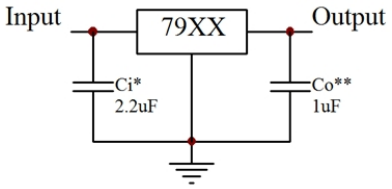
79XX

Three-terminal Voltage Regulator

Features

- 3-Terminal Regulators
- Output Current Up to 1.5 A
- No External Components
- Internal Thermal Overload Protection
- High Power Dissipation Capability
- Internal Short-Circuit Current Limiting
- Output Transistor Safe Area Compensation



Typical Applications

- Three-terminal Negative Fixed Voltage Regulators

Mechanical Data

- Case: TO-220AB
- Molding compound, UL flammability classification rating 94V-0
- Terminals: Tin plated leads, solderable per MIL-STD-202, Method 208

TO-220AB

Ordering Information

Part Number	Package	Shipping	Marking Code
79XX	TO-220AB	50pcs / Tube	79XX

Maximum Ratings (@T_A=25℃ unless otherwise specified)

Characteristic	Symbol	Value	Units
Input Voltage	V_I	-35	V
Power Dissipation	P_D	2	W

Thermal Characteristics

Parameter	Symbol	Value	Units
Operating Ambient Temperature	Topr	0 to 125	℃
Junction Temperature	T_J	-40 to+125	℃
Storage Temperature Range	T_{STG}	-65 to+150	℃

Electrical Characteristics (V_I= -10V, I_O = 500mA,unless otherwise specified)

Parameter	Symbol	Test conditions(Note 1)	7905			Units
			Min.	Typ.	Max.	
Output Voltage(Note 2)	V_O	T_j=25℃	-4.8	-5.0	-5.2	V
		I_O=5mA to 1A, 0°C to 125°C V_I= -7V to -20V, P≤15W	-4.75	-5.0	-5.25	V
Input Regulation	V_I	T_j=25℃, V_I= -7V to -25V T_j=25℃,V_I= -8V to -12V		12.5 4	50 15	mV
Ripple Rejection	R_R	0°C to 125°C V_I= -8V to -18V, f= 120Hz	54	60		dB
Output Regulation	Regload	T_j=25℃ I_O= 5mA to 1.5A I_O= 250mA to 750mA		15 5	100 50	mV
Temperature Coefficient of output voltage	ΔVo/ΔT	I_O= 5mA, 0°C to 125°C		-0.4		mV/°C
Output Noise Voltage	V_N	f=10Hz to 100 KHz，T_j=25℃		125		uV
Dropout Voltage	Vdrop	I_O= 1A,T_j=25℃		1.1		V
Bias Current	Id	T_j=25℃		1.5	2	mA
Bias Current Change	ΔId	V_I=-7Vto-25V, 0°C to 125°C I_O= 5mA to 1A, 0°C to 125°C		0.15 0.08	0.5 0.5	
Peak Output Current	Ipk	T_j=25℃		2.1		A

Electrical Characteristics (V_I= -11V, I_O = 500mA,unless otherwise specified)

Parameter	Symbol	Test conditions(Note 1)	7906			Units
			Min.	Typ.	Max.	
Output Voltage(Note 2)	V_O	T_j=25℃	-5.75	-6.0	-6.25	V
		I_O=5mA to 1A, 0°C to 125°C V_I= -8V to -21V, P≤15W	-5.7	-6.0	-6.3	V
Input Regulation	V_I	T_j=25℃, V_I= -8V to -25V T_j=25℃,V_I= -9V to -13V		12.5 4	120 60	mV
Ripple Rejection	R_R	0°C to 125°C V_I= -9V to -19V, f= 120Hz	54	60		dB
Output Regulation	Regload	T_j=25℃ I_O= 5mA to 1.5A I_O= 250mA to 750mA		15 5	120 60	mV
Temperature Coefficient of output voltage	ΔVo/ΔT	I_O= 5mA, 0°C to 125°C		-0.4		mV/°C

Output Noise Voltage	V_N	f=10Hz to 100 KHz，T_j=25℃		150		uV
Dropout Voltage	Vdrop	I_O= 1A,T_j=25℃		1.1		V
Bias Current	Id	T_j=25℃		1.5	2	mA
Bias Current Change	ΔId	V_I=-8Vto-25V, 0°C to 125°C I_O= 5mA to 1A, 0°C to 125°C		0.15 0.08	1.3 0.5	mA
Peak Output Current	Ipk	T_j=25℃		2.1		A

Electrical Characteristics (V_I= -14V, I_O = 500mA,unless otherwise specified)

