{\circ}C$, $I_O=350mA$, $V_I=17V$, unless otherwise specified, $C_I = 0.33mF$, $C_O=0.1mF$)

Parameter	Symbol	Conditions	Min.	Typ.	Max.	Units
Output Voltage	V_O	$T_J = +25^{\circ}C$	9.6	10	10.4	V
		$I_O = 5$ to $350mA$ $V_I = 12.5$ to $25V$	9.5	10	10.5	
Line Regulation	ΔV_O	$I_O = 200mA$ $T_J = +25^{\circ}C$	-	-	100	mV
		$V_I = 12.5$ to $25V$ $V_I = 13$ to $25V$	-	-	50	
Load Regulation	ΔV_O	$I_O = 5mA$ to $0.5A$, $T_J = +25^{\circ}C$	-	-	200	mV
		$I_O = 5mA$ to $200mA$, $T_J = +25^{\circ}C$	-	-	100	
Quiescent Current	I_Q	$T_J = +25^{\circ}C$	-	4.1	6	mA
Quiescent Current Change	ΔI_Q	$I_O = 5mA$ to $350mA$	-	-	0.5	mA
		$I_O = 200mA$ $V_I = 12.5$ to $25V$	-	-	0.8	
Output Voltage Drift	$\Delta V/\Delta T$	$I_O = 5mA$ $T_J = 0$ to $+125^{\circ}C$	-	- 0.5	-	mV/ $^{\circ}C$
Output Noise Voltage	V_N	$f = 10Hz$ to $100KHz$	-	65	-	mV/ V_O
Ripple Rejection	RR	$f = 120Hz$, $I_O = 300mA$ $V_I = 13$ to $23V$	55	-	-	dB
Dropout Voltage	V_D	$T_J = +25^{\circ}C$, $I_O = 500mA$	-	2	-	V
Short Circuit Current	I_{SC}	$T_J = +25^{\circ}C$, $V_I = 35V$	-	300	-	mA
Peak Current	I_{PK}	$T_J = +25^{\circ}C$	-	700	-	mA

NOTE:

- T_{MIN} :
KA78MXX/RI: $T_{MIN} = -40^{\circ}C$
KA78MXX/R: $T_{MIN} = 0^{\circ}C$
- Load and line regulation are specified at constant, junction temperature. Change in V_O due to heating effects must be taken into account separately. Pulse testing with low duty is used.

KA78M12//R/RI Electrical Characteristics

(Refer to the test circuits, $T_{MIN} \leq T_J \leq 125^\circ\text{C}$, $I_O = 350\text{mA}$, $V_I = 19\text{V}$, unless otherwise specified, $C_I = 0.33\text{mF}$, $C_O = 0.1\text{mF}$)

Parameter	Symbol	Conditions	Min.	Typ.	Max.	Units	
Output Voltage	V_O	$T_J = +25^\circ\text{C}$	11.5	12	12.5	V	
		$I_O = 5$ to 350mA $V_I = 14.5$ to 27V	11.5	12	12.6		
Line Regulation	ΔV_O	$I_O = 200\text{mA}$ $T_J = +25^\circ\text{C}$	$V_I = 14.5$ to 30V	-	-	100	mV
			$V_I = 16$ to 30V	-	-	50	
Load Regulation	ΔV_O	$I_O = 5\text{mA}$ to 0.5A , $T_J = +25^\circ\text{C}$	-	-	240	mV	
		$I_O = 5\text{mA}$ to 200mA , $T_J = +25^\circ\text{C}$	-	-	120		
Quiescent Current	I_Q	$T_J = +25^\circ\text{C}$	-	4.1	6	mA	
Quiescent Current Change	ΔI_Q	$I_O = 5\text{mA}$ to 350mA	-	-	0.5	mA	
		$I_O = 200\text{mA}$ $V_I = 14.5$ to 30V	-	-	0.8		
Output Voltage Drift	$\Delta V/\Delta T$	$I_O = 5\text{mA}$ $T_J = 0$ to $+125^\circ\text{C}$	-	-0.5	-	mV/ $^\circ\text{C}$	
Output Noise Voltage	V_N	$f = 10\text{Hz}$ to 100kHz	-	75	-	mV/ V_O	
Ripple Rejection	RR	$f = 120\text{Hz}$, $I_O = 300\text{mA}$ $V_I = 15$ to 25V	55	-	-	dB	
Dropout Voltage	V_D	$T_J = +25^\circ\text{C}$, $I_O = 500\text{mA}$	-	2	-	V	
Short Circuit Current	I_{SC}	$T_J = +25^\circ\text{C}$, $V_I = 35\text{V}$	-	300	-	mA	
Peak Current	I_{PK}	$T_J = +25^\circ\text{C}$	-	700	-	mA	

