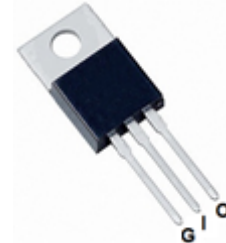
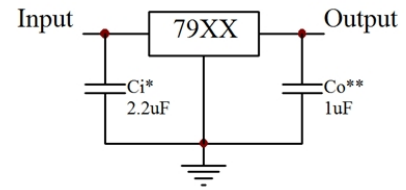


Features

- 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

HF



TO-220AB

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

Ordering Information

Part Number	Package	Shipping	Marking Code
BL79XX	TO-220AB	50pcs / Tube	79XX

Maximum Ratings (@T_A=25°C 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	T _{opr}	0 to 125	°C
Junction Temperature	T _J	-40 to +125	°C
Storage Temperature Range	T _{STG}	-65 to +150	°C

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

Parameter	Symbol	Test conditions ^(Note 1)	BL7905			Units
			Min.	Typ.	Max.	
Output Voltage ^(Note 2)	V_O	$T_J = 25^\circ C$	-4.8	-5.0	-5.2	V
		$I_O = 5mA$ to $1A$, $0^\circ C$ to $125^\circ C$	-4.75	-5.0	-5.25	V
		$V_I = -7V$ to $-20V$, $P \leq 15W$				
Input Regulation	V_I	$T_J = 25^\circ C$, $V_I = -7V$ to $-25V$		12.5	50	mV
		$T_J = 25^\circ C$, $V_I = -8V$ to $-12V$		4	15	
Ripple Rejection	R_R	$0^\circ C$ to $125^\circ C$ $V_I = -8V$ to $-18V$, $f = 120Hz$	54	60		dB
Output Regulation	Regload	$T_J = 25^\circ C$				mV
		$I_O = 5mA$ to $1.5A$		15	100	
		$I_O = 250mA$ to $750mA$		5	50	
Temperature Coefficient of output voltage	$\Delta V_O / \Delta T$	$I_O = 5mA$, $0^\circ C$ to $125^\circ C$		-0.4		mV/ $^\circ C$
Output Noise Voltage	V_N	$f = 10Hz$ to $100 KHz$, $T_J = 25^\circ C$		125		μV
Dropout Voltage	V_{drop}	$I_O = 1A$, $T_J = 25^\circ C$		1.1		V
Bias Current	I_d	$T_J = 25^\circ C$		1.5	2	mA
Bias Current Change	ΔI_d	$V_I = -7V$ to $-25V$, $0^\circ C$ to $125^\circ C$		0.15	0.5	
		$I_O = 5mA$ to $1A$, $0^\circ C$ to $125^\circ C$		0.08	0.5	
Peak Output Current	I_{pk}	$T_J = 25^\circ C$		2.1		A

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

Parameter	Symbol	Test conditions ^(Note 1)	BL7906			Units
			Min.	Typ.	Max.	
Output Voltage ^(Note 2)	V_O	$T_J = 25^\circ C$	-5.75	-6.0	-6.25	V
		$I_O = 5mA$ to $1A$, $0^\circ C$ to $125^\circ C$	-5.7	-6.0	-6.3	V
		$V_I = -8V$ to $-21V$, $P \leq 15W$				
Input Regulation	V_I	$T_J = 25^\circ C$, $V_I = -8V$ to $-25V$		12.5	120	mV
		$T_J = 25^\circ C$, $V_I = -9V$ to $-13V$		4	60	
Ripple Rejection	R_R	$0^\circ C$ to $125^\circ C$ $V_I = -9V$ to $-19V$, $f = 120Hz$	54	60		dB
Output Regulation	Regload	$T_J = 25^\circ C$				mV
		$I_O = 5mA$ to $1.5A$		15	120	
		$I_O = 250mA$ to $750mA$		5	60	
Temperature Coefficient of output voltage	$\Delta V_O / \Delta T$	$I_O = 5mA$, $0^\circ C$ to $125^\circ C$		-0.4		mV/ $^\circ C$

Output Noise Voltage	V_N	$f=10\text{Hz to } 100\text{ KHz}, T_J=25^\circ\text{C}$		150		μV
Dropout Voltage	V_{drop}	$I_O=1\text{A}, T_J=25^\circ\text{C}$		1.1		V
Bias Current	I_d	$T_J=25^\circ\text{C}$		1.5	2	mA
Bias Current Change	ΔI_d	$V_I=-8\text{V to } -25\text{V}, 0^\circ\text{C to } 125^\circ\text{C}$ $I_O=5\text{mA to } 1\text{A}, 0^\circ\text{C to } 125^\circ\text{C}$		0.15 0.08	1.3 0.5	
Peak Output Current	I_{pk}	$T_J=25^\circ\text{C}$		2.1		A

