

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

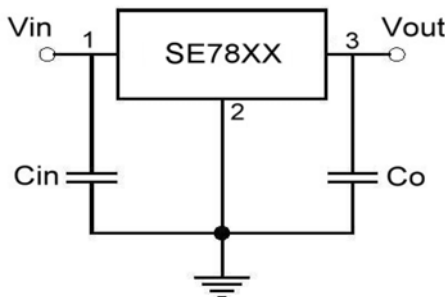
DESCRIPTION

The SE78xx-B series of fixed-voltage monolithic integrated -circuit 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 amperes of output current. The internal current limiting and thermal shutdown features of these regulators make them essentially immune to overload.

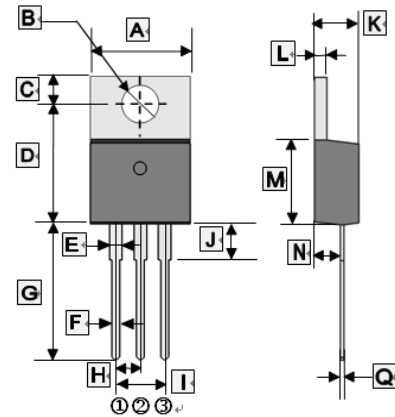
FEATURES

- Internal Short-Circuit Current Limiting
- 5V, 6V, 8V, 9V, 10V, 12V Output Voltage Available
- No External Components Required
- Wide Range Of Available, Fixed Output Voltage
- 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

SE7805 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)	$7\text{V} \leq V_{IN} \leq 25\text{V}$, $T_J=25^\circ\text{C}$	-	4	100	mV
	$8\text{V} \leq V_{IN} \leq 12\text{V}$, $T_J=25^\circ\text{C}$	-	1.6	50	
ΔV_O (Load Regulation)	$5\text{mA} \leq I_O \leq 1.5\text{A}$, $T_J=25^\circ\text{C}$	-	9	100	mV
	$250\text{mA} \leq I_O \leq 750\text{mA}$, $T_J=25^\circ\text{C}$	-	4	50	
I_Q	$T_J=25^\circ\text{C}$	-	5	8	mA
ΔI_Q	$5\text{mA} \leq I_O \leq 1\text{A}$	-	0.03	0.5	mA
	$7\text{V} \leq V_{IN} \leq 25\text{V}$	-	0.3	1.3	
V_N	$10\text{Hz} \leq f \leq 100\text{KHz}$, $T_J=25^\circ\text{C}$	-	42	-	μV
RR	$8\text{V} \leq V_{IN} \leq 18\text{V}$, $f=120\text{Hz}$	62	73	-	dB
V_D	$I_O=1\text{A}$, $T_J=25^\circ\text{C}$	-	2	-	V
I_{SC}	$T_J=25^\circ\text{C}$	-	230	-	mA
I_{pk}	$T_J=25^\circ\text{C}$	-	2.2	-	A
$\Delta V_O / \Delta T_J$	$I_O=5\text{mA}$	-	-1.1	-	mV / $^\circ\text{C}$

SE7806 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)	$8\text{V} \leq V_{IN} \leq 25\text{V}$, $T_J=25^\circ\text{C}$	-	5	120	mV
	$9\text{V} \leq V_{IN} \leq 13\text{V}$, $T_J=25^\circ\text{C}$	-	1.5	60	
ΔV_O (Load Regulation)	$5\text{mA} \leq I_O \leq 1.5\text{A}$, $T_J=25^\circ\text{C}$	-	14	120	mV
	$250\text{mA} \leq I_O \leq 750\text{mA}$, $T_J=25^\circ\text{C}$	-	4	60	
I_Q	$T_J=25^\circ\text{C}$	-	4.3	8	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	$10\text{Hz} \leq f \leq 100\text{KHz}$, $T_J=25^\circ\text{C}$	-	45	-	μV
RR	$9\text{V} \leq V_{IN} \leq 19\text{V}$, $f=120\text{Hz}$	59	75	-	dB
V_D	$I_O=1\text{A}$, $T_J=25^\circ\text{C}$	-	2	-	V
I_{SC}	$T_J=25^\circ\text{C}$	-	550	-	mA
I_{pk}	$T_J=25^\circ\text{C}$	-	2.2	-	A
$\Delta V_O / \Delta T_J$	$I_O=5\text{mA}$	-	-0.8	-	mV / $^\circ\text{C}$