NOTE:

- T_{MIN} :
KA78MXX/RI: $T_{MIN} = -40^\circ\text{C}$
KA78MXX/R: $T_{MIN} = 0^\circ\text{C}$
- Load and line regulation are specified at constant, junction temperature. Change in V_O due to heating effects must be taken into account separately. Pulse testing with low duty is used.

Fixed Voltage Regulator (Positive)

KA78M15//R/RI ELECTRICAL CHARACTERISTICS(Refer to the test circuits, $T_{MIN} \leq T_J \leq +125^{\circ}C$, $I_O=350mA$, $V_I=23V$, unless otherwise specified, $C_I=0.33mF$, $C_O=0.1mF$)

Parameter	Symbol	Conditions	Min.	Typ.	Max.	Units
Output Voltage	V_O	$T_J=+25^{\circ}C$	14.4	15	15.6	V
		$I_O = 5$ to $350mA$ $V_I = 17.5$ to $30V$	14.25	15	15.75	
Line Regulation	ΔV_O	$I_O = 200mA$ $T_J = +25^{\circ}C$	-	-	100	mV
		$V_I = 17.5$ to $30V$ $V_I = 20$ to $30V$	-	-	50	
Load Regulation	ΔV_O	$I_O = 5mA$ to $0.5A$, $T_J = +25^{\circ}C$	-	-	300	mV
		$I_O = 5mA$ to $200mA$, $T_J = +25^{\circ}C$	-	-	150	
Quiescent Current	I_Q	$T_J=+25^{\circ}C$	-	4.1	6	mA
Quiescent Current Change	ΔI_Q	$I_O = 5mA$ to $350mA$	-	-	0.5	mA
		$I_O = 200mA$ $V_I = 17.5$ to $30V$	-	-	0.8	
Output Voltage Drift	$\Delta V/\Delta T$	$I_O = 5mA$ $T_J = 0$ to $+125^{\circ}C$	-	- 1	-	mV/ $^{\circ}C$
Output Noise Voltage	V_N	$f = 10Hz$ to $100KHz$	-	100	-	mV/ V_O
Ripple Rejection	RR	$f = 120Hz$, $I_O = 300mA$ $V_I = 18.5$ to $28.5V$	54			dB
Dropout Voltage	V_D	$T_J = +25^{\circ}C$, $I_O = 500mA$	-	2	-	V
Short Circuit Current	I_{SC}	$T_J = +25^{\circ}C$, $V_I = 35V$	-	300	-	mA
Peak Current	I_{PK}	$T_J = +25^{\circ}C$	-	700	-	mA

NOTE:

- T_{MIN} :
KA78MXX/RI: $T_{MIN} = -40^{\circ}C$
KA78MXX/R: $T_{MIN} = 0^{\circ}C$
- Load and line regulation are specified at constant, junction temperature. Change in V_O due to heating effects must be taken into account separately. Pulse testing with low duty is used.

