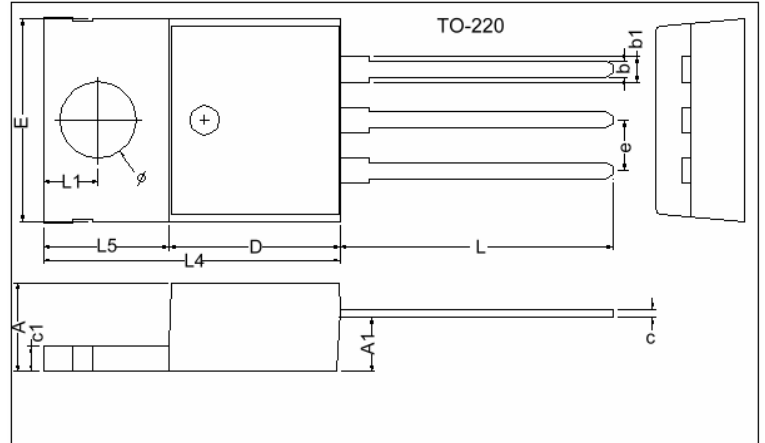


## Description

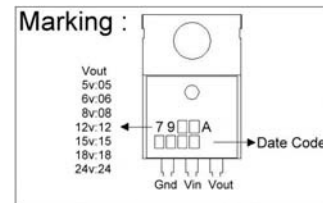
The SE79XXA series of fixed-voltage monolithic integrated-circuit voltage regulators designed to complement Series SE78XXA in a wide range of applications. These applications include on-card regulation for elimination of noise and distribution problems associated with single-point regulation. Each of these regulators can deliver up to 1.5A of output current. The internal current limiting and thermal shutdown features of these regulators make them essentially immune to overload. In addition to use as fixed-voltage regulators, these devices can be used with external components to obtain adjustable output voltage and current and also as the power pass element in precision regulators.



## Features

- \*-5V,-6V,-8V,-9V,-10V,-12V,-15V,-18V,-24V Output Voltage Available
- \*Output Transistor Safe-Area Compensation
- \*No External Components
- \*Internal Thermal Overload Protection
- \*Internal Short-Circuit Current Limiting
- \*High Power Dissipation Capability

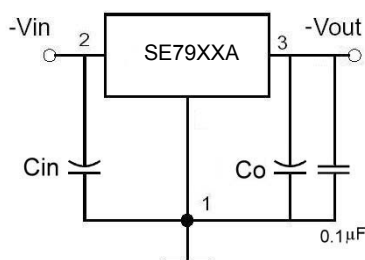
REF.	Millimeter		REF.	Millimeter	
	Min.	Max.		Min.	Max.
A	4.40	4.80	c1	1.25	1.45
b	0.76	1.00	b1	1.17	1.47
c	0.36	0.50	L	13.25	14.25
D	8.60	9.00	E	2.54 REF.	
E	9.80	10.4	L1	2.60	2.89
L4	14.7	15.3	Ø	3.71	3.96
L5	6.20	6.60	A1	2.60	2.80



## Absolute Maximum Ratings

Parameter	Symbol	Ratings	Unit	
Input Voltage	SE7905A~18A	$V_{IN}$	-35	V
	SE7924A	$V_{IN}$	-40	V
Output Current	$I_O$	1.5	A	
Operating Junction And Storage Temperature Range	$T_j, T_{stg}$	-55~+150	°C	
Thermal Resistance Junction-Air ( $R_{\theta JA}$ )	$R_{\theta JA}$	65	W/°C	
Thermal Resistance Junction-Cases ( $R_{\theta JC}$ )	$R_{\theta JC}$	5	W/°C	

## Typical Application



## Electrical Characteristics

**SE7905A** (Refer to the test circuits,  $T_j=0\sim 125^\circ\text{C}$ ,  $I_o=500\text{mA}$ ,  $V_{in}=-10\text{V}$ ,  $C_{in}=2\mu\text{F}$ ,  $C_o=1\mu\text{F}$  unless otherwise specified)

