

KA79XX/KA79XXA

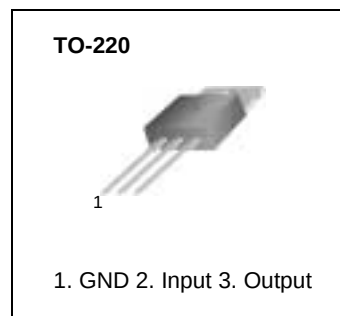
3-Terminal 1A Negative Voltage Regulator

Features

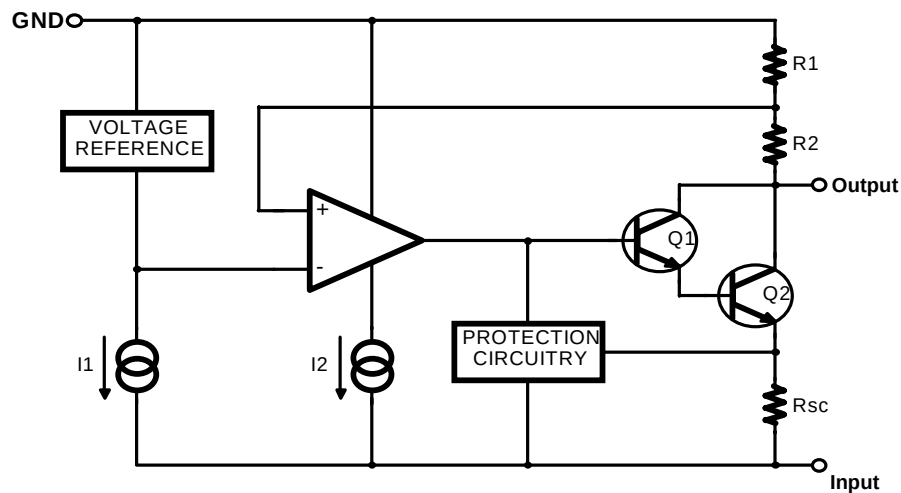
- Output Current in Excess of 1A
- Output Voltages of -5, -6, -8, -9, -10, -12, -15, -18, -24V
- Internal Thermal Overload Protection
- Short Circuit Protection
- Output Transistor Safe Operating area Compensation

Description

The KA79XX/KA79XXA series of three-terminal negative regulators are available in TO-220 package and with several fixed output voltages, making them useful in a wide range of applications. Each type employs internal current limiting, thermal shutdown and safe operating area protection, making it essentially indestructible.



Internal Block Diagram



Absolute Maximum Ratings

Parameter	Symbol	Value	Unit
Input Voltage	V_I	-35	V
Thermal Resistance Junction-Cases Junction-Air	$R_{\theta JC}$ $R_{\theta JA}$	5 65	$^{\circ}\text{C}/\text{W}$
Operating Temperature Range	TOPR	0 ~ +125	$^{\circ}\text{C}$
Storage Temperature Range	TSTG	- 65 ~ +150	$^{\circ}\text{C}$

Electrical Characteristics (KA7905)

($V_I = -10\text{V}$, $I_O = 500\text{mA}$, $0^{\circ}\text{C} \leq T_J \leq +125^{\circ}\text{C}$, $C_I = 2.2\mu\text{F}$, $C_O = 1\mu\text{F}$, unless otherwise specified.)

Parameter	Symbol	Conditions	Min.	Typ.	Max.	Unit
Output Voltage	V_O	$T_J = +25^{\circ}\text{C}$	- 4.8	- 5.0	- 5.2	V
		$I_O = 5\text{mA}$ to 1A , $P_O \leq 15\text{W}$ $V_I = -7\text{V}$ to -20V	- 4.75	-5.0	- 5.25	
Line Regulation (Note1)	ΔV_O	$T_J = +25^{\circ}\text{C}$ $V_I = -7\text{V}$ to -20V $I_O = 1\text{A}$	-	5	50	mV
		$V_I = -8\text{V}$ to -12V $I_O = 1\text{A}$	-	2	25	
		$V_I = -7.5\text{V}$ to -25V	-	7	50	
		$V_I = -8\text{V}$ to -12V $I_O = 1\text{A}$	-	7	50	
Load Regulation (Note1)	ΔV_O	$T_J = +25^{\circ}\text{C}$ $I_O = 5\text{mA}$ to 1.5A	-	10	100	mV
		$T_J = +25^{\circ}\text{C}$ $I_O = 250\text{mA}$ to 750mA	-	3	50	
Quiescent Current	I_Q	$T_J = +25^{\circ}\text{C}$	-	3	6	mA
Quiescent Current Change	ΔI_Q	$I_O = 5\text{mA}$ to 1A	-	0.05	0.5	mA
		$V_I = -8\text{V}$ to -25V	-	0.1	0.8	
Temperature Coefficient of V_D	$\Delta V_O / \Delta T$	$I_O = 5\text{mA}$	-	- 0.4	-	mV/ $^{\circ}\text{C}$
Output Noise Voltage	V_N	$f = 10\text{Hz}$ to 100KHz $T_A = +25^{\circ}\text{C}$	-	40	-	μV
Ripple Rejection	RR	$f = 120\text{Hz}$ $\Delta V_I = 10\text{V}$	54	60	-	dB
Dropout Voltage	V_D	$T_J = +25^{\circ}\text{C}$ $I_O = 1\text{A}$	-	2	-	V
Short Circuit Current	ISC	$T_J = +25^{\circ}\text{C}$, $V_I = -35\text{V}$	-	300	-	mA
Peak Current	I_{PK}	$T_J = +25^{\circ}\text{C}$	-	2.2	-	A