KA78M18//R/RI Electrical Characteristics

(Refer to the test circuits, $T_{MIN} \leq T_J \leq +125^\circ\text{C}$, $I_O=350\text{mA}$, $V_I=26\text{V}$, unless otherwise specified, $C_I=0.33\text{mF}$, $C_O=0.1\text{mF}$)

Parameter	Symbol	Conditions	Min.	Typ.	Max.	Units
Output Voltage	V_O	$T_J=+25^\circ\text{C}$	17.3	18	18.7	V
		$I_O = 5 \text{ to } 350\text{mA}$ $V_I = 20.5 \text{ to } 33\text{V}$	17.1	18	18.9	
Line Regulation	ΔV_O	$I_O = 200\text{mA}$ $V_I = 21 \text{ to } 33\text{V}$	-	-	100	mV
		$T_J = +25^\circ\text{C}$ $V_I = 24 \text{ to } 33\text{V}$	-	-	50	
Load Regulation	ΔV_O	$I_O = 5\text{mA} \text{ to } 0.5\text{A}$, $T_J = +25^\circ\text{C}$	-	-	360	mV
		$I_O = 5\text{mA} \text{ to } 200\text{mA}$, $T_J = +25^\circ\text{C}$	-	-	180	
Quiescent Current	I_Q	$T_J = +25^\circ\text{C}$	-	4.2	6	mA
Quiescent Current Change	ΔI_Q	$I_O = 5\text{mA} \text{ to } 350\text{mA}$	-	-	0.5	mA
		$I_O = 200\text{mA}$ $V_I = 21 \text{ to } 33\text{V}$	-	-	0.8	
Output Voltage Drift	$\Delta V/\Delta T$	$I_O = 5\text{mA}$ $T_J = 0 \text{ to } 125^\circ\text{C}$	-	-1.1	-	mV/ $^\circ\text{C}$
Output Noise Voltage	V_N	$f=10\text{Hz} \text{ to } 100\text{KHz}$		100	-	$\mu\text{V}/V_O$
Ripple Rejection	RR	$f=120\text{Hz}$, $I_O=300\text{mA}$	53		-	dB
Dropout Voltage	V_D	$T_J = +25^\circ\text{C}$, $I_O=500\text{mA}$	-	2	-	V
Short Circuit Current	ISC	$T_J = +25^\circ\text{C}$, $V_I=35\text{V}$	-	300	-	mA
Peak Current	IPK	$T_J = +25^\circ\text{C}$	-	700	-	mA

NOTE:

- T_{MIN} :
KA78MXX/R: $T_{MIN} = -40^\circ\text{C}$
KA78MXX/R: $T_{MIN} = 0^\circ\text{C}$
- Load and line regulation are specified at constant, junction temperature. Change in V_O due to heating effects must be taken into account separately. Pulse testing with low duty is used.

Fixed Voltage Regulator (Positive)

KA78M20//R/RI Electrical Characteristics(Refer to the test circuits, $T_{MIN} \leq T_J \leq +125^\circ\text{C}$, $I_O = 350\text{mA}$, $V_I = 29\text{V}$, unless otherwise specified, $C_I = 0.33\text{mF}$, $C_O = 0.1\text{mF}$)

Parameter	Symbol	Conditions	Min.	Typ.	Max.	Units	
Output Voltage	V_O	$T_J = +25^\circ\text{C}$	19.2	20	20.8	V	
		$I_O = 5$ to 350mA $V_I = 23$ to 35V	19	20	21		
Line Regulation	ΔV_O	$I_O = 200\text{mA}$ $T_J = +25^\circ\text{C}$	$V_I = 23$ to 35V	-	-	100	mV
			$V_I = 24$ to 35V	-	-	50	
Load Regulation	ΔV_O	$I_O = 5\text{mA}$ to 0.5A , $T_J = +25^\circ\text{C}$	-	-	400	mV	
		$I_O = 5\text{mA}$ to 200mA , $T_J = +25^\circ\text{C}$	-	-	200		
Quiescent Current	I_Q	$T_J = +25^\circ\text{C}$	-	4.2	6	mA	
Quiescent Current Change	ΔI_Q	$I_O = 5\text{mA}$ to 350mA	-	-	0.5	mA	
		$I_O = 200\text{mA}$ $V_I = 23$ to 35V	-	-	0.8		
Output Voltage Drift	$\Delta V/\Delta T$	$I_O = 5\text{mA}$ $T_J = 0$ to $+125^\circ\text{C}$	-	-1.1	-	mV/ $^\circ\text{C}$	
Output Noise Voltage	V_N	$f = 10\text{Hz}$ to 100KHz	-	110	-	mV/ V_O	
Ripple Rejection	RR	$f = 120\text{Hz}$, $I_O = 300\text{mA}$ $V_I = 24$ to 34V	53	-	-	dB	
Dropout Voltage	V_D	$T_J = +25^\circ\text{C}$, $I_O = 500\text{mA}$	-	2	-	V	
Short Circuit Current	I_{SC}	$T_J = +25^\circ\text{C}$, $V_I = 35\text{V}$	-	300	-	mA	
Peak Current	I_{PK}	$T_J = +25^\circ\text{C}$	-	700	-	mA	