SE7808 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)	$10.5\text{V} \leq V_{IN} \leq 25\text{V}$, $T_J = 25^\circ\text{C}$	-	6	160	mV
	$11\text{V} \leq V_{IN} \leq 17\text{V}$, $T_J = 25^\circ\text{C}$	-	2	80	
ΔV_O (Load Regulation)	$5\text{mA} \leq I_O \leq 1.5\text{A}$, $T_J = 25^\circ\text{C}$	-	12	160	mV
	$250\text{mA} \leq I_O \leq 750\text{mA}$, $T_J = 25^\circ\text{C}$	-	4	80	
I_Q	$T_J = 25^\circ\text{C}$	-	4.3	8.0	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	$10\text{Hz} \leq f \leq 100\text{KHz}$, $T_J = 25^\circ\text{C}$	-	52	-	μV
RR	$11.5\text{V} \leq V_{IN} \leq 21.5\text{V}$, $f = 120\text{Hz}$	55	72	-	dB
V_D	$I_O = 1\text{A}$, $T_J = 25^\circ\text{C}$	-	2	-	V
I_{SC}	$T_J = 25^\circ\text{C}$	-	450	-	mA
I_{pk}	$T_J = 25^\circ\text{C}$	-	2.2	-	A
$\Delta V_O / \Delta T_J$	$I_O = 5\text{mA}$	-	-0.8	-	mV / $^\circ\text{C}$

SE7809 ELECTRICAL CHARACTERISTICS

(Refer to the test circuits, $T_J = 0 \sim 125^\circ\text{C}$, $I_O = 500\text{mA}$, $V_{IN} = 16\text{V}$, $C_{IN} = 0.33\mu\text{F}$, $C_O = 0.1\mu\text{F}$ unless otherwise specified)

Symbol	Test Conditions	Min	Typ	Max	Unit
V_O	$V_{IN} = 16\text{V}$, $I_O = 500\text{mA}$, $T_J = 25^\circ\text{C}$	8.65	9	9.35	V
	$11.5\text{V} \leq V_{IN} \leq 24\text{V}$, $5\text{mA} \leq I_O \leq 1\text{A}$, $P_D \leq 15\text{W}$	8.55	9	9.45	
ΔV_O (Line Regulation)	$11.5\text{V} \leq V_{IN} \leq 27\text{V}$, $T_J = 25^\circ\text{C}$	-	7	180	mV
	$13\text{V} \leq V_{IN} \leq 19\text{V}$, $T_J = 25^\circ\text{C}$	-	2	90	
ΔV_O (Load Regulation)	$5\text{mA} \leq I_O \leq 1.5\text{A}$, $T_J = 25^\circ\text{C}$	-	12	180	mV
	$250\text{mA} \leq I_O \leq 750\text{mA}$, $T_J = 25^\circ\text{C}$	-	4	90	
I_Q	$T_J = 25^\circ\text{C}$	-	4.3	8.0	mA
ΔI_Q	$5\text{mA} \leq I_O \leq 1\text{A}$	-	-	0.5	mA
	$11.5\text{V} \leq V_{IN} \leq 27\text{V}$	-	-	1	
V_N	$10\text{Hz} \leq f \leq 100\text{KHz}$, $T_J = 25^\circ\text{C}$	-	60	-	μV
RR	$12\text{V} \leq V_{IN} \leq 22\text{V}$, $f = 120\text{Hz}$	55	70	-	dB
V_D	$I_O = 1\text{A}$, $T_J = 25^\circ\text{C}$	-	2	-	V
I_{SC}	$T_J = 25^\circ\text{C}$	-	400	-	mA
I_{pk}	$T_J = 25^\circ\text{C}$	-	2.2	-	A
$\Delta V_O / \Delta T_J$	$I_O = 5\text{mA}$	-	-1	-	mV / $^\circ\text{C}$

SE7810 ELECTRICAL CHARACTERISTICS

(Refer to the test circuits, $T_J = 0 \sim 125^\circ\text{C}$, $I_O = 500\text{mA}$, $V_{IN} = 17\text{V}$, $C_{IN} = 0.33\mu\text{F}$, $C_O = 0.1\mu\text{F}$ unless otherwise specified)