Note

1. Load and line regulation are specified at constant junction temperature. Changes in V_O due to heating effects must be taken into account separately. Pulse testing with low duty is used.

Electrical Characteristics (KA7906)

($V_I = -11V$, $I_O = 500mA$, $0^\circ C \leq T_J \leq +125^\circ C$, $C_I = 2.2\mu F$, $C_O = 1\mu F$, unless otherwise specified.)

Parameter	Symbol	Conditions	Min.	Typ.	Max.	Unit
Output Voltage	V_O	$T_J = +25^\circ C$	- 5.75	- 6	- 6.25	V
		$I_O = 5mA$ to $1A$, $P_O \leq 15W$ $V_I = -9V$ to $-21V$	- 5.7	- 6	- 6.3	
Line Regulation (Note1)	ΔV_O	$T_J = +25^\circ C$				mV
		$V_I = -8V$ to $-25V$ $V_I = -9V$ to $-12V$	-	10 5	120 60	
Load Regulation (Note1)	ΔV_O	$T_J = +25^\circ C$ $I_O = 5mA$ to $1.5A$	-	10	120	mV
		$T_J = +25^\circ C$ $I_O = 250mA$ to $750mA$	-	3	60	
Quiescent Current	I_Q	$T_J = +25^\circ C$	-	3	6	mA
Quiescent Current Change	ΔI_Q	$I_O = 5mA$ to $1A$	-	-	0.5	mA
		$V_I = -9V$ to $-25V$	-	-	1.3	
Temperature Coefficient of V_D	$\Delta V_O / \Delta T$	$I_O = 5mA$	-	-0.5	-	mV/ $^\circ C$
Output Noise Voltage	V_N	$f = 10Hz$ to $100KHz$ $T_A = +25^\circ C$	-	130	-	μV
Ripple Rejection	RR	$f = 120Hz$ $\Delta V_I = 10V$	54	60	-	dB
Dropout Voltage	V_D	$T_J = +25^\circ C$ $I_O = 1A$	-	2	-	V
Short Circuit Current	I_{SC}	$T_J = +25^\circ C$, $V_I = -35V$	-	300	-	mA
Peak Current	I_{PK}	$T_J = +25^\circ C$	-	2.2	-	A

Note

1. Load and line regulation are specified at constant junction temperature. Changes in V_O due to heating effects must be taken into account separately. Pulse testing with low duty is used.

Electrical Characteristics (KA7908)

($V_I = -14V$, $I_O = 500mA$, $0^\circ C \leq T_J \leq +125^\circ C$, $C_I = 2.2\mu F$, $C_O = 1\mu F$, unless otherwise specified.)

Parameter	Symbol	Conditions		Min.	Typ.	Max.	Unit
Output Voltage	VO	TJ=+25°C		- 7.7	- 8	- 8.3	V
		IO = 5mA to 1A, PO ≤ 15W VI = -10V to -23V		- 7.6	- 8	- 8.4	
Line Regulation (Note1)	ΔVO	TJ=+25°C	VI = -10.5V to -25V	-	10	100	mV
			VI= -11V to -17V	-	5	80	
Load Regulation (Note1)	ΔVO	TJ=+25°C IO = 5mA to 1.5A		-	12	160	mV
		TJ =+25°C IO = 250mA to 750mA		-	4	80	
Quiescent Current	IQ	TJ =+25°C		-	3	6	mA
Quiescent Current Change	ΔIQ	IO = 5mA to 1A		-	0.05	0.5	mA
		VI = -11.5V to -25V		-	0.1	1	
Temperature Coefficient of VD	ΔVo/ΔT	IO = 5mA		-	-0.6	-	mV/°C
Output Noise Voltage	VN	f = 10Hz to 100KHz TA =+25°C		-	175	-	μV
Ripple Rejection	RR	f = 120Hz ΔVI = 10V		54	60	-	dB
Dropout Voltage	VD	TJ=+25°C IO = 1A		-	2	-	V
Short Circuit Current	ISC	TJ =+25°C, VI = -35V		-	300	-	mA
Peak Current	IPK	TJ =+25°C		-	2.2	-	A

Note

1. Load and line regulation are specified at constant junction temperature. Changes in V_O due to heating effects must be taken into account separately. Pulse testing with low duty is used.

