### LINEAR INTEGRATED CIRCUIT

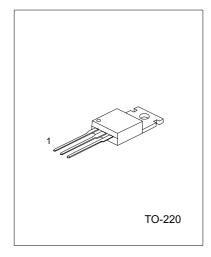
# 3 TERMINAL 1A NEGATIVE VOLTAGE REGULATOR

#### **DESCRIPTION**

The Contek LM79XX series of three-terminal negative regulators are available in TO-220 package and with 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.

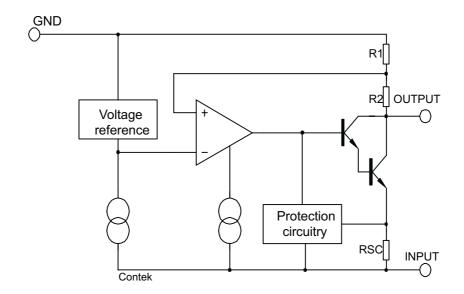
### **FEATURES**

- \*Output current up to 1A
- \*-5V;-6V;-8V;-12V;-15V;-18V;-24V output voltage available
- \*Thermal overload protection
- \*Short circuit protection



1:GND 2:Input 3:Output

#### **BLOCK DIAGRAM**





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### LM79XX

# LINEAR INTEGRATED CIRCUIT

### ABSOLUTE MAXIMUM RATINGS(Ta=25 C)

PARAMETER	SYMBOL	VALUE	UNIT
Input voltage	Vi	-35	V
Thermal resistance	RθJA	65	C /W
junction-air			
Thermal resistance	RθJC	5	C /W
junction-cases			
Operating Temperature	Topr	0 ~ +125	С
Storage Temperature	Tstg	-65 ~ +150	С

#### Contek7905 ELECTRICAL CHARACTERISTICS

(Refer to test circuits, 0<Tj<125 C,lo=500mA,Vi=-10V,Ci=33uF,Co=1uF, unless otherwise specified)

PARAMETER	SYMBOL	TEST CONDITIONS	MIN	TYP	MAX	UNIT
		Tj=25 C	-4.8	-5.0	-5.2	V
Output voltage	Vo	5.0mA <lo<1.0a,po<15w< td=""><td></td><td></td><td></td><td></td></lo<1.0a,po<15w<>				
-		Vi=-7V to -20V	-4.75	-5.00	-5.25	V
Line regulation	ΔVo	Tj=25 C,Vi=-7V to -25V		10	100	mV
		Tj=25 C,Vi=-8V to -12V				mV
Load regulation	ΔVo	Tj=25 C,lo=5.0mA to 1.5A		10	100	mV
		Tj=25 C,lo=250mA to 750mA		3	50	mV
Quiescent current	IQ	Tj=25 C		3	6	mA
Quiescent current change	ΔlQ	Io=5mA to 1.0A		0.05	0.5	mΑ
		Vi=-7V to -25V		0.1	1.3	mA
Output voltage drift	ΔVo/ΔΤ	Io=5mA		-0.4		mV/ C
Output noise voltage	VN	f=10hz to 100kHz,Ta=25 C		100		μV
Ripple rejection	RR	f=120Hz, Vi=-8V to -18V	54	60		dB
Dropout voltage	Vo	lo=1.0A,Tj=25 C		2		V
Short circuit current	Isc	Vi=-35V,Ta=25 C		300		mA
peak current	lpk	Tj=25 C		2.2		Α

### Contek7906 ELECTRICAL CHARACTERISTICS

(Refer to test circuits, 0<Tj<125 C,lo=500mA,Vi=-11V,Ci=2.2uF,Co=1uF,unless otherwise specified)

PARAMETER	SYMBOL	TEST CONDITIONS	MIN	TYP	MAX	UNIT
TAIVAMETER	OTWIDOL	Ti=25 C	-5.75	-6.00	625	V
Output voltage	Vo	5.0mA <lo<1.0a,po<15w< td=""><td>-0.70</td><td>-0.00</td><td>020</td><td>· ·</td></lo<1.0a,po<15w<>	-0.70	-0.00	020	· ·
-		Vi=-8V to -21V	-5.7	-6.0	-6.3	V
Line regulation	ΔVο	Tj=25 C,Vi=-8V to -25V		10	120	mV
		Tj=25 C,Vi=-9V to -13V		5	60	mV
Load regulation	ΔVo	Tj=25 C,lo=5.0mA to 1.5A		10	120	mV
		Tj=25 C,lo=250mA to 750mA		3	60	mV
Quiescent current	IQ	Tj=25 C		3	6	mA
Quiescent current change	ΔlQ	Io=5mA to 1.0A			0.5	mA
		Vi=-8V to -25V			1.3	mA
Output voltage drift	ΔVo/ΔΤ	lo=5mA		-0.5		mV/ C
Output noise voltage	VN	f=10hz to 100kHz,Ta=25 C		130		μV
Ripple rejection	RR	f=120Hz, Vi=-9V to -19V	54	60		dB
Dropout voltage	Vo	lo=1.0A,Tj=25 C		2		V
Short circuit current	Isc	Vi=-35V,Ta=25 C		300		mA
peak current	lpk	Ti=25 C		2.2		Α



