



## LM79XXA

LINEAR INTEGRATED CIRCUIT

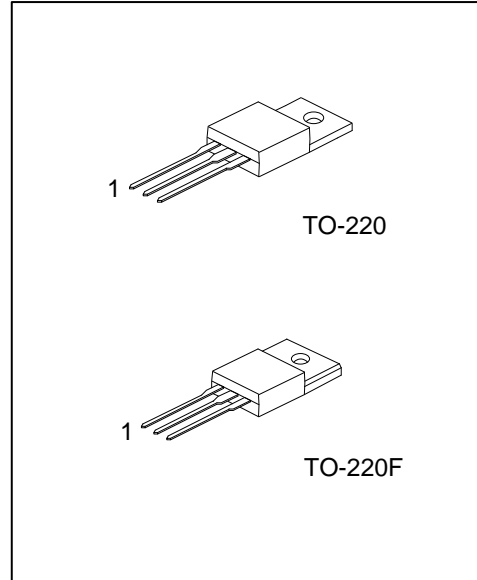
### 3 TERMINAL 1.5A NEGATIVE VOLTAGE REGULATOR

#### DESCRIPTION

The UTC LM79XXA series of three-terminal negative regulators is available several fixed output voltage, making them useful in a wide range of application. Each type employs internal current limiting, thermal shut-down and safe area protection, making it essentially indestructible.

#### FEATURES

- \* Output Current Up to 1.5A
- \* -5V, -7V, -12V, -15V Output Voltage Available
- \* Thermal Overload Protection



#### ORDERING INFORMATION

Ordering Number		Package	Pin Assignment			Packing
Lead Free	Halogen Free		1	2	3	
LM79XXAL-TA3-T	LM79XXAG-TA3-T	TO-220	G	I	O	Tube
LM79XXAL-TF3-T	LM79XXAG-TF3-T	TO-220F	G	I	O	Tube

Note: O: Output I: Input G: GND

<p>LM79XXAG-TA3-T</p>	<p>(1) Packing Type</p> <p>(2) Package Type</p> <p>(3) Lead Plating</p> <p>(4) Output Voltage Code</p>	<p>(1) T: Tube</p> <p>(2) TA3: TO-220, TF3: TO-220F</p> <p>(3) G: Halogen Free and Lead Free, L: Lead Free</p> <p>(4) xx: refer to Marking Information</p>
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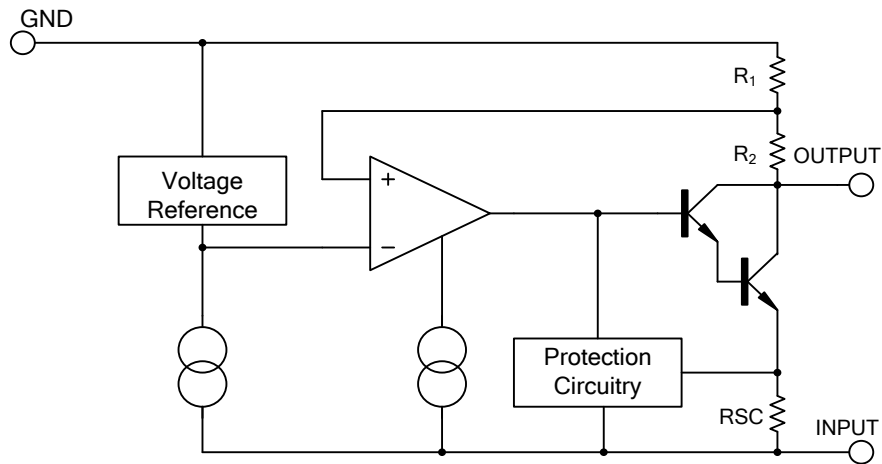
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### MARKING INFORMATION

PACKAGE	VOLTAGE CODE	MARKING
TO-220 TO-220F	05: -5.0V 07: -7.0V 12: -12V 15: -15V	

### BLOCK DIAGRAM



# LM79XXA

## LINEAR INTEGRATED CIRCUIT

### ■ ABSOLUTE MAXIMUM RATINGS (T<sub>A</sub>=25°C, unless otherwise specified)

PARAMETER	SYMBOL	RATING	UNIT
Input Voltage	V <sub>IN</sub>	-35	V
Output Current	I <sub>OUT</sub>	1.5	A
Power Dissipation	P <sub>D</sub>	Internally Limited	W
Operating Temperature	T <sub>OPR</sub>	-40 ~ +85	°C
Storage Temperature	T <sub>STG</sub>	-65 ~ +150	°C

Note: Absolute maximum ratings are those values beyond which the device could be permanently damaged.

Absolute maximum ratings are stress ratings only and functional device operation is not implied.