Electrical Characteristics (KA7909)

($V_I = -14V$, $I_O = 500mA$, $0^\circ C \leq T_J \leq +125^\circ C$, $C_I = 2.2\mu F$, $C_O = 1\mu F$, unless otherwise specified.)

Parameter	Symbol	Conditions		Min.	Typ.	Max.	Unit
Output Voltage	VO	TJ=+25°C		- 8.7	- 9.0	- 9.3	V
		IO = 5mA to 1A, PO ≤ 15W VI = -1.5V to -23V		- 8.6	- 9.0	- 9.4	
Line Regulation (Note1)	ΔVO	TJ=+25°C	VI = -10.5V to -25V	-	10	180	mV
			VI = -11V to -17V	-	5	90	
Load Regulation (Note1)	ΔVO	TJ=+25°C IO = 5mA to 1.5A		-	12	180	mV
		TJ =+25°C IO = 250mA to 750mA		-	4	90	
Quiescent Current	IQ	TJ =+25°C		-	3	6	mA
Quiescent Current Change	ΔIQ	IO = 5mA to 1A		-	0.05	0.5	mA
		VI = -11.5V to -25V		-	0.1	1	
Temperature Coefficient of VD	ΔVo/ΔT	IO = 5mA		-	-0.6	-	mV/°C
Output Noise Voltage	VN	f = 10Hz to 100KHz TA =+25°C		-	175	-	μV
Ripple Rejection	RR	f = 120Hz ΔVI = 10V		54	60	-	dB
Dropout Voltage	VD	TJ=+25°C IO = 1A		-	2	-	V
Short Circuit Current	ISC	TJ =+25°C, VI = -35V		-	300	-	mA
Peak Current	IPK	TJ =+25°C		-	2.2	-	A

Note

1. Load and line regulation are specified at constant junction temperature. Changes in V_O due to heating effects must be taken into account separately. Pulse testing with low duty is used.

Electrical Characteristics (KA7910)

($V_I = -17V$, $I_O = 500mA$, $0^\circ C \leq T_J \leq +125^\circ C$, $C_I = 2.2\mu F$, $C_O = 1\mu F$, unless otherwise specified.)

Parameter	Symbol	Conditions	Min.	Typ.	Max.	Unit
Output Voltage	V_O	$T_J = +25^\circ C$	- 10.5	- 10	- 11.5	V
		$I_O = 5mA$ to $1A$, $P_O \leq 15W$ $V_I = -12V$ to -28	- 10.4	- 10	- 11.6	
Line Regulation (Note1)	ΔV_O	$T_J = +25^\circ C$				mV
		$V_I = -12.5V$ to $-28V$ $V_I = -14V$ to $-20V$	-	12 6	200 100	
Load Regulation (Note1)	ΔV_O	$T_J = +25^\circ C$ $I_O = 5mA$ to $1.5A$	-	12	200	mV
		$T_J = +25^\circ C$ $I_O = 250mA$ to $750mA$	-	4	100	
Quiescent Current	I_Q	$T_J = +25^\circ C$	-	3	6	mA
Quiescent Current Change	ΔI_Q	$I_O = 5mA$ to $1A$	-	0.05	0.5	mA
		$V_I = -13$ to $-28V$	-	0.1	1	
Temperature Coefficient of V_O	$\Delta V_O / \Delta T$	$I_O = 5mA$	-	-1	-	mV/ $^\circ C$
Output Noise Voltage	V_N	$10Hz \leq f \leq 100KHz$ $T_A = +25^\circ C$	-	280	-	μV
Ripple Rejection	RR	$f = 120Hz$ $\Delta V_I = 10V$	54	60	-	dB
Dropout Voltage	V_D	$T_J = +25^\circ C$ $I_O = 1A$	-	2	-	V
Short Circuit Current	I_{SC}	$T_J = +25^\circ C$, $V_I = -35V$	-	300	-	mA
Peak Current	I_{PK}	$T_J = +25^\circ C$	-	2.2	-	A

Note

1. Load and line regulation are specified at constant junction temperature. Changes in V_O due to heating effects must be taken into account separately. Pulse testing with low duty is used.

Electrical Characteristics (KA7912)

($V_I = -18V$, $I_O = 500mA$, $0^\circ C \leq T_J \leq +125^\circ C$, $C_I = 2.2\mu F$, $C_O = 1\mu F$, unless otherwise specified.)

