

RoHS Compliant Product
A suffix of "-C" specifies halogen or lead -free

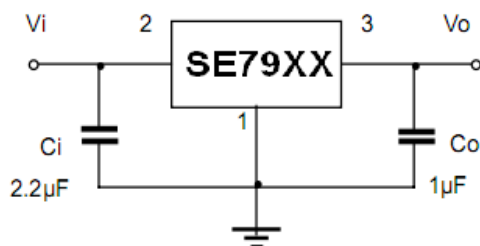
DESCRIPTION

The SE79xx-B series of fixed-voltage monolithic integrated-circuit voltage regulators designed to complement Series SE78xx-B 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 1A 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.

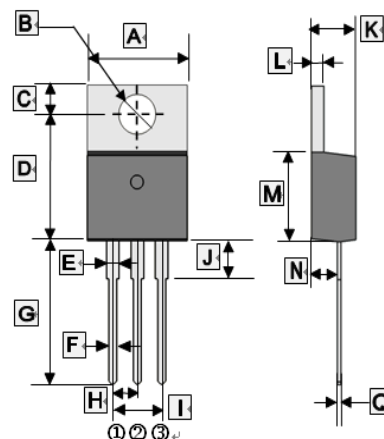
FEATURES

- Internal Short-Circuit Current Limiting
- -5V, -6V, -8V, -12V Output Voltage Available
- Output Transistor Safe-Area Compensation
- No External Components
- Internal Thermal Overload Protection

TYPICAL APPLICATION



TO-220J



REF.	Millimeter		REF.	Millimeter	
	Min.	Max.		Min.	Max.
A	10.010	10.350	I	4.980	5.180
B	3.735	3.935	J	3.560	3.960
C	2.590	2.890	K	4.470	4.670
D	12.060	12.460	L	1.200	1.400
E	1.170	1.370	M	8.500	8.900
F	0.710	0.910	N	2.520	2.820
G	13.400	13.800	Q	0.330	0.650
H	2.540 TYP.				

MAXIMUM RATINGS

Parameter		Symbol	Ratings	Unit
Input Voltage	5V~12V	V_{IN}	-35	V
Output Current		I_O	1.5	A
Operating Junction Temperature Range		T_J	0~125	°C
Storage Temperature Range		T_{STG}	-55~150	
Thermal Resistance Junction-Air		$R_{\theta JA}$	65	°C / W
Thermal Resistance Junction-Cases		$R_{\theta JC}$	5	°C / W

SE7905 ELECTRICAL CHARACTERISTICS

(Refer to the test circuits, $T_J=0\sim 125^{\circ}\text{C}$, $I_O=500\text{mA}$, $V_{IN}=-10\text{V}$, $C_{IN}=0.33\mu\text{F}$, $C_O=0.1\mu\text{F}$ unless otherwise specified)

Symbol	Test Conditions	Min	Typ	Max	Unit
V_O	$V_{IN}=-10\text{V}$, $I_O=500\text{mA}$, $T_J=25^{\circ}\text{C}$	-4.8	-5	-5.2	V
	$-7.5\text{V}\leq V_{IN}\leq -20\text{V}$, $5\text{mA}\leq I_O\leq 1\text{A}$, $P_D\leq 15\text{W}$	-4.75	-5	-5.25	
ΔV_O (Line Regulation)	$-7\text{V}\leq V_{IN}\leq -25\text{V}$, $T_J=25^{\circ}\text{C}$	-	12.5	50	mV
	$-8\text{V}\leq V_{IN}\leq -12\text{V}$, $T_J=25^{\circ}\text{C}$	-	4	15	
ΔV_O (Load Regulation)	$5\text{mA}\leq I_O\leq 1.5\text{A}$, $T_J=25^{\circ}\text{C}$	-	15	100	mV
	$250\text{mA}\leq I_O\leq 750\text{mA}$, $T_J=25^{\circ}\text{C}$	-	5	50	
I_Q	$T_J=25^{\circ}\text{C}$	-	1.5	2	mA
ΔI_Q	$5\text{mA}\leq I_O\leq 1\text{A}$	-	-	0.5	mA
	$-7\text{V}\leq V_{IN}\leq -25\text{V}$	-	-	0.5	
V_N	$10\text{Hz}\leq f\leq 100\text{KHz}$, $T_J=25^{\circ}\text{C}$	-	125	-	μV
RR	$-8\text{V}\leq V_{IN}\leq -18\text{V}$, $f=120\text{Hz}$	54	60	-	dB
V_D	$I_O=1\text{A}$, $T_J=25^{\circ}\text{C}$	-	1.1	-	V
I_{pk}	$T_J=25^{\circ}\text{C}$	-	2.1	-	A
$\Delta V_O / \Delta T_J$	$I_O=5\text{mA}$	-	-0.4	-	mV / $^{\circ}\text{C}$