NOTE:

- T_{MIN} :
KA78MXX/RI: $T_{MIN} = -40^\circ\text{C}$
KA78MXX/R: $T_{MIN} = 0^\circ\text{C}$
- Load and line regulation are specified at constant, junction temperature. Change in V_O due to heating effects must be taken into account separately. Pulse testing with low duty is used.

KA78M24//R/RI Electrical Characteristics

(Refer to the test circuits, $T_{MIN} \leq T_J \leq +125^\circ\text{C}$, $I_O = 350\text{mA}$, $V_I = 33\text{V}$, unless otherwise specified, $C_I = 0.33\text{mF}$, $C_O = 0.1\text{mF}$)

Parameter	Symbol	Conditions	Min.	Typ.	Max.	Units
Output Voltage	V_O	$T_J = +25^\circ\text{C}$	23	24	25	V
		$I_O = 5$ to 350mA $V_I = 27$ to 38V	22.8	24	25.2	
Line Regulation	ΔV_O	$I_O = 200\text{mA}$ $T_J = +25^\circ\text{C}$	-	-	100	mV
		$V_I = 27$ to 38V $V_I = 28$ to 38V	-	-	50	
Load Regulation	ΔV_O	$I_O = 5\text{mA}$ to 0.5A , $T_J = +25^\circ\text{C}$	-	-	480	mV
		$I_O = 5\text{mA}$ to 200mA , $T_J = +25^\circ\text{C}$	-	-	240	
Quiescent Current	I_Q	$T_J = +25^\circ\text{C}$	-	4.2	6	mA
Quiescent Current Change	ΔI_Q	$I_O = 5\text{mA}$ to 350mA	-	-	0.5	mA
		$I_O = 200\text{mA}$ $V_I = 27$ to 38V	-	-	0.8	
Output Voltage Drift	$\Delta V/\Delta T$	$I_O = 5\text{mA}$ $T_J = 0$ to $+125^\circ\text{C}$	-	- 1.2	-	mV/ $^\circ\text{C}$
Output Noise Voltage	V_N	$f = 10\text{Hz}$ to 100kHz	-	170	-	mV/ V_O
Ripple Rejection	RR	$f = 120\text{Hz}$, $I_O = 300\text{mA}$ $V_I = 28$ to 38V	50	-	-	dB
Dropout Voltage	V_D	$T_J = +25^\circ\text{C}$, $I_O = 500\text{mA}$	-	2	-	V
Short Circuit Current	I_{SC}	$T_J = +25^\circ\text{C}$, $V_I = 35\text{V}$	-	300	-	mA
Peak Current	I_{PK}	$T_J = +25^\circ\text{C}$	-	700	-	mA

NOTE:

- T_{MIN} :
KA78MXX/RI: $T_{MIN} = -40^\circ\text{C}$
KA78MXX/R: $T_{MIN} = 0^\circ\text{C}$
- Load and line regulation are specified at constant, junction temperature. Change in V_O due to heating effects must be taken into account separately. Pulse testing with low duty is used.