Parameter	Symbol	Conditions	Min.	Typ.	Max.	Unit
Output Voltage	V_O	$T_J = +25^\circ C$	-11.5	-12	-12.5	V
		$I_O = 5mA$ to $1A$, $P_O \leq 15W$ $V_I = -15.5V$ to $-27V$	-11.4	-12	-12.6	
Line Regulation (Note1)	ΔV_O	$T_J = +25^\circ C$				mV
		$V_I = -14.5V$ to $-30V$ $V_I = -16V$ to $-22V$	-	12 6	240 120	
Load Regulation (Note1)	ΔV_O	$T_J = +25^\circ C$ $I_O = 5mA$ to $1.5A$	-	12	240	mV
		$T_J = +25^\circ C$ $I_O = 250mA$ to $750mA$	-	4	120	
Quiescent Current	I_Q	$T_J = +25^\circ C$	-	3	6	mA
Quiescent Current Change	ΔI_Q	$I_O = 5mA$ to $1A$	-	0.05	0.5	mA
		$V_I = -15V$ to $-30V$	-	0.1	1	
Temperature Coefficient of V_D	$\Delta V_O / \Delta T$	$I_O = 5mA$	-	-0.8	-	mV/ $^\circ C$
Output Noise Voltage	V_N	$f = 10Hz$ to $100KHz$ $T_A = +25^\circ C$	-	200	-	μV
Ripple Rejection	RR	$f = 120Hz$ $\Delta V_I = 10V$	54	60	-	dB
Dropout Voltage	V_D	$T_J = +25^\circ C$ $I_O = 1A$	-	2	-	V
Short Circuit Current	I_{SC}	$T_J = +25^\circ C$, $V_I = -35V$	-	300	-	mA
Peak Current	I_{PK}	$T_J = +25^\circ C$	-	2.2	-	A

Note

1. Load and line regulation are specified at constant junction temperature. Changes in V_O due to heating effects must be taken into account separately. Pulse testing with low duty is used.

Electrical Characteristics (KA7915)

($V_I = -23V$, $I_O = 500mA$, $0^\circ C \leq T_J \leq +125^\circ C$, $C_I = 2.2\mu F$, $C_O = 1\mu F$, unless otherwise specified.)

Parameter	Symbol	Conditions		Min.	Typ.	Max.	Unit
Output Voltage	V _O	T _J =+25°C		-14.4	-15	-15.6	V
		I _O = 5mA to 1A, P _O ≤ 15W V _I = -18V to -30V		-14.25	-15	-15.75	
Line Regulation (Note1)	ΔV _O	T _J =+25°C	V _I = -17.5V to -30V	-	12	300	mV
			V _I = -20V to -26V	-	6	150	
Load Regulation (Note1)	ΔV _O	T _J =+25°C I _O = 5mA to 1.5A		-	12	300	mV
		T _J =+25°C I _O = 250mA to 750mA		-	4	150	
Quiescent Current	I _Q	T _J =+25°C		-	3	6	mA
Quiescent Current Change	ΔI _Q	I _O = 5mA to 1A		-	0.05	0.5	mA
		V _I = -18.5V to -30V		-	0.1	1	
Temperature Coefficient of V _D	ΔV _O /ΔT	I _O = 5mA		-	-0.9	-	mV/°C
Output Noise Voltage	V _N	f = 10Hz to 100KHz T _A =+25°C		-	250	-	μV
Ripple Rejection	RR	f = 120Hz ΔV _I = 10V		54	60	-	dB
Dropout Voltage	V _D	T _J =+25°C I _O = 1A		-	2	-	V
Short Circuit Current	I _{SC}	T _J =+25°C, V _I = -35V		-	300	-	mA
Peak Current	I _{PK}	T _J =+25°C		-	2.2	-	A

Note

1. Load and line regulation are specified at constant junction temperature. Changes in V_O due to heating effects must be taken into account separately. Pulse testing with low duty is used.

Electrical Characteristics (KA7918)

($V_I = -27V$, $I_O = 500mA$, $0^\circ C \leq T_J \leq +125^\circ C$, $C_I = 2.2\mu F$, $C_O = 1\mu F$, unless otherwise specified.)

Parameter	Symbol	Conditions		Min.	Typ.	Max.	Unit
Output Voltage	V _O	T _J =+25°C		-17.3	-18	-18.7	V
		I _O = 5mA to 1A, P _O ≤ 15W V _I = -22.5V to -33V		-17.1	-18	-18.9	
Line Regulation (Note1)	ΔV _O	T _J =+25°C	V _I = -21V to -33V	-	15	360	mV
			V _I = -24V to -30V	-	8	180	
Load Regulation (Note1)	ΔV _O	T _J =+25°C I _O = 5mA to 1.5A		-	15	360	mV
		T _J =+25°C I _O = 250mA to 750mA		-	5	180	
Quiescent Current	I _Q	T _J =+25°C		-	3	6	mA
Quiescent Current Change	ΔI _Q	I _O = 5mA to 1A		-	-	0.5	mA
		V _I = -22V to -33V		-	-	1	
Temperature Coefficient of V _D	ΔV _O /ΔT	I _O = 5mA		-	-1	-	mV/°C
Output Noise Voltage	V _N	f = 10Hz to 100KHz T _A =+25°C		-	300	-	μV
Ripple Rejection	RR	f = 120Hz ΔV _I = 10V		54	60	-	dB
Dropout Voltage	V _D	T _J =+25°C I _O = 1A		-	2	-	V
Short Circuit Current	I _{SC}	T _J =+25°C, V _I = -35V		-	300	-	mA
Peak Current	I _{PK}	T _J =+25°C		-	2.2	-	A