### ■ THERMAL DATA

PARAMETER	SYMBOL	RATING	UNIT
Junction to Ambient	θ <sub>JA</sub>	65	°C/W

### ■ ELECTRICAL CHARACTERISTICS

(I<sub>OUT</sub>=0.5A, T<sub>J</sub>=0°C~125°C, C<sub>I</sub>=2.2μF, C<sub>O</sub>=1μF, unless otherwise specified)

For UTC LM7905A (V<sub>IN</sub>=-10V)

PARAMETER	SYMBOL	TEST CONDITIONS	MIN	TYP	MAX	UNIT
Output Voltage	V <sub>OUT</sub>	T <sub>J</sub> =25°C	-4.80	-5.0	-5.20	V
		V <sub>IN</sub> =-7V~-20V, I <sub>OUT</sub> =5mA~1A, P <sub>D</sub> ≤15W	-4.75		-5.25	V
Dropout Voltage	V <sub>D</sub>	I <sub>OUT</sub> =1.5A T <sub>J</sub> =25°C		2		V
Line Regulation	ΔV <sub>OUT</sub>	V <sub>IN</sub> =-7V~-20V T <sub>J</sub> =25°C		10	100	mV
		V <sub>IN</sub> =-8V~-12V T <sub>J</sub> =25°C		5	60	mV
Load Regulation	ΔV <sub>OUT</sub>	I <sub>OUT</sub> =5mA~1.5A T <sub>J</sub> =25°C		10	100	mV
		I <sub>OUT</sub> =250mA~750mA T <sub>J</sub> =25°C		3	50	mV
Quiescent Current	I <sub>Q</sub>	T <sub>J</sub> =25°C		3	6	mA
Quiescent Current Change	ΔI <sub>Q</sub>	I <sub>OUT</sub> =5mA~1A		0.05	0.5	mA
		V <sub>IN</sub> =-7V~-20V		0.1	1.3	mA
Output Noise Voltage	e <sub>N</sub>	f=10Hz~100kHz T <sub>A</sub> =25°C		100		μV
Output Voltage Drift	ΔV <sub>OUT</sub> /ΔT	I <sub>OUT</sub> =5mA		-0.4		mV/°C
Ripple Rejection	RR	V <sub>IN</sub> =-8V~-18V, f=120Hz	54	60		dB
Peak Current	I <sub>PEAK</sub>	T <sub>J</sub> =25°C		2.2		A



### ■ ELECTRICAL CHARACTERISTICS (Cont.)

For UTC LM7907A ( $V_{IN}=-13V$ )

PARAMETER	SYMBOL	TEST CONDITIONS	MIN	TYP	MAX	UNIT
Output Voltage	$V_{OUT}$	$T_J=25^{\circ}C$	-6.72	-7.0	-7.28	V
		$V_{IN}=-9V\sim-22V$ , $I_{OUT}=5mA\sim 1A$ , $P_D \leq 15W$	-6.65		-7.35	V
Dropout Voltage	$V_D$	$I_{OUT}=1.5A$ , $T_J=25^{\circ}C$		2		V
Line Regulation	$\Delta V_{OUT}$	$V_{IN}=-9V\sim-25V$ , $T_J=25^{\circ}C$		10	140	mV
		$V_{IN}=-10V\sim-15V$ , $T_J=25^{\circ}C$		5	70	mV
Load Regulation	$\Delta V_{OUT}$	$I_{OUT}=5mA\sim 1.5A$ , $T_J=25^{\circ}C$		12	170	mV
		$I_{OUT}=250mA\sim 750mA$ , $T_J=25^{\circ}C$		4	90	mV
Quiescent Current	$I_Q$	$T_J=25^{\circ}C$		3	6	mA
Quiescent Current Change	$\Delta I_Q$	$I_{OUT}=5mA\sim 1A$		0.05	0.5	mA
		$V_{IN}=-9V\sim-25V$		0.1	1.0	mA
Output Noise Voltage	eN	$f=10Hz\sim 100kHz$ , $T_A=25^{\circ}C$		175		$\mu V$
Output Voltage Drift	$\Delta V_{OUT}/\Delta T$	$I_{OUT}=5mA$		-0.6		$mV/^{\circ}C$
Ripple Rejection	RR	$V_{IN}=-10V\sim-20V$ , $f=120Hz$	54	60		dB
Peak Current	$I_{PEAK}$	$T_J=25^{\circ}C$		2.2		A

For UTC LM7912A ( $V_{IN}=-18V$ )

PARAMETER	SYMBOL	TEST CONDITIONS	MIN	TYP	MAX	UNIT
Output Voltage	$V_{OUT}$	$T_J=25^{\circ}C$	-11.52	-12.0	-12.48	V
		$V_{IN}=-14.5V\sim-27V$ , $I_{OUT}=5mA\sim 1A$ , $P_D \leq 15W$	-11.40		-12.60	V
Dropout Voltage	$V_D$	$I_{OUT}=1.5A$ , $T_J=25^{\circ}C$		2		V
Line Regulation	$\Delta V_{OUT}$	$V_{IN}=-14.5V\sim-30V$ , $T_J=25^{\circ}C$		12	240	mV
		$V_{IN}=-16V\sim-22V$ , $T_J=25^{\circ}C$		6	120	mV
Load Regulation	$\Delta V_{OUT}$	$I_{OUT}=5mA\sim 1.5A$ , $T_J=25^{\circ}C$		12	240	mV
		$I_{OUT}=250mA\sim 750mA$ , $T_J=25^{\circ}C$		4	120	mV
Quiescent Current	$I_Q$	$T_J=25^{\circ}C$		3	6	mA
Quiescent Current Change	$\Delta I_Q$	$I_{OUT}=5mA\sim 1A$		0.05	0.5	mA
		$V_{IN}=-14.5V\sim-30V$		0.1	1.0	mA
Output Noise Voltage	eN	$f=10Hz\sim 100kHz$ , $T_A=25^{\circ}C$		250		$\mu V$
Output Voltage Drift	$\Delta V_{OUT}/\Delta T$	$I_{OUT}=5mA$		-0.8		$mV/^{\circ}C$
Ripple Rejection	RR	$V_{IN}=-15V\sim-25V$ , $f=120Hz$	54	60		dB
Peak Current	$I_{PEAK}$	$T_J=25^{\circ}C$		2.2		A