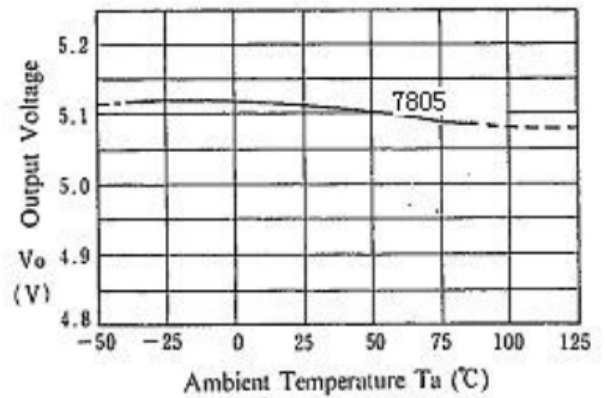
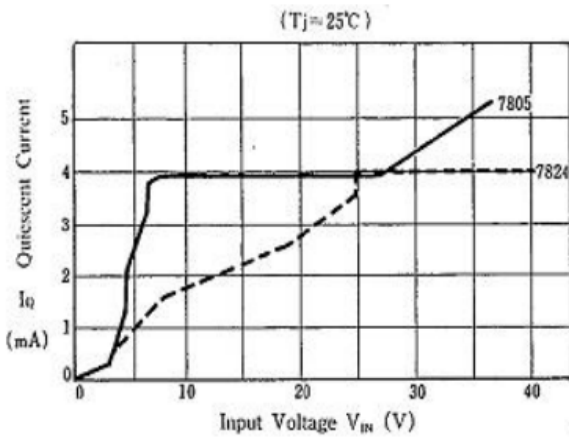
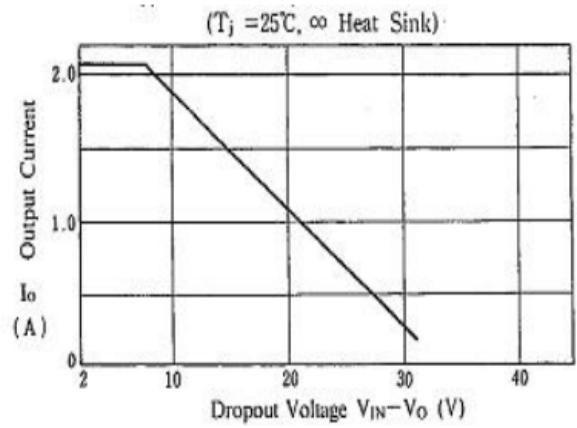
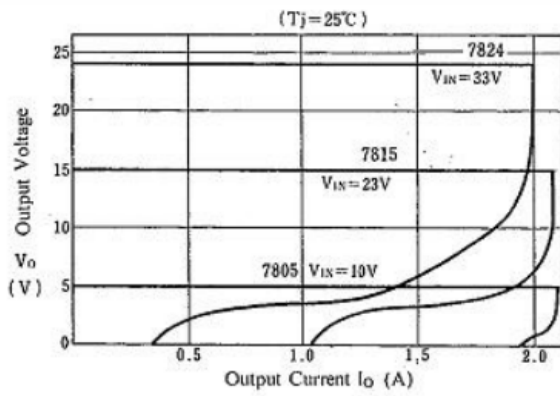
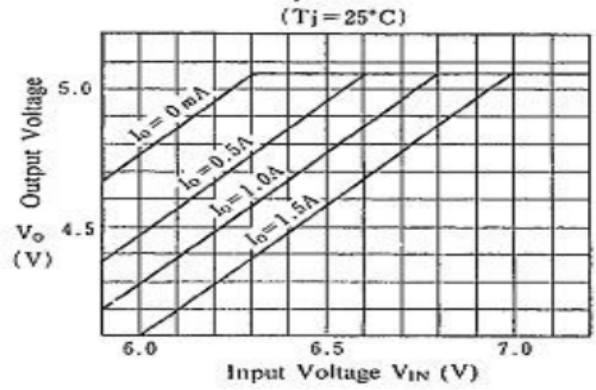
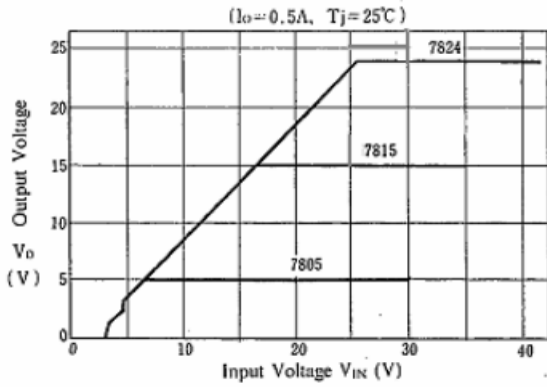
Symbol	Test Conditions	Min	Typ	Max	Unit
V_O	$V_{IN} = 17\text{V}$, $I_O = 500\text{mA}$, $T_J = 25^\circ\text{C}$	9.6	10	10.4	V
	$12.5\text{V} \leq V_{IN} \leq 25\text{V}$, $5\text{mA} \leq I_O \leq 1\text{A}$, $P_D \leq 15\text{W}$	9.5	10	10.5	
ΔV_O (Line Regulation)	$12.5\text{V} \leq V_{IN} \leq 28\text{V}$, $T_J = 25^\circ\text{C}$	-	7	200	mV
	$14\text{V} \leq V_{IN} \leq 20\text{V}$, $T_J = 25^\circ\text{C}$	-	2	100	
ΔV_O (Load Regulation)	$5\text{mA} \leq I_O \leq 1.5\text{A}$, $T_J = 25^\circ\text{C}$	-	12	200	mV
	$250\text{mA} \leq I_O \leq 750\text{mA}$, $T_J = 25^\circ\text{C}$	-	4	100	
I_Q	$T_J = 25^\circ\text{C}$	-	4.3	8	mA
ΔI_Q	$5\text{mA} \leq I_O \leq 1\text{A}$	-	-	0.5	mA
	$12.5\text{V} \leq V_{IN} \leq 28\text{V}$	-	-	1	
V_N	$10\text{Hz} \leq f \leq 100\text{KHz}$, $T_J = 25^\circ\text{C}$	-	70	-	μV
RR	$13\text{V} \leq V_{IN} \leq 23\text{V}$, $f = 120\text{Hz}$	55	71	-	dB
V_D	$I_O = 1\text{A}$	-	2	-	V
I_{SC}	$T_J = 25^\circ\text{C}$	-	400	-	mA
I_{pk}	$T_J = 25^\circ\text{C}$	-	2.2	-	A
$\Delta V_O / \Delta T_J$	$I_O = 5\text{mA}$	-	-1	-	mV / $^\circ\text{C}$