Note

1. Load and line regulation are specified at constant junction temperature. Changes in V_O due to heating effects must be taken into account separately. Pulse testing with low duty is used.

Electrical Characteristics (KA7924)

($V_I = -33V$, $I_O = 500mA$, $0^\circ C \leq T_J \leq +125^\circ C$, $C_I = 2.2\mu F$, $C_O = 1\mu F$, unless otherwise specified.)

Parameter	Symbol	Conditions		Min.	Typ.	Max.	Unit
Output Voltage	VO	TJ=+25°C		- 23	- 24	- 25	V
		IO = 5mA to 1A, PO ≤ 15W VI = -27V to -38V		- 22.8	- 24	- 25.2	
Line Regulation (Note1)	ΔVO	TJ=+25°C	VI = - 27V to - 38V	-	15	480	mV
			VI = - 30V to - 36V	-	8	180	
Load Regulation (Note1)	ΔVO	TJ=+25°C IO = 5mA to 1.5A		-	15	480	mV
		TJ =+25°C IO = 250mA to 750mA		-	5	240	
Quiescent Current	IQ	TJ =+25°C		-	3	6	mA
Quiescent Current Change	ΔIQ	IO = 5mA to 1A		-	-	0.5	mA
		VI = -27V to -38V		-	-	1	
Temperature Coefficient of VD	ΔVO/ΔT	IO = 5mA		-	-1	-	mV/ °C
Output Noise Voltage	VN	f = 10Hz to 100KHz TA =+25°C		-	400	-	μV
Ripple Rejection	RR	f = 120Hz ΔVI = 10V		54	60	-	dB
Dropout Voltage	VD	TJ=+25°C IO = 1A		-	2	-	V
Short Circuit Current	ISC	TJ =+25°C, VI = -35V		-	300	-	mA
Peak Current	IPK	TJ =+25°C		-	2.2	-	A

Note

1. Load and line regulation are specified at constant junction temperature. Changes in V_O due to heating effects must be taken into account separately. Pulse testing with low duty is used.

Electrical Characteristics (KA7905A)

($V_I = -10V$, $I_O = 500mA$, $0^\circ C \leq T_J \leq +125^\circ C$, $C_I = 2.2\mu F$, $C_O = 1\mu F$, unless otherwise specified.)

Parameter	Symbol	Conditions	Min.	Typ.	Max.	Unit
Output Voltage	V_O	$T_J = +25^\circ C$	- 4.9	- 5.0	- 5.1	V
		$I_O = 5mA$ to $1A$, $P_O \leq 15W$ $V_I = -7V$ to $-20V$	- 4.8	-5.0	- 5.2	
Line Regulation (Note1)	ΔV_O	$T_J = +25^\circ C$ $V_I = -7V$ to $-20V$ $I_O = 1A$	-	5	50	mV
		$V_I = -8V$ to $-12V$ $I_O = 1A$	-	2	25	
		$T_J = +25^\circ C$ $V_I = -7.5V$ to $-25V$	-	7	50	
		$V_I = -8V$ to $-12V$ $I_O = 1A$	-	7	50	
Load Regulation (Note1)	ΔV_O	$I_O = 5mA$ to $1.5A$	-	10	100	mV
		$T_J = +25^\circ C$ $I_O = 250mA$ to $750mA$	-	3	50	
Quiescent Current	I_Q	$T_J = +25^\circ C$	-	3	6	mA
Quiescent Current Change	ΔI_Q	$I_O = 5mA$ to $1A$	-	0.05	0.5	mA
		$V_I = -8V$ to $-25V$	-	0.1	0.8	
Temperature Coefficient of V_D	$\Delta V_O / \Delta T$	$I_O = 5mA$	-	- 0.4	-	mV/ $^\circ C$
Output Noise Voltage	V_N	$f = 10Hz$ to $100KHz$ $T_A = +25^\circ C$	-	40	-	μV
Ripple Rejection	RR	$f = 120Hz$ $\Delta V_I = 10V$	54	60	-	dB
Dropout Voltage	V_D	$T_J = +25^\circ C$ $I_O = 1A$	-	2	-	V
Short Circuit Current	I_{SC}	$T_J = +25^\circ C$, $V_I = -35V$	-	300	-	mA
Peak Current	I_{PK}	$T_J = +25^\circ C$	-	2.2	-	A

Note

1. Load and line regulation are specified at constant junction temperature. Changes in V_O due to heating effects must be taken into account separately. Pulse testing with low duty is used.