### ■ ELECTRICAL CHARACTERISTICS (Cont.)

For UTC LM7915A ( $V_{IN}=-23V$ )

PARAMETER	SYMBOL	TEST CONDITIONS	MIN	TYP	MAX	UNIT
Output Voltage	$V_{OUT}$	$T_J=25^{\circ}C$	-14.40	-15.0	-15.60	V
		$V_{IN}=-17.5V\sim-30V$ $I_{OUT}=5mA\sim 1A, P_D \leq 15W$	-14.25		-15.75	V
Dropout Voltage	$V_D$	$I_{OUT}=1.5A$ $T_J=25^{\circ}C$		2		V
Line Regulation	$\Delta V_{OUT}$	$V_{IN}=-17.5V\sim-30V$ $T_J=25^{\circ}C$		12	300	mV
		$V_{IN}=-20V\sim-26V$ $T_J=25^{\circ}C$		6	150	mV
Load Regulation	$\Delta V_{OUT}$	$I_{OUT}=5mA\sim 1.5A$ $T_J=25^{\circ}C$		12	300	mV
		$I_{OUT}=250mA\sim 750mA$ $T_J=25^{\circ}C$		4	150	mV
Quiescent Current	$I_Q$	$T_J=25^{\circ}C$		3	6	mA
Quiescent Current Change	$\Delta I_Q$	$I_{OUT}=5mA\sim 1A$		0.05	0.5	mA
		$V_{IN}=-17.5V\sim-30.5V$		0.1	1.0	mA
Output Noise Voltage	eN	$f=10Hz\sim 100kHz$ $T_A=25^{\circ}C$		250		$\mu V$
Output Voltage Drift	$\Delta V_{OUT}/\Delta T$	$I_{OUT}=5mA$		-0.9		$mV/^{\circ}C$
Ripple Rejection	RR	$V_{IN}=-18.5V\sim-28.5V, f=120Hz$	54	60		dB
Peak Current	$I_{PEAK}$	$T_J=25^{\circ}C$		2.2		A

## ■ APPLICATION CIRCUITS

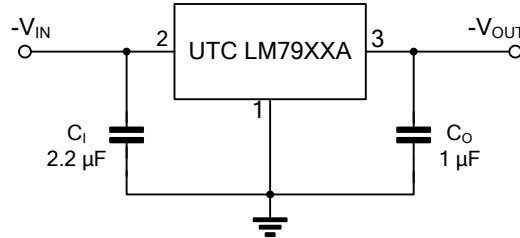


Fig.1 Fixed output regulator

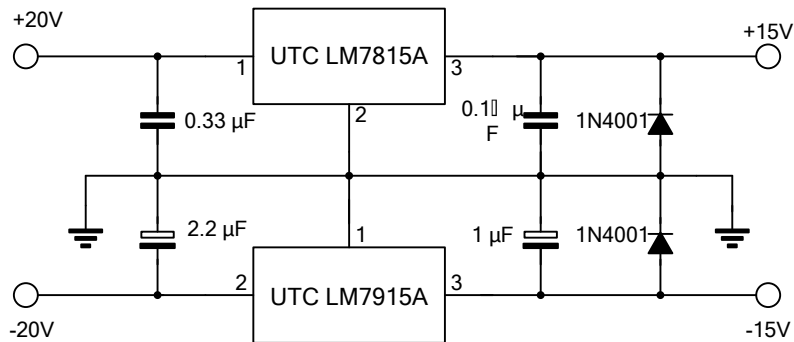


Fig.2 Split power supply(+15V,1A)

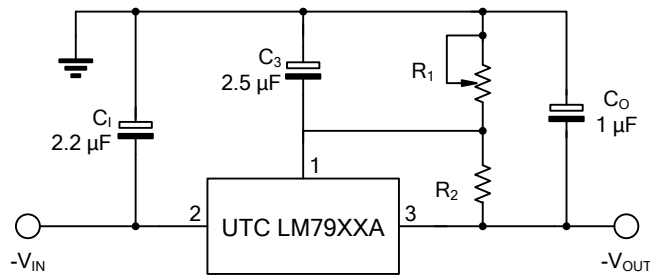


Fig.3 Circuit for increasing output voltage

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