Electrical Characteristics ($V_I = -14\text{V}, I_O = 500\text{mA}$, unless otherwise specified)

Parameter	Symbol	Test conditions ^(Note 1)	BL7908			Units
			Min.	Typ.	Max.	
Output Voltage ^(Note 2)	V_O	$T_J=25^\circ\text{C}$	-7.7	-8	-8.3	V
		$I_O=5\text{mA to } 1\text{A}, 0^\circ\text{C to } 125^\circ\text{C}$ $V_I = -10.5\text{V to } -23\text{V}, P \leq 15\text{W}$	-7.6	-8	-8.4	V
Input Regulation	V_I	$T_J=25^\circ\text{C}, V_I = -10.5\text{V to } -25\text{V}$		12.5	160	mV
		$T_J=25^\circ\text{C}, V_I = -11\text{V to } -17\text{V}$		4	80	
Ripple Rejection	R_R	$0^\circ\text{C to } 125^\circ\text{C}$ $V_I = -11.5\text{V to } -21.5\text{V}, f = 120\text{Hz}$	54	60		dB
Output Regulation	Regload	$T_J=25^\circ\text{C}$				mV
		$I_O = 5\text{mA to } 1.5\text{A}$		15	160	
		$I_O = 250\text{mA to } 750\text{mA}$		5	80	
Temperature Coefficient of output voltage	$\Delta V_O / \Delta T$	$I_O = 5\text{mA}, 0^\circ\text{C to } 125^\circ\text{C}$		-0.6		mV/°C
Output Noise Voltage	V_N	$f=10\text{Hz to } 100\text{ KHz}, T_J=25^\circ\text{C}$		200		μV
Dropout Voltage	V_{drop}	$I_O=1\text{A}, T_J=25^\circ\text{C}$		1.1		V
Bias Current	I_d	$T_J=25^\circ\text{C}$		1.5	2	mA
Bias Current Change	ΔI_d	$V_I = -10.5\text{V to } -25\text{V}, 0^\circ\text{C to } 125^\circ\text{C}$ $I_O = 5\text{mA to } 1\text{A}, 0^\circ\text{C to } 125^\circ\text{C}$		0.15 0.08	1 0.5	
Peak Output Current	I_{pk}	$T_J=25^\circ\text{C}$		2.1		A

Electrical Characteristics ($V_I = -19\text{V}, I_O = 500\text{mA}$, unless otherwise specified)

Parameter	Symbol	Test conditions ^(Note 1)	BL7912			Units
			Min.	Typ.	Max.	
Output Voltage ^(Note 2)	V_O	$T_J=25^\circ\text{C}$	-11.5	-12	-12.5	V
		$I_O=5\text{mA to } 1\text{A}, 0^\circ\text{C to } 125^\circ\text{C}$ $V_I = -14.5\text{V to } -27\text{V}, P \leq 15\text{W}$	-11.4	-12	-12.6	V
Input Regulation	V_I	$T_J=25^\circ\text{C}, V_I = -14.5\text{V to } -30\text{V}$		5	80	mV
		$T_J=25^\circ\text{C}, V_I = -16\text{V to } -22\text{V}$		3	30	
Ripple Rejection	R_R	$0^\circ\text{C to } 125^\circ\text{C}$	54	60		dB

		$V_I = -15V \text{ to } -25V, f = 120Hz$				
Output Regulation	Regload	$T_J = 25^\circ C$ $I_O = 5mA \text{ to } 1.5A$ $I_O = 250mA \text{ to } 750mA$		15 5	200 75	mV
Temperature Coefficient of output voltage	$\Delta V_O / \Delta T$	$I_O = 5mA, 0^\circ C \text{ to } 125^\circ C$		-0.8		mV/°C
Output Noise Voltage	V_N	$f = 10Hz \text{ to } 100 KHz, T_J = 25^\circ C$		300		uV
Dropout Voltage	V_{drop}	$I_O = 1A, T_J = 25^\circ C$		1.1		V
Bias Current	I_d	$T_J = 25^\circ C$		2	3	mA
Bias Current Change	ΔI_d	$V_I = -14.5V \text{ to } -30V, 0^\circ C \text{ to } 125^\circ C$ $I_O = 5mA \text{ to } 1A, 0^\circ C \text{ to } 125^\circ C$		0.04 0.06	0.5 0.5	
Peak Output Current	I_{pk}	$T_J = 25^\circ C$		2.1		A