Electrical Characteristics (KA7912A)

($V_I = -18V$, $I_O = 500mA$, $0^\circ C \leq T_J \leq +125^\circ C$, $C_I = 2.2\mu F$, $C_O = 1\mu F$, unless otherwise specified.)

Parameter	Symbol	Conditions	Min.	Typ.	Max.	Unit
Output Voltage	V_O	$T_J = +25^\circ C$	-11.75	-12	-12.25	V
		$I_O = 5mA$ to $1A$, $P_O \leq 15W$ $V_I = -15.5V$ to $-27V$	-11.5	-12	-12.5	
Line Regulation (Note1)	ΔV_O	$T_J = +25^\circ C$				mV
		$V_I = -14.5V$ to $-30V$ $V_I = -16V$ to $-22V$	-	12 6	240 120	
Load Regulation (Note1)	ΔV_O	$T_J = +25^\circ C$ $I_O = 5mA$ to $1.5A$	-	12	240	mV
		$T_J = +25^\circ C$ $I_O = 250mA$ to $750mA$	-	4	120	
Quiescent Current	I_Q	$T_J = +25^\circ C$	-	3	6	mA
Quiescent Current Change	ΔI_Q	$I_O = 5mA$ to $1A$	-	0.05	0.5	mA
		$V_I = -15V$ to $-30V$	-	0.1	1	
Temperature Coefficient of V_D	$\Delta V_O / \Delta T$	$I_O = 5mA$	-	-0.8	-	mV/ $^\circ C$
Output Noise Voltage	V_N	$f = 10Hz$ to $100KHz$ $T_A = +25^\circ C$	-	200	-	μV
Ripple Rejection	RR	$f = 120Hz$ $\Delta V_I = 10V$	54	60	-	dB
Dropout Voltage	V_D	$T_J = +25^\circ C$ $I_O = 1A$	-	2	-	V
Short Circuit Current	I_{SC}	$T_J = +25^\circ C$, $V_I = -35V$	-	300	-	mA
Peak Current	I_{PK}	$T_J = +25^\circ C$	-	2.2	-	A

Note

1. Load and line regulation are specified at constant junction temperature. Changes in V_O due to heating effects must be taken into account separately. Pulse testing with low duty is used.

Electrical Characteristics (KA7915A)

($V_I = -18V$, $I_O = 500mA$, $0^\circ C \leq T_J \leq +125^\circ C$, $C_I = 2.2\mu F$, $C_O = 1\mu F$, unless otherwise specified.)

Parameter	Symbol	Conditions	Min.	Typ.	Max.	Unit
Output Voltage	V_O	$T_J = +25^\circ C$	-14.7	-15	-15.3	V
		$I_O = 5mA$ to $1A$, $P_O \leq 15W$ $V_I = -18V$ to $-30V$	-14.4	-15	-15.6	
Line Regulation (Note1)	ΔV_O	$T_J = +25^\circ C$				mV
		$V_I = -17.5V$ to $-30V$ $V_I = -20V$ to $-26V$	-	12 6	300 150	
Load Regulation (Note1)	ΔV_O	$T_J = +25^\circ C$ $I_O = 5mA$ to $1.5A$	-	12	300	mV
		$T_J = +25^\circ C$ $I_O = 250mA$ to $750mA$	-	4	150	
Quiescent Current	I_Q	$T_J = +25^\circ C$	-	3	6	mA
Quiescent Current Change	ΔI_Q	$I_O = 5mA$ to $1A$	-	0.05	0.5	mA
		$V_I = -18.5V$ to $-30V$	-	0.1	1	
Temperature Coefficient of V_D	$\Delta V_O / \Delta T$	$I_O = 5mA$	-	-0.9	-	mV/ $^\circ C$
Output Noise Voltage	V_N	$f = 10Hz$ to $100KHz$ $T_A = +25^\circ C$	-	250	-	μV
Ripple Rejection	RR	$f = 120Hz$ $\Delta V_I = 10V$	54	60	-	dB
Dropout Voltage	V_D	$T_J = +25^\circ C$ $I_O = 1A$	-	2	-	V
Short Circuit Current	I_{SC}	$T_J = +25^\circ C$, $V_I = -35V$	-	300	-	mA
Peak Current	I_{PK}	$T_J = +25^\circ C$	-	2.2	-	A

Note

1. Load and line regulation are specified at constant junction temperature. Changes in V_O due to heating effects must be taken into account separately. Pulse testing with low duty is used.