Symbol		Min.	Typ.	Max.	Unit	Test Conditions
VO	A-Rank (3%)	-4.85	-5.0	-5.15	V	$V_{in}=-10\text{V}$ , $I_o=500\text{mA}$ , $T_j=25^\circ\text{C}$ $-7.5\text{V} \leq V_{in} \leq -20\text{V}$ , $5\text{mA} \leq I_o \leq 1\text{A}$ , $PD \leq 15\text{W}$
	B-Rank (5%)	-4.75	-	-5.25		
$\Delta V_O$ (Line Regulation)		-	12.5	50	mV	$-7\text{V} \leq V_{in} \leq -25\text{V}$ , $I_o=500\text{mA}$ , $T_j=25^\circ\text{C}$
		-	4	15		$-8\text{V} \leq V_{in} \leq -12\text{V}$ , $I_o=500\text{mA}$ , $T_j=25^\circ\text{C}$
$\Delta V_O$ (Load Regulation)		-	15	100	mV	$V_{in}=-10\text{V}$ , $5\text{mA} \leq I_o \leq 1.5\text{A}$ , $T_j=25^\circ\text{C}$
		-	5	50		$V_{in}=-10\text{V}$ , $250\text{mA} \leq I_o \leq 750\text{mA}$ , $T_j=25^\circ\text{C}$
IQ		-	-	6.0	mA	$V_{in}=-10\text{V}$ , $I_o=500\text{mA}$ , $T_j=25^\circ\text{C}$
$\Delta I_Q$		-	-	0.5	mA	$V_{in}=-10\text{V}$ , $5\text{mA} \leq I_o \leq 1\text{A}$
		-	-	0.5		$-7\text{V} \leq V_{in} \leq -25\text{V}$ , $I_o=500\text{mA}$
Vn		-	125	-	$\mu\text{V}$	$10\text{Hz} \leq f \leq 100\text{KHz}$ , $T_j=25^\circ\text{C}$
RR		54	-	-	dB	$-8\text{V} \leq V_{in} \leq -18\text{V}$ , $f=120\text{Hz}$ , $T_j=25^\circ\text{C}$
VD		-	1.1	-	V	$I_o=1\text{A}$ , $T_j=25^\circ\text{C}$
Ipk		-	2.1	-	A	$T_j=25^\circ\text{C}$
$\Delta V_o / \Delta T_j$		-	-0.4	-	$\text{mV}/^\circ\text{C}$	$I_o=5\text{mA}$ , $0^\circ\text{C} \leq T_j \leq 125^\circ\text{C}$

**SE7906A** (Refer to the test circuits,  $T_j=0\sim 125^\circ\text{C}$ ,  $I_o=500\text{mA}$ ,  $V_{in}=-11\text{V}$ ,  $C_{in}=2\mu\text{F}$ ,  $C_o=1\mu\text{F}$  unless otherwise specified)