Fixed Voltage Regulator (Positive)

Typical Applications

Fixed Voltage Regulator (Positive)

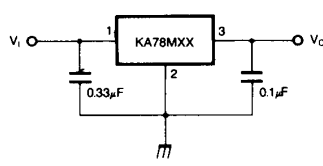


Figure 1. Fixed Output Regulator

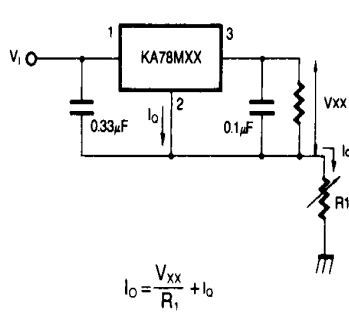


Figure 2. Constant Current Regulator

Notes:

1. To specify an output voltage, substitute voltage value for "XX"
2. Although no output capacitor is needed for stability, it does improve transient response.
3. Required if regulator is located an appreciable distance from power Supply filter

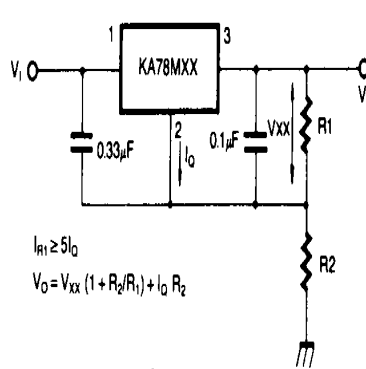


Figure 3. Circuit for Increasing Output Voltage

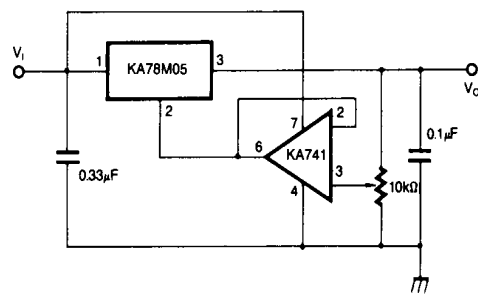
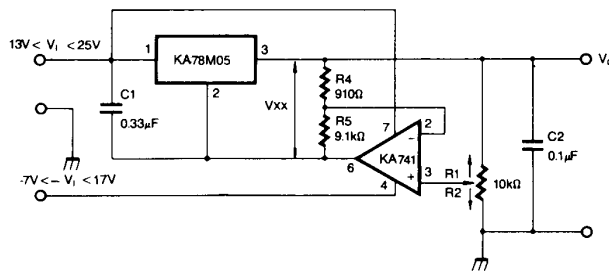


Figure 4. Adjustable Output Regulator (7 to 30V)



$$V_o = V_{xx} \frac{R_4}{R_1}$$

Figure 5. 0.5 to 10V Regulator

Fixed Voltage Regulator (Positive)