Typical Performance Characteristics

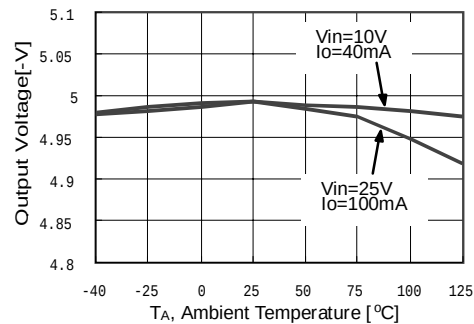


Figure 1. Output Voltage

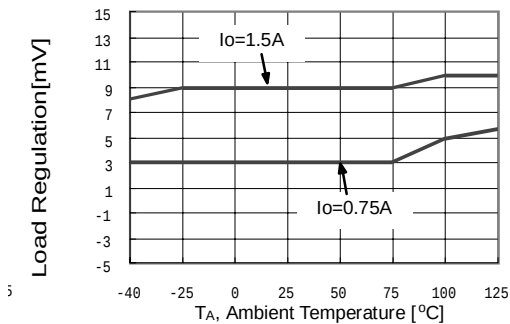


Figure 2. Load Regulation

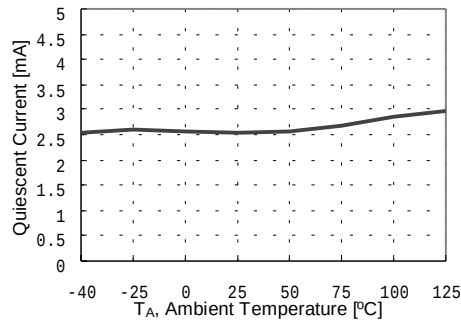


Figure 3. Quiescent Current

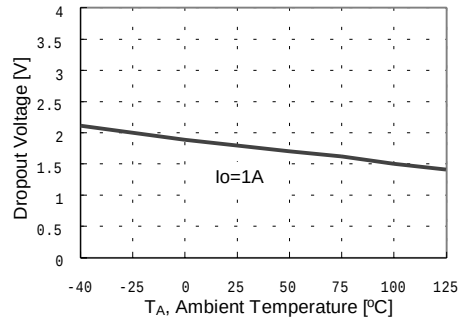


Figure 4. Dropout Voltage

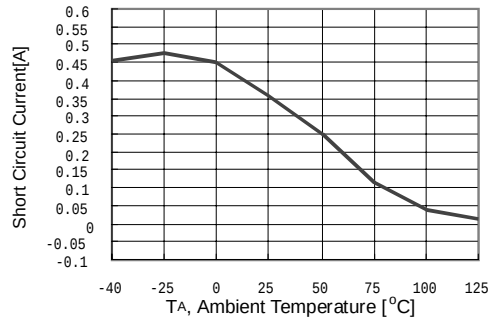


Figure 5. Short Circuit Current

Typical Applications

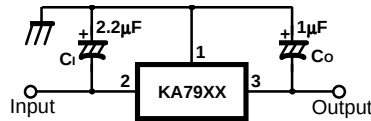


Figure 6. Negative Fixed output regulator

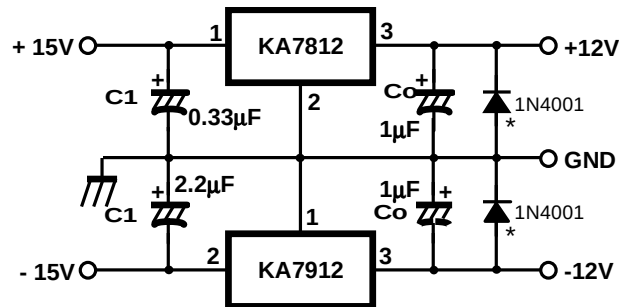


Figure 7. Split power supply (± 12V/1A)