Parameter	Symbol	Test conditions(Note 1)	7908			Units
			Min.	Typ.	Max.	
Output Voltage(Note 2)	V_O	T_j=25℃	-7.7	-8	-8.3	V
		I_O=5mA to 1A, 0°C to 125°C V_I= -10.5V to -23V, P≤15W	-7.6	-8	-8.4	V
Input Regulation	V_I	T_j=25℃, V_I= -10.5V to -25V T_j=25℃,V_I= -11V to -17V		12.5 4	160 80	mV
Ripple Rejection	R_R	0°C to 125°C V_I=-11.5V to-21.5V,f= 120Hz	54	60		dB
Output Regulation	Regload	T_j=25℃ I_O= 5mA to 1.5A I_O= 250mA to 750mA		15 5	160 80	mV
Temperature Coefficient of output voltage	ΔVo/ΔT	I_O= 5mA, 0°C to 125°C		-0.6		mV/°C
Output Noise Voltage	V_N	f=10Hz to 100 KHz，T_j=25℃		200		uV
Dropout Voltage	Vdrop	I_O= 1A,T_j=25℃		1.1		V
Bias Current	Id	T_j=25℃		1.5	2	mA
Bias Current Change	ΔId	V_I=-10.5Vto-25V,0°Cto 125°C I_O= 5mA to 1A, 0°C to 125°C		0.15 0.08	1 0.5	mA
Peak Output Current	Ipk	T_j=25℃		2.1		A

Electrical Characteristics (V_I= -19V, I_O = 500mA,unless otherwise specified)

Parameter	Symbol	Test conditions(Note 1)	7912			Units
			Min.	Typ.	Max.	
Output Voltage(Note 2)	V_O	T_j=25℃	-11.5	-12	-12.5	V
		I_O=5mA to 1A, 0°C to 125°C V_I= -14.5V to -27V, P≤15W	-11.4	-12	-12.6	V
Input Regulation	V_I	T_j=25℃, V_I= -14.5V to -30V T_j=25℃,V_I= -16V to -22V		5 3	80 30	mV
Ripple Rejection	R_R	0°C to 125°C	54	60		dB

		V_I=-15V to-25V,f= 120Hz				
Output Regulation	Regload	T_j=25℃ I_O= 5mA to 1.5A I_O= 250mA to 750mA		15 5	200 75	mV
Temperature Coefficient of output voltage	ΔVo/ΔT	I_O= 5mA, 0°C to 125°C		-0.8		mV/°C
Output Noise Voltage	V_N	f=10Hz to 100 KHz，T_j=25℃		300		uV
Dropout Voltage	Vdrop	I_O= 1A,T_j=25℃		1.1		V
Bias Current	Id	T_j=25℃		2	3	mA
Bias Current Change	ΔId	V_I=-14.5Vto-30V,0°Cto 125°C I_O= 5mA to 1A, 0°C to 125°C		0.04 0.06	0.5 0.5	
Peak Output Current	Ipk	T_j=25℃		2.1		A

Electrical Characteristics (V_I= -23V, I_O = 500mA,unless otherwise specified)

Parameter	Symbol	Test conditions(Note 1)	7915			Units
			Min.	Typ.	Max.	
Output Voltage(Note 2)	V_O	T_j=25℃	-14.4	-15	-15.6	V
		I_O=5mA to 1A, 0°C to 125°C V_I= -17.5V to -30V, P≤15W	-14.25	-15	-15.75	V
Input Regulation	V_I	T_j=25℃, V_I= -17.5V to -30V T_j=25℃,V_I= -20V to -26V		5 3	100 50	mV
Ripple Rejection	R_R	0°C to 125°C V_I=-18.5V to-28.5V,f= 120Hz	54	60		dB
Output Regulation	Regload	T_j=25℃ I_O= 5mA to 1.5A I_O= 250mA to 750mA		15 5	200 75	mV
Temperature Coefficient of output voltage	ΔVo/ΔT	I_O= 5mA, 0°C to 125°C		-1		mV/°C
Output Noise Voltage	V_N	f=10Hz to 100 KHz,T_j=25℃		375		uV
Dropout Voltage	Vdrop	I_O= 1A,T_j=25℃		1.1		V
Bias Current	Id	T_j=25℃		2	3	mA
Bias Current Change	ΔId	V_I=-17.5Vto-30V,0°Cto 125°C I_O= 5mA to 1A, 0°C to 125°C		0.04 0.06	0.5 0.5	
Peak Output Current	Ipk	T_j=25℃		2.1		A

Electrical Characteristics (V_I= -27V, I_O = 500mA,unless otherwise specified)