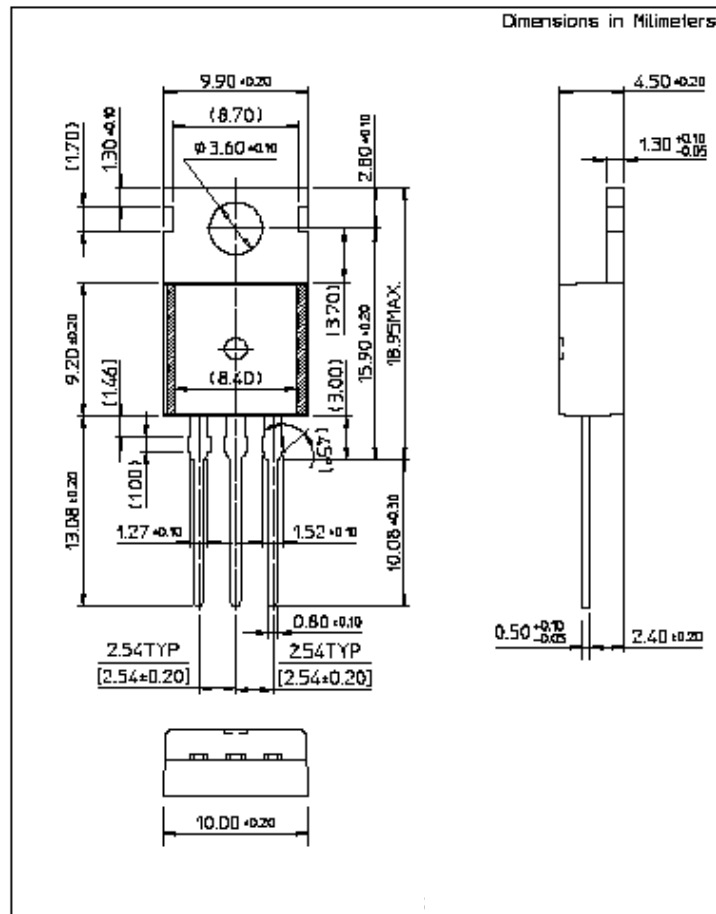
Ordering Information

Device	Package	Operating Temperature
MC78MXXCT (LM78XXCT) (KA78MXX)	TO-220	0 ~ + 125°C
KA78MXXI		-40 ~ +125°C
MC78MXXCDT (KA78MXXR)	D-PAK	0 ~ + 125°C
KA78MXXRI		-40 ~ + 125°C

Fixed Voltage Regulator (Positive)

Package Dimensions

TO-220

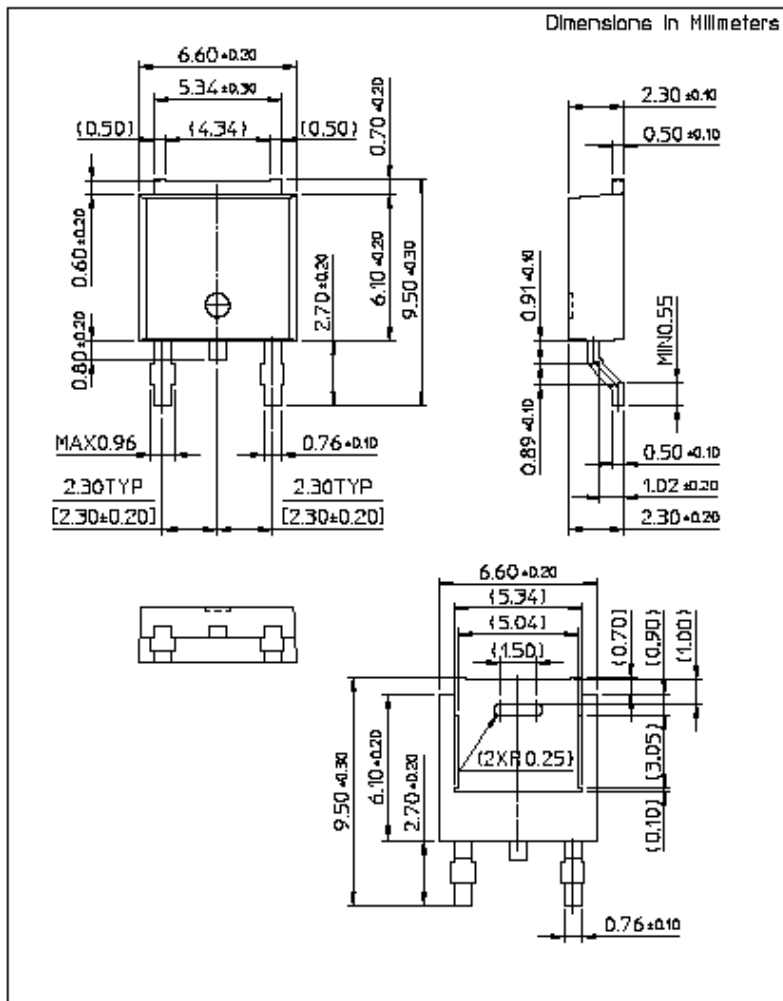


Fixed Voltage Regulator (Positive)

Package Dimensions (Continued)

Fixed Voltage Regulator (Positive)

D-PAK



Fixed Voltage Regulator (Positive)

Fixed Voltage Regulator (Positive)

LIFE SUPPORT POLICY

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2. A critical component in any component of a life support device or system whose failure to perform can be reasonably expected to cause the failure of the life support device or system, or to affect its safety or effectiveness.