Symbol		Min.	Typ.	Max.	Unit	Test Conditions
VO	A-Rank (3%)	-5.82	-6.0	-6.18	V	$V_{in}=-11\text{V}$ , $I_o=500\text{mA}$ , $T_j=25^\circ\text{C}$ $-8\text{V} \leq V_{in} \leq -21\text{V}$ , $5\text{mA} \leq I_o \leq 1\text{A}$ , $PD \leq 15\text{W}$
	B-Rank (5%)	-5.70	-	-6.30		
$\Delta V_O$ (Line Regulation)		-	12.5	120	mV	$-8\text{V} \leq V_{in} \leq -25\text{V}$ , $I_o=500\text{mA}$ , $T_j=25^\circ\text{C}$
		-	4	60		$-9\text{V} \leq V_{in} \leq -13\text{V}$ , $I_o=500\text{mA}$ , $T_j=25^\circ\text{C}$
$\Delta V_O$ (Load Regulation)		-	15	120	mV	$V_{in}=-11\text{V}$ , $5\text{mA} \leq I_o \leq 1.5\text{A}$ , $T_j=25^\circ\text{C}$
		-	5	60		$V_{in}=-11\text{V}$ , $250\text{mA} \leq I_o \leq 750\text{mA}$ , $T_j=25^\circ\text{C}$
IQ		-	-	6.0	mA	$V_{in}=-11\text{V}$ , $I_o=500\text{mA}$ , $T_j=25^\circ\text{C}$
$\Delta I_Q$		-	-	0.5	mA	$V_{in}=-11\text{V}$ , $5\text{mA} \leq I_o \leq 1\text{A}$
		-	-	1.3		$-8\text{V} \leq V_{in} \leq -25\text{V}$ , $I_o=500\text{mA}$
Vn		-	150	-	$\mu\text{V}$	$10\text{Hz} \leq f \leq 100\text{KHz}$ , $T_j=25^\circ\text{C}$
RR		54	-	-	dB	$-9\text{V} \leq V_{in} \leq -19\text{V}$ , $f=120\text{Hz}$ , $T_j=25^\circ\text{C}$
VD		-	1.1	-	V	$I_o=1\text{A}$ , $T_j=25^\circ\text{C}$
Ipk		-	2.1	-	A	$T_j=25^\circ\text{C}$
$\Delta V_o / \Delta T_j$		-	-0.4	-	$\text{mV}/^\circ\text{C}$	$I_o=5\text{mA}$ , $0^\circ\text{C} \leq T_j \leq 125^\circ\text{C}$

**SE7908A** (Refer to the test circuits,  $T_j=0\sim 125^\circ\text{C}$ ,  $I_o=500\text{mA}$ ,  $V_{in}=-14\text{V}$ ,  $C_{in}=2\mu\text{F}$ ,  $C_o=1\mu\text{F}$  unless otherwise specified)

Symbol		Min.	Typ.	Max.	Unit	Test Conditions
VO	A-Rank (3%)	-7.76	-8.0	-8.24	V	$V_{in}=-14\text{V}$ , $I_o=500\text{mA}$ , $T_j=25^\circ\text{C}$ $-10.5\text{V} \leq V_{in} \leq -23\text{V}$ , $5\text{mA} \leq I_o \leq 1\text{A}$ , $PD \leq 15\text{W}$
	B-Rank (5%)	-7.60	-	-8.40		
$\Delta\text{VO}$ (Line Regulation)		-	12.5	160	mV	$-10.5\text{V} \leq V_{in} \leq -25\text{V}$ , $I_o=500\text{mA}$ , $T_j=25^\circ\text{C}$
		-	4	80		$-11\text{V} \leq V_{in} \leq -17\text{V}$ , $I_o=500\text{mA}$ , $T_j=25^\circ\text{C}$
$\Delta\text{VO}$ (Load Regulation)		-	15	160	mV	$V_{in}=-14\text{V}$ , $5\text{mA} \leq I_o \leq 1.5\text{A}$ , $T_j=25^\circ\text{C}$
		-	5	80		$V_{in}=-14\text{V}$ , $250\text{mA} \leq I_o \leq 750\text{mA}$ , $T_j=25^\circ\text{C}$
IQ		-	-	6.0	mA	$V_{in}=-14\text{V}$ , $I_o=500\text{mA}$ , $T_j=25^\circ\text{C}$
$\Delta\text{IQ}$		-	-	0.5	mA	$V_{in}=-14\text{V}$ , $5\text{mA} \leq I_o \leq 1\text{A}$
		-	-	1.0		$-10.5\text{V} \leq V_{in} \leq -25\text{V}$ , $I_o=500\text{mA}$
Vn		-	200	-	$\mu\text{V}$	$10\text{Hz} \leq f \leq 100\text{KHz}$ , $T_j=25^\circ\text{C}$
RR		54	-	-	dB	$-11.5\text{V} \leq V_{in} \leq -21.5\text{V}$ , $f=120\text{Hz}$ , $T_j=25^\circ\text{C}$
VD		-	1.1	-	V	$I_o=1\text{A}$ , $T_j=25^\circ\text{C}$
Ipk		-	2.1	-	A	$T_j=25^\circ\text{C}$
$\Delta\text{Vo} / \Delta\text{Tj}$		-	-0.6	-	mV/ $^\circ\text{C}$	$I_o=5\text{mA}$ , $0^\circ\text{C} \leq T_j \leq 125^\circ\text{C}$