SE7906 ELECTRICAL CHARACTERISTICS

(Refer to the test circuits, $T_J=0\sim 125^{\circ}\text{C}$, $I_O=500\text{mA}$, $V_{IN}=-11\text{V}$, $C_{IN}=0.33\mu\text{F}$, $C_O=0.1\mu\text{F}$ unless otherwise specified)

Symbol	Test Conditions	Min	Typ	Max	Unit
V_O	$V_{IN}=-11\text{V}$, $I_O=500\text{mA}$, $T_J=25^{\circ}\text{C}$	-5.75	-6	-6.25	V
	$-8\text{V}\leq V_{IN}\leq -21\text{V}$, $5\text{mA}\leq I_O\leq 1\text{A}$, $P_D\leq 15\text{W}$	-5.7	-6	-6.3	
ΔV_O (Line Regulation)	$-8\text{V}\leq V_{IN}\leq -25\text{V}$, $T_J=25^{\circ}\text{C}$	-	12.5	120	mV
	$-9\text{V}\leq V_{IN}\leq -13\text{V}$, $T_J=25^{\circ}\text{C}$	-	4	60	
ΔV_O (Load Regulation)	$5\text{mA}\leq I_O\leq 1.5\text{A}$, $T_J=25^{\circ}\text{C}$	-	15	120	mV
	$250\text{mA}\leq I_O\leq 750\text{mA}$, $T_J=25^{\circ}\text{C}$	-	5	60	
I_Q	$T_J=25^{\circ}\text{C}$	-	1.5	2	mA
ΔI_Q	$5\text{mA}\leq I_O\leq 1\text{A}$	-	-	0.5	mA
	$-8\text{V}\leq V_{IN}\leq -25\text{V}$	-	-	1.3	
V_N	$10\text{Hz}\leq f\leq 100\text{KHz}$, $T_J=25^{\circ}\text{C}$	-	150	-	μV
RR	$-9\text{V}\leq V_{IN}\leq -19\text{V}$, $f=120\text{Hz}$	54	60	-	dB
V_D	$I_O=1\text{A}$, $T_J=25^{\circ}\text{C}$	-	1.1	-	V
I_{pk}	$T_J=25^{\circ}\text{C}$	-	2.1	-	A
$\Delta V_O / \Delta T_J$	$I_O=5\text{mA}$	-	-0.4	-	mV / $^{\circ}\text{C}$

SE7908 ELECTRICAL CHARACTERISTICS

(Refer to the test circuits, $T_J = 0 \sim 125^\circ\text{C}$, $I_O = 500\text{mA}$, $V_{IN} = -14\text{V}$, $C_{IN} = 0.33\mu\text{F}$, $C_O = 0.1\mu\text{F}$ unless otherwise specified)