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

Parameter	Symbol	Test conditions ^(Note 1)	BL7915			Units
			Min.	Typ.	Max.	
Output Voltage ^(Note 2)	V_O	$T_J = 25^\circ C$	-14.4	-15	-15.6	V
		$I_O = 5mA \text{ to } 1A, 0^\circ C \text{ to } 125^\circ C$	-14.25	-15	-15.75	V
		$V_I = -17.5V \text{ to } -30V, P \leq 15W$				
Input Regulation	V_I	$T_J = 25^\circ C, V_I = -17.5V \text{ to } -30V$		5	100	mV
		$T_J = 25^\circ C, V_I = -20V \text{ to } -26V$		3	50	
Ripple Rejection	R_R	$0^\circ C \text{ to } 125^\circ C$ $V_I = -18.5V \text{ to } -28.5V, f = 120Hz$	54	60		dB
Output Regulation	Regload	$T_J = 25^\circ C$				mV
		$I_O = 5mA \text{ to } 1.5A$		15	200	
		$I_O = 250mA \text{ to } 750mA$		5	75	
Temperature Coefficient of output voltage	$\Delta V_O / \Delta T$	$I_O = 5mA, 0^\circ C \text{ to } 125^\circ C$		-1		mV/°C
Output Noise Voltage	V_N	$f = 10Hz \text{ to } 100 KHz, T_J = 25^\circ C$		375		uV
Dropout Voltage	V_{drop}	$I_O = 1A, T_J = 25^\circ C$		1.1		V
Bias Current	I_d	$T_J = 25^\circ C$		2	3	mA
Bias Current Change	ΔI_d	$V_I = -17.5V \text{ to } -30V, 0^\circ C \text{ to } 125^\circ C$ $I_O = 5mA \text{ to } 1A, 0^\circ C \text{ to } 125^\circ C$		0.04 0.06	0.5 0.5	
Peak Output Current	I_{pk}	$T_J = 25^\circ C$		2.1		A

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

Parameter	Symbol	Test conditions ^(Note 1)	BL7918			Units
			Min.	Typ.	Max.	
Output Voltage ^(Note 2)	V _O	T _J =25°C	-17.3	-18	-18.7	V
		I _O =5mA to 1A, 0°C to 125°C	-17.1	-18	-18.9	V
		V _I = -21V to -33V, P≤15W				
Input Regulation	V _I	T _J =25°C, V _I = -21V to -33V		5	360	mV
		T _J =25°C, 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°C				mV
		I _O = 5mA to 1.5A		30	360	
		I _O = 250mA to 750mA		10	180	
Temperature Coefficient of output voltage	ΔV _O /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°C		450		μV
Dropout Voltage	V _{drop}	I _O = 1A, T _J =25°C		1.1		V
Bias Current	I _d	T _J =25°C		2	3	mA
Bias Current Change	ΔI _d	V _I = -21V to -33V, 0°C to 125°C		0.04	1	
		I _O = 5mA to 1A, 0°C to 125°C		0.06	0.5	
Peak Output Current	I _{pk}	T _J =25°C		2.1		A

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

Parameter	Symbol	Test conditions ^(Note 1)	BL7924			Units
			Min.	Typ.	Max.	
Output Voltage ^(Note 2)	V _O	T _J =25°C	-23	-24	-25	V
		I _O =5mA to 1A, 0°C to 125°C	-22.8	-24	-25.2	V
		V _I = -27V to -38V, P≤15W				
Input Regulation	V _I	T _J =25°C, V _I = -27V to -38V		5	480	mV
		T _J =25°C, V _I = -30V to -36V		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°C				mV
		I _O = 5mA to 1.5A		85	480	
		I _O = 250mA to 750mA		25	240	
Temperature Coefficient of output voltage	ΔV _O /ΔT	I _O = 5mA, 0°C to 125°C		-1		mV/°C

Output Noise Voltage	V_N	$f=10\text{Hz to } 100\text{ KHz}, T_j=25^\circ\text{C}$		600		μV
Dropout Voltage	V_{drop}	$I_o=1\text{A}, T_j=25^\circ\text{C}$		1.1		V
Bias Current	I_d	$T_j=25^\circ\text{C}$		2	3	mA
Bias Current Change	ΔI_d	$V_i=-27\text{V to } -38\text{V}, 0^\circ\text{C to } 125^\circ\text{C}$ $I_o=5\text{mA to } 1\text{A}, 0^\circ\text{C to } 125^\circ\text{C}$		0.04 0.06	1 0.5	
Peak Output Current	I_{pk}	$T_j=25^\circ\text{C}$		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)

The image shows a mechanical drawing of a TO-220AB package. It includes a top view on the left and a side view on the right. The top view shows a rectangular body with a circular mounting hole. Dimensions labeled include A (width), B (height), N (hole diameter), W (hole offset), K (lead spacing), I (lead length), L (lead width), and G (lead thickness). The side view shows the profile of the package with dimensions C (total height), D (flange thickness), I (body height), M (lead length), J (lead thickness), and L (lead width).

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

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