**SE7912A** (Refer to the test circuits,  $T_j=0\sim 125^\circ\text{C}$ ,  $I_o=500\text{mA}$ ,  $V_{in}=-19\text{V}$ ,  $C_{in}=2\mu\text{F}$ ,  $C_o=1\mu\text{F}$  unless otherwise specified)

Symbol		Min.	Typ.	Max.	Unit	Test Conditions
VO	A-Rank (3%)	-11.64	-12.0	-12.36	V	$V_{in}=-19\text{V}$ , $I_o=500\text{mA}$ , $T_j=25^\circ\text{C}$ $-14.5\text{V} \leq V_{in} \leq -27\text{V}$ , $5\text{mA} \leq I_o \leq 1\text{A}$ , $PD \leq 15\text{W}$
	B-Rank (5%)	-11.40	-	-12.60		
$\Delta\text{VO}$ (Line Regulation)		-	5	80	mV	$-14.5\text{V} \leq V_{in} \leq -30\text{V}$ , $I_o=500\text{mA}$ , $T_j=25^\circ\text{C}$
		-	3	30		$-16\text{V} \leq V_{in} \leq -22\text{V}$ , $I_o=500\text{mA}$ , $T_j=25^\circ\text{C}$
$\Delta\text{VO}$ (Load Regulation)		-	15	200	mV	$V_{in}=-19\text{V}$ , $5\text{mA} \leq I_o \leq 1.5\text{A}$ , $T_j=25^\circ\text{C}$
		-	5	75		$V_{in}=-19\text{V}$ , $250\text{mA} \leq I_o \leq 750\text{mA}$ , $T_j=25^\circ\text{C}$
IQ		-	-	6.0	mA	$V_{in}=-19\text{V}$ , $I_o=500\text{mA}$ , $T_j=25^\circ\text{C}$
$\Delta\text{IQ}$		-	-	0.5	mA	$V_{in}=-19\text{V}$ , $5\text{mA} \leq I_o \leq 1\text{A}$
		-	-	0.5		$-14.5\text{V} \leq V_{in} \leq -30\text{V}$ , $I_o=500\text{mA}$
Vn		-	300	-	$\mu\text{V}$	$10\text{Hz} \leq f \leq 100\text{KHz}$ , $T_j=25^\circ\text{C}$
RR		54	-	-	dB	$-15\text{V} \leq V_{in} \leq -25\text{V}$ , $f=120\text{Hz}$ , $T_j=25^\circ\text{C}$
VD		-	1.1	-	V	$I_o=1\text{A}$ , $T_j=25^\circ\text{C}$
Ipk		-	2.1	-	A	$T_j=25^\circ\text{C}$
$\Delta\text{Vo} / \Delta\text{Tj}$		-	-0.8	-	mV/ $^\circ\text{C}$	$I_o=5\text{mA}$ , $0^\circ\text{C} \leq T_j \leq 125^\circ\text{C}$

**SE7915A** (Refer to the test circuits,  $T_j=0\sim 125^\circ\text{C}$ ,  $I_o=500\text{mA}$ ,  $V_{in}=-23\text{V}$ ,  $C_{in}=2\mu\text{F}$ ,  $C_o=1\mu\text{F}$  unless otherwise specified)