Parameter	Symbol	Test conditions(Note 1)	7918			
Output Voltage(Note 2)	V_O	T_j=25℃	-17.3	-18	-18.7	V
		I_O=5mA to 1A, 0°C to 125°C V_I= -21V to -33V, P≤15W	-17.1	-18	-18.9	V
Input Regulation	V_I	T_j=25℃, V_I= -21V to -33V		5	360	mV
		T_j=25℃,V_I= -24V to -30V		3	180	
Ripple Rejection	R_R	0°C to 125°C V_I=-22V to-32V,f= 120Hz	54	60		dB
Output Regulation	Regload	T_j=25℃				mV
		I_O= 5mA to 1.5A		30	360	
		I_O= 250mA to 750mA			180	
Temperature Coefficient of output voltage	ΔVo/ΔT	I_O= 5mA, 0°C to 125°C		-1		mV/°C
Output Noise Voltage	V_N	f=10Hz to 100 KHz，T_j=25℃		450		uV
Dropout Voltage	Vdrop	I_O= 1A,T_j=25℃		1.1		V
Bias Current	Id	T_j=25℃		2	3	mA
Bias Current Change	ΔId	V_I=-21Vto-33V,0°Cto 125°C		0.04	1	
		I_O= 5mA to 1A, 0°C to 125°C		0.06	0.5	
Peak Output Current	Ipk	T_j=25℃		2.1		A

Electrical Characteristics (V_I= -33V, I_O = 500mA,unless otherwise specified)

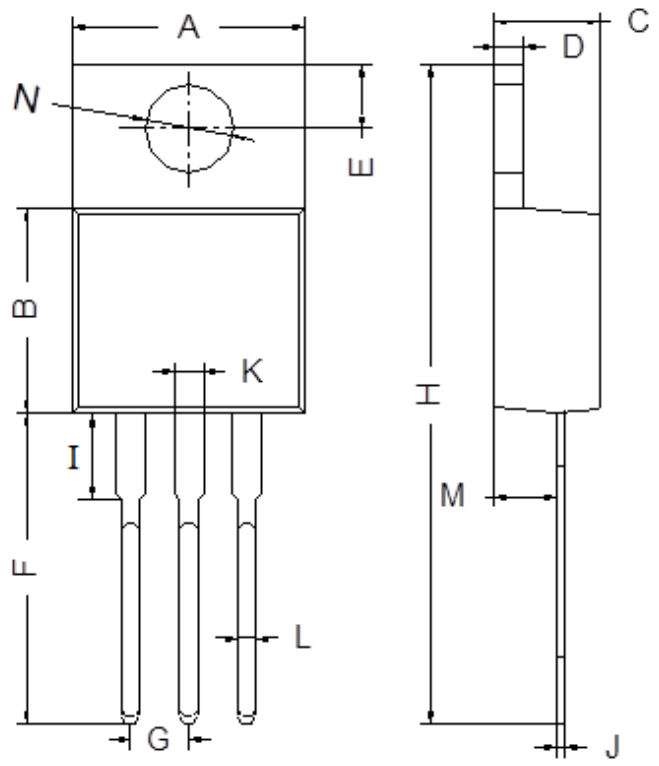
Parameter	Symbol	Test conditions(Note 1)	7924			Units
			Min.	Typ.	Max.	
Output Voltage(Note 2)	V_O	T_j=25℃	-23	-24	-25	V
		I_O=5mA to 1A, 0°C to 125°C V_I= -27V to -38V, P≤15W	-22.8	-24	-25.2	V
Input Regulation	V_I	T_j=25℃, V_I= -27V to -38V		5	480	mV
				3	240	
Ripple Rejection	R_R	0°C to 125°C V_I=-28V to-38V,f= 120Hz	54	60		dB
Output Regulation	Regload	T_j=25℃				mV
		I_O= 5mA to 1.5A		85	480	
		I_O= 250mA to 750mA		25	240	
Temperature Coefficient of output voltage	ΔVo/ΔT	I_O= 5mA, 0°C to 125°C		-1		mV/°C

Output Noise Voltage	V_N	f=10Hz to 100 KHz，T_j=25℃		600		uV
Dropout Voltage	Vdrop	I_O= 1A,T_j=25℃		1.1		V
Bias Current	Id	T_j=25℃		2	3	mA
Bias Current Change	ΔId	V_I=-27Vto-38V,0°Cto 125°C I_O= 5mA to 1A, 0°C to 125°C		0.04 0.06	1 0.5	
Peak Output Current	Ipk	T_j=25℃		2.1		A

Notes:

1. Pulse testing techniques are used to maintain the junction temperature as close to the ambient temperature as possible. Thermal effects must be taken into account separately.
2. This specification applies only for dc power dissipation permitted by absolute maximum ratings.

Package Outline Dimensions(unit:mm)



TO-220AB		
Dim	Min	Max
A	9.80	10.30
B	8.70	9.10
C	4.37	4.77
D	1.07	1.47
E	2.64	2.84
F	13.14	13.74
G	2.44	2.64
H	28.03	28.83
I	3.50	4.00
J	0.28	0.48
K	1.22	1.32
L	0.71	0.91
M	2.40	2.60
N	3.76	3.96