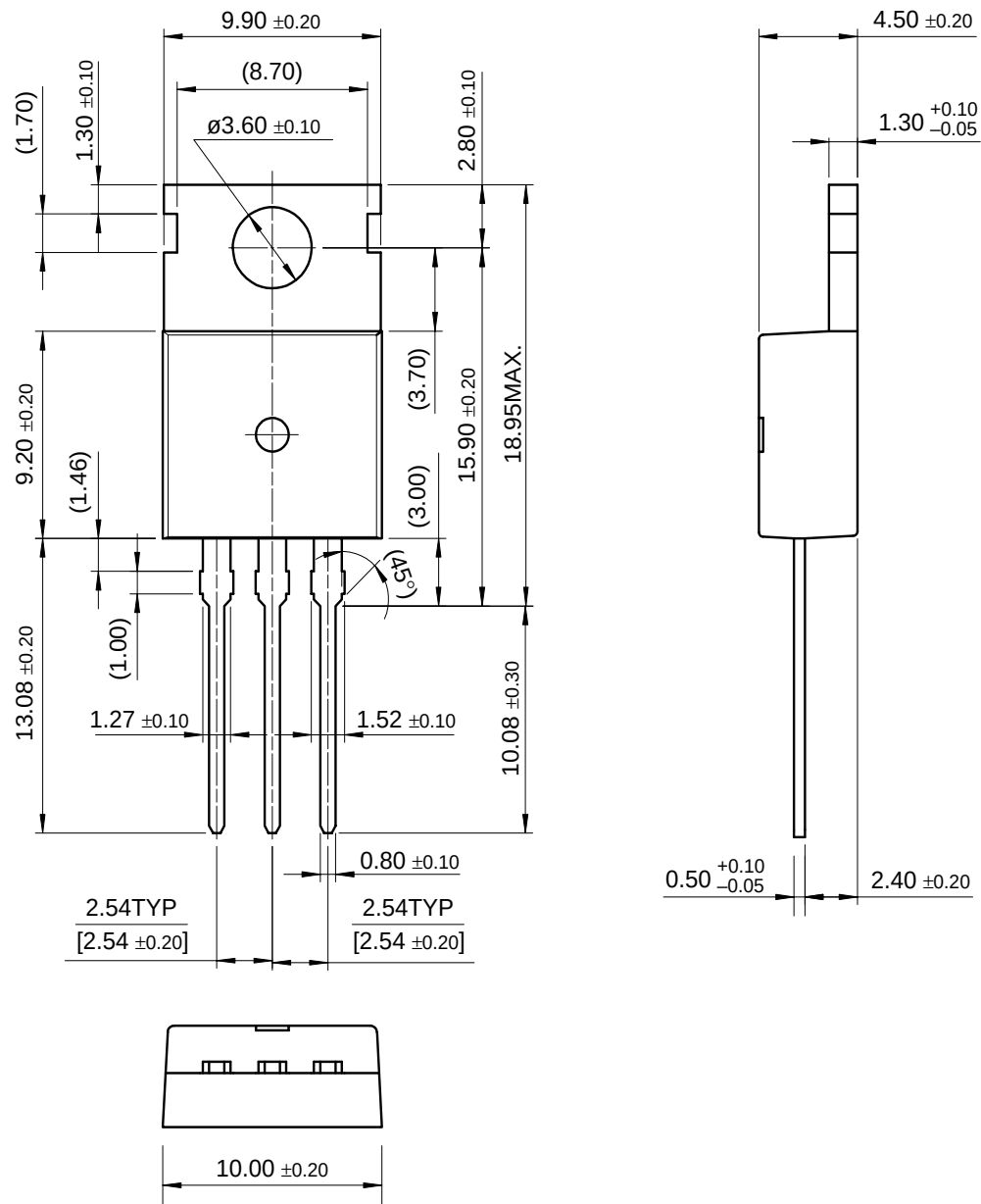
Notes:

- (1) To specify an output voltage, substitute voltage value for "XX "
- (2) Required for stability. For value given, capacitor must be solid tantalum. If aluminium electronics are used, at least ten times value shown should be selected. C₁ is required if regulator is located an appreciable distance from power supply filter.
- (3) To improve transient response. If large capacitors are used, a high current diode from input to output (1N4001 or similar) should be introduced to protect the device from momentary input short circuit.

Mechanical Dimensions

Package

TO-220



Ordering Information

Product Number	Output Voltage Tolerance	Package	Operating Temperature
KA7905	±4%	TO-220	0 ~ + 125°C
KA7906			
KA7908			
KA7909			
KA7910			
KA7912			
KA7915			
KA7918			
KA7924			
KA7905A	± 2%		
KA7912A			
KA7915A			

DISCLAIMER

FAIRCHILD SEMICONDUCTOR RESERVES THE RIGHT TO MAKE CHANGES WITHOUT FURTHER NOTICE TO ANY PRODUCTS HEREIN TO IMPROVE RELIABILITY, FUNCTION OR DESIGN. FAIRCHILD DOES NOT ASSUME ANY LIABILITY ARISING OUT OF THE APPLICATION OR USE OF ANY PRODUCT OR CIRCUIT DESCRIBED HEREIN; NEITHER DOES IT CONVEY ANY LICENSE UNDER ITS PATENT RIGHTS, NOR THE RIGHTS OF OTHERS.

LIFE SUPPORT POLICY

FAIRCHILD'S PRODUCTS ARE NOT AUTHORIZED FOR USE AS CRITICAL COMPONENTS IN LIFE SUPPORT DEVICES OR SYSTEMS WITHOUT THE EXPRESS WRITTEN APPROVAL OF THE PRESIDENT OF FAIRCHILD SEMICONDUCTOR CORPORATION. As used herein:

1. Life support devices or systems are devices or systems which, (a) are intended for surgical implant into the body, or (b) support or sustain life, and (c) whose failure to perform when properly used in accordance with instructions for use provided in the labeling, can be reasonably expected to result in a significant injury of the user.
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.