Symbol		Min.	Typ.	Max.	Unit	Test Conditions
VO	A-Rank (3%)	-14.55	-15.0	-15.45	V	$V_{in}=-23\text{V}$ , $I_o=500\text{mA}$ , $T_j=25^\circ\text{C}$ $-17.5\text{V} \leq V_{in} \leq -30\text{V}$ , $5\text{mA} \leq I_o \leq 1\text{A}$ , $PD \leq 15\text{W}$
	B-Rank (5%)	-14.25	-	-15.75		
$\Delta\text{VO}$ (Line Regulation)		-	5	100	mV	$-17.5\text{V} \leq V_{in} \leq -30\text{V}$ , $I_o=500\text{mA}$ , $T_j=25^\circ\text{C}$
		-	3	50		$-20\text{V} \leq V_{in} \leq -26\text{V}$ , $I_o=500\text{mA}$ , $T_j=25^\circ\text{C}$
$\Delta\text{VO}$ (Load Regulation)		-	15	200	mV	$V_{in}=-23\text{V}$ , $5\text{mA} \leq I_o \leq 1.5\text{A}$ , $T_j=25^\circ\text{C}$
		-	5	75		$V_{in}=-23\text{V}$ , $250\text{mA} \leq I_o \leq 750\text{mA}$ , $T_j=25^\circ\text{C}$
IQ		-	-	6.0	mA	$V_{in}=-23\text{V}$ , $I_o=500\text{mA}$ , $T_j=25^\circ\text{C}$
$\Delta\text{IQ}$		-	-	0.5	mA	$V_{in}=-23\text{V}$ , $5\text{mA} \leq I_o \leq 1\text{A}$
		-	-	0.5		$-17.5\text{V} \leq V_{in} \leq -30\text{V}$ , $I_o=500\text{mA}$
Vn		-	375	-	$\mu\text{V}$	$10\text{Hz} \leq f \leq 100\text{KHz}$ , $T_j=25^\circ\text{C}$
RR		54	-	-	dB	$-18.5\text{V} \leq V_{in} \leq -28.5\text{V}$ , $f=120\text{Hz}$ , $T_j=25^\circ\text{C}$
VD		-	1.1	-	V	$I_o=1\text{A}$ , $T_j=25^\circ\text{C}$
Ipk		-	2.1	-	A	$T_j=25^\circ\text{C}$
$\Delta\text{Vo} / \Delta\text{Tj}$		-	-1.0	-	$\text{mV}/^\circ\text{C}$	$I_o=5\text{mA}$ , $0^\circ\text{C} \leq T_j \leq 125^\circ\text{C}$

**SE7918A** (Refer to the test circuits,  $T_j=0\sim 125^\circ\text{C}$ ,  $I_o=500\text{mA}$ ,  $V_{in}=-27\text{V}$ ,  $C_{in}=2\mu\text{F}$ ,  $C_o=1\mu\text{F}$  unless otherwise specified)

Symbol		Min.	Typ.	Max.	Unit	Test Conditions
VO	A-Rank (3%)	-17.46	-18.0	-18.54	V	$V_{in}=-27\text{V}$ , $I_o=500\text{mA}$ , $T_j=25^\circ\text{C}$ $-21\text{V} \leq V_{in} \leq -33\text{V}$ , $5\text{mA} \leq I_o \leq 1\text{A}$ , $PD \leq 15\text{W}$
	B-Rank (5%)	-17.10	-	-18.9		
$\Delta\text{VO}$ (Line Regulation)		-	5	360	mV	$-21\text{V} \leq V_{in} \leq -33\text{V}$ , $I_o=500\text{mA}$ , $T_j=25^\circ\text{C}$
		-	3	180		$-24\text{V} \leq V_{in} \leq -30\text{V}$ , $I_o=500\text{mA}$ , $T_j=25^\circ\text{C}$
$\Delta\text{VO}$ (Load Regulation)		-	30	360	mV	$V_{in}=-27\text{V}$ , $5\text{mA} \leq I_o \leq 1.5\text{A}$ , $T_j=25^\circ\text{C}$
		-	10	180		$V_{in}=-27\text{V}$ , $250\text{mA} \leq I_o \leq 750\text{mA}$ , $T_j=25^\circ\text{C}$
IQ		-	-	6.0	mA	$V_{in}=-27\text{V}$ , $I_o=500\text{mA}$ , $T_j=25^\circ\text{C}$
$\Delta\text{IQ}$		-	-	0.5	mA	$V_{in}=-27\text{V}$ , $5\text{mA} \leq I_o \leq 1\text{A}$
		-	-	1.0		$-21\text{V} \leq V_{in} \leq -33\text{V}$ , $I_o=500\text{mA}$
Vn		-	450	-	$\mu\text{V}$	$10\text{Hz} \leq f \leq 100\text{KHz}$ , $T_j=25^\circ\text{C}$
RR		54	-	-	dB	$-22\text{V} \leq V_{in} \leq -32\text{V}$ , $f=120\text{Hz}$ , $T_j=25^\circ\text{C}$
VD		-	1.1	-	V	$I_o=1\text{A}$ , $T_j=25^\circ\text{C}$
Ipk		-	2.1	-	A	$T_j=25^\circ\text{C}$
$\Delta\text{Vo} / \Delta\text{Tj}$		-	-1.0	-	$\text{mV}/^\circ\text{C}$	$I_o=5\text{mA}$ , $0^\circ\text{C} \leq T_j \leq 125^\circ\text{C}$