SE7812 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)	$14.5\text{V} \leq V_{IN} \leq 30\text{V}$, $T_J = 25^\circ\text{C}$	-	10	240	mV
	$16\text{V} \leq V_{IN} \leq 22\text{V}$, $T_J = 25^\circ\text{C}$	-	3	120	
ΔV_O (Load Regulation)	$5\text{mA} \leq I_O \leq 1\text{A}$, $T_J = 25^\circ\text{C}$	-	12	240	mV
	$250\text{mA} \leq I_O \leq 750\text{mA}$, $T_J = 25^\circ\text{C}$	-	4	120	
I_Q	$T_J = 25^\circ\text{C}$	-	4.3	8	mA
ΔI_Q	$5\text{mA} \leq I_O \leq 1\text{A}$	-	-	0.5	mA
	$14.5\text{V} \leq V_{IN} \leq 30\text{V}$, $I_O = 500\text{mA}$	-	-	1	
V_N	$10\text{Hz} \leq f \leq 100\text{KHz}$, $T_J = 25^\circ\text{C}$	-	75	-	μV
RR	$15\text{V} \leq V_{IN} \leq 25\text{V}$, $f = 120\text{Hz}$	55	71	-	dB
V_D	$I_O = 1\text{A}$, $T_J = 25^\circ\text{C}$	-	2	-	V
I_{SC}	$T_J = 25^\circ\text{C}$	-	350	-	mA
I_{pk}	$T_J = 25^\circ\text{C}$	-	2.2	-	A
$\Delta V_O / \Delta T_J$	$I_O = 5\text{mA}$	-	-1	-	mV / $^\circ\text{C}$

CHARACTERISTICS CURVE



PD-TA