Symbol	Test Conditions	Min	Typ	Max	Unit
V_O	$V_{IN} = -14\text{V}$, $I_O = 500\text{mA}$, $T_J = 25^\circ\text{C}$	-7.7	-8	-8.3	V
	$-10.5\text{V} \leq V_{IN} \leq -23\text{V}$, $5\text{mA} \leq I_O \leq 1\text{A}$, $P_D \leq 15\text{W}$	-7.6	-8	-8.4	
ΔV_O (Line Regulation)	$-10.5\text{V} \leq V_{IN} \leq -25\text{V}$, $T_J = 25^\circ\text{C}$	-	12.5	160	mV
	$-11\text{V} \leq V_{IN} \leq -17\text{V}$, $T_J = 25^\circ\text{C}$	-	4	80	
ΔV_O (Load Regulation)	$5\text{mA} \leq I_O \leq 1.5\text{A}$, $T_J = 25^\circ\text{C}$	-	15	160	mV
	$250\text{mA} \leq I_O \leq 750\text{mA}$, $T_J = 25^\circ\text{C}$	-	5	80	
I_Q	$T_J = 25^\circ\text{C}$	-	1.5	2	mA
ΔI_Q	$5\text{mA} \leq I_O \leq 1\text{A}$	-	-	0.5	mA
	$-10.5\text{V} \leq V_{IN} \leq -25\text{V}$	-	-	1	
V_N	$10\text{Hz} \leq f \leq 100\text{KHz}$, $T_J = 25^\circ\text{C}$	-	200	-	μV
RR	$-11.5\text{V} \leq V_{IN} \leq -21.5\text{V}$, $f = 120\text{Hz}$	54	60	-	dB
V_D	$I_O = 1\text{A}$, $T_J = 25^\circ\text{C}$	-	1.1	-	V
I_{pk}	$T_J = 25^\circ\text{C}$	-	2.1	-	A
$\Delta V_O / \Delta T_J$	$I_O = 5\text{mA}$	-	-0.6	-	$\text{mV} / ^\circ\text{C}$

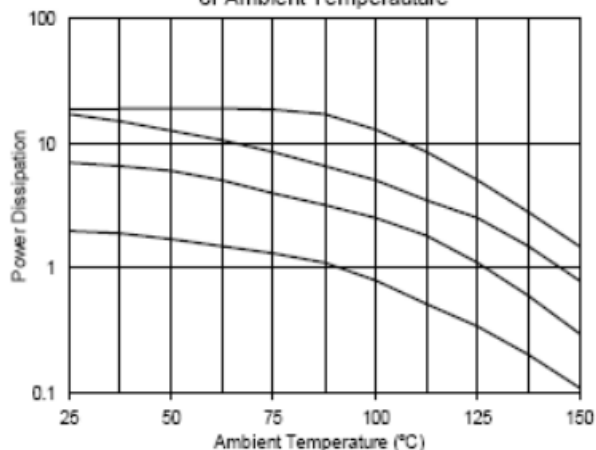
SE7912 ELECTRICAL CHARACTERISTICS

(Refer to the test circuits, $T_J = 0 \sim 125^\circ\text{C}$, $I_O = 500\text{mA}$, $V_{IN} = -19\text{V}$, $C_{IN} = 0.33\mu\text{F}$, $C_O = 0.1\mu\text{F}$ unless otherwise specified)

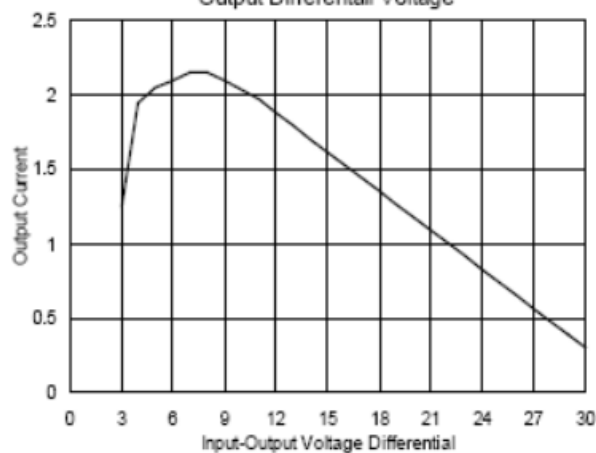
Symbol	Test Conditions	Min	Typ	Max	Unit
V_O	$V_{IN} = -19\text{V}$, $I_O = 500\text{mA}$, $T_J = 25^\circ\text{C}$	-11.5	-12	-12.5	V
	$-14.5\text{V} \leq V_{IN} \leq -27\text{V}$, $5\text{mA} \leq I_O \leq 1\text{A}$, $P_D \leq 15\text{W}$	-11.4	-12	-12.6	
ΔV_O (Line Regulation)	$-14.5\text{V} \leq V_{IN} \leq -30\text{V}$, $T_J = 25^\circ\text{C}$	-	5	80	mV
	$-16\text{V} \leq V_{IN} \leq -22\text{V}$, $T_J = 25^\circ\text{C}$	-	3	30	
ΔV_O (Load Regulation)	$5\text{mA} \leq I_O \leq 1\text{A}$, $T_J = 25^\circ\text{C}$	-	15	200	mV
	$250\text{mA} \leq I_O \leq 750\text{mA}$, $T_J = 25^\circ\text{C}$	-	5	75	
I_Q	$T_J = 25^\circ\text{C}$	-	2	3	mA
ΔI_Q	$5\text{mA} \leq I_O \leq 1\text{A}$	-	-	0.5	mA
	$-14.5\text{V} \leq V_{IN} \leq -30\text{V}$, $I_O = 500\text{mA}$	-	-	0.5	
V_N	$10\text{Hz} \leq f \leq 100\text{KHz}$, $T_J = 25^\circ\text{C}$	-	300	-	μV
RR	$-15\text{V} \leq V_{IN} \leq -25\text{V}$, $f = 120\text{Hz}$	55	60	-	dB
V_D	$I_O = 1\text{A}$, $T_J = 25^\circ\text{C}$	-	1.1	-	V
I_{pk}	$T_J = 25^\circ\text{C}$	-	2.1	-	A
$\Delta V_O / \Delta T_J$	$I_O = 5\text{mA}$	-	-0.8	-	$\text{mV} / ^\circ\text{C}$