**SE7924A** (Refer to the test circuits,  $T_j=0\sim 125^\circ\text{C}$ ,  $I_o=500\text{mA}$ ,  $V_{in}=-33\text{V}$ ,  $C_{in}=2\mu\text{F}$ ,  $C_o=1\mu\text{F}$  unless otherwise specified)

Symbol	Min.	Typ.	Max.	Unit	Test Conditions	
VO	A-Rank (3%)	-23.28	-24.0	-24.72	V	$V_{in}=-33\text{V}$ , $I_o=500\text{mA}$ , $T_j=25^\circ\text{C}$ $-27\text{V} \leq V_{in} \leq -38\text{V}$ , $5\text{mA} \leq I_o \leq 1\text{A}$ , $PD \leq 15\text{W}$
	B-Rank (5%)	-22.80	-	-25.20		
$\Delta\text{VO}$ (Line Regulation)	-	5	480	mV	$-27\text{V} \leq V_{in} \leq -38\text{V}$ , $I_o=500\text{mA}$ , $T_j=25^\circ\text{C}$	
	-	3	240		$-30\text{V} \leq V_{in} \leq -36\text{V}$ , $I_o=500\text{mA}$ , $T_j=25^\circ\text{C}$	
$\Delta\text{VO}$ (Load Regulation)	-	85	480	mV	$V_{in}=-33\text{V}$ , $5\text{mA} \leq I_o \leq 1.5\text{A}$ , $T_j=25^\circ\text{C}$	
	-	25	240		$V_{in}=-33\text{V}$ , $250\text{mA} \leq I_o \leq 750\text{mA}$ , $T_j=25^\circ\text{C}$	
IQ	-	-	6.0	mA	$V_{in}=-33\text{V}$ , $I_o=500\text{mA}$ , $T_j=25^\circ\text{C}$	
$\Delta\text{IQ}$	-	-	0.5	mA	$V_{in}=-33\text{V}$ , $5\text{mA} \leq I_o \leq 1\text{A}$	
	-	-	1.0		$-27\text{V} \leq V_{in} \leq -38\text{V}$ , $I_o=500\text{mA}$	
Vn	-	600	-	$\mu\text{V}$	$10\text{Hz} \leq f \leq 100\text{KHz}$ , $T_j=25^\circ\text{C}$	
RR	54	-	-	dB	$-28\text{V} \leq V_{in} \leq -38\text{V}$ , $f=120\text{Hz}$ , $T_j=25^\circ\text{C}$	
VD	-	1.1	-	V	$I_o=1\text{A}$ , $T_j=25^\circ\text{C}$	
Ipk	-	2.1	-	A	$T_j=25^\circ\text{C}$	
$\Delta\text{Vo} / \Delta\text{Tj}$	-	-1.0	-	$\text{mV}/^\circ\text{C}$	$I_o=5\text{mA}$ , $0^\circ\text{C} \leq T_j \leq 125^\circ\text{C}$	