CHARACTERISTICS CURVE

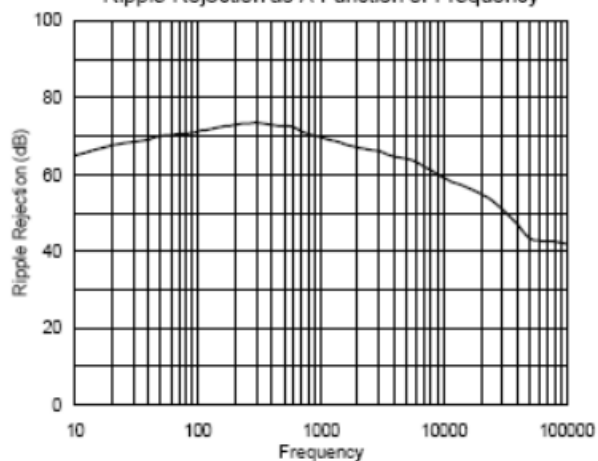
Average Case Power Dissipation as A Function of Ambient Temperature



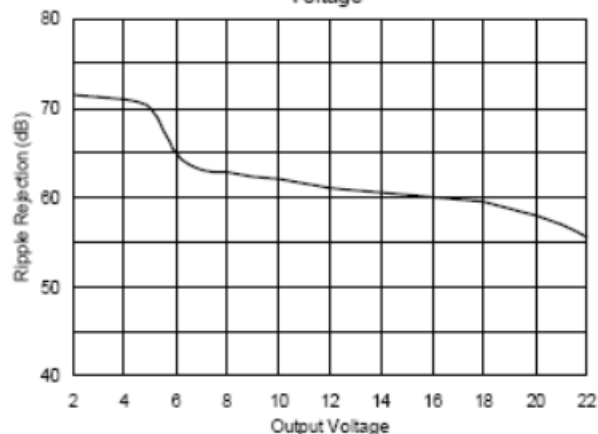
Peak Output Current as A Function of Input-Output Differential Voltage



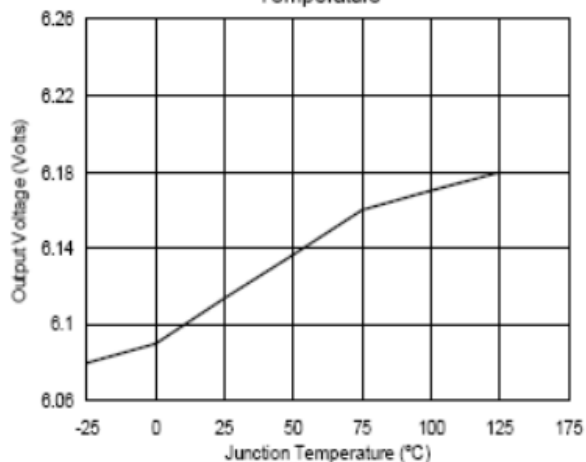
Ripple Rejection as A Function of Frequency



Ripple Rejection as A Function of Output Voltage



Output Voltage as A Function of Junction Temperature



PD-TA