### LM79XX

# LINEAR INTEGRATED CIRCUIT

### Contek7908 ELECTRICAL CHARACTERISTICS

(Refer to test circuits, 0<Tj<125 C,lo=500mA,Vi=-14V,Ci=2.2uF,Co=1uF,unless otherwise specified)

PARAMETER	SYMBOL	TEST CONDITIONS	MIN	TYP	MAX	UNIT
		Tj=25 C	-7.7	-8.0	-8.3	V
Output voltage	Vo	5.0mA <lo<1.0a,po<15w Vi=-10.5V to -23V</lo<1.0a,po<15w 	-7.6	-8.0	-8.4	V
Line regulation	ΔVο	Tj=25 C,Vi=-10.5V to -25V		10	100	mV
		Tj=25 C,Vi=-11.5V to -17V		5	80	mV
Load regulation	ΔVo	Tj=25 C,lo=5.0mA to 1.5A		12	160	mV
		Tj=25 C,lo=250mA to 750mA		4	80	mV
Quiescent current	IQ	Tj=25 C		3	6	mA
Quiescent current change	ΔlQ	Io=5mA to 1.0A		0.05	0.5	mA
		Vi=-11.5V to -25V		0.1	1.0	mA
Output voltage drift	ΔVo/ΔΤ	Io=5mA		-0.6		mV/ C
Output noise voltage	Vn	f=10hz to 100kHz,Ta=25 C		175		μV
Ripple rejection	RR	f=120Hz, Vi=-11.5V to -21.5V	54	60		dB
Dropout voltage	Vo	lo=1.0A,Tj=25 C		2		V
Short citcuit current	Isc	Vi=-35V,Ta=25 C		300		mA
peak current	lpk	Tj=25 C		2.2		Α

### Contek7912 ELECTRICAL CHARACTERISTICS

(Refer to test circuits, 0<Tj<125 C,lo=500mA,Vi=-18V,Ci=2.2uF,Co=1uF,unless otherwise specified)

PARAMETER	SYMBOL	TEST CONDITIONS	MIN	TYP	MAX	UNIT
		Tj=25 C	-11.5	-12.0	-12.5	V
Output voltage	Vo	5.0mA <lo<1.0a,po<15w< td=""><td></td><td></td><td></td><td></td></lo<1.0a,po<15w<>				
		Vi=-14.5V to -27V	-11.4	-12	-12.6	V
Line regulation	ΔVο	Tj=25 C,Vi=-14.5V to -30V		12	240	mV
		Tj=25 C,Vi=-16V to -22V		6	120	mV
Load regulation	ΔVο	Tj=25 C,lo=5.0mA to 1.5A		12	240	mV
		Tj=25 C,lo=250mA to 750mA		4	120	mV
Quiescent current	IQ	Tj=25 C		3	6	mA
Quiescent current change	ΔlQ	Io=5mA to 1.0A		0.05	0.5	mA
		Vi=-14.5V to -30V		0.1	1.0	mA
Output voltage drift	ΔVo/ΔΤ	Io=5mA		-0.8		mV/ C
Output noise voltage	VN	f=10hz to 100kHz,Ta=25 C		200		μV
Ripple rejection	RR	f=120Hz, Vi=-15V to -25V	54	60		dB
Dropout voltage	Vo	lo=1.0A,Tj=25 C		2		V
Short circuit current	Isc	Vi=-35V,Ta=25 C		300		mA
peak current	lpk	Tj=25 C		2.2		Α



# LINEAR INTEGRATED CIRCUIT

### Contek7915 ELECTRICAL CHARACTERISTICS

(Refer to test circuits, 0<Tj<125 C, Io=500mA,Vi=-23V,Ci=2.2uF,Co=1uF,unless otherwise specified)

PARAMETER	SYMBOL	TEST CONDITIONS	MIN	TYP	MAX	UNIT
		Tj=25 C	-14.4	-15.0	-15.6	V
Output voltage	Vo	5.0mA <lo<1.0a,po<15w< td=""><td></td><td></td><td></td><td></td></lo<1.0a,po<15w<>				
		Vi=-17.5V to -30V	-14.25	-15	-15.75	V
Line regulation	ΔVo	Tj=25 C,Vi=-17.5V to -30V		12	300	mV
		Tj=25 C,Vi=-20V to -26V		6	150	mV
Load regulation	ΔVo	Tj=25 C,lo=5.0mA to 1.5A		12	300	mV
		Tj=25 C,lo=250mA to 750mA		4	150	mV
Quiescent current	IQ	Tj=25 C		3	6	mA
Quiescent current change	ΔlQ	Io=5mA to 1.0A		0.05	0.5	mA
		Vi=-17.5V to -30.5V		0.1	1.0	mA
Output voltage drift	ΔVo/ΔΤ	lo=5mA		-0.9		mV/ C
Output noise voltage	VN	f=10hz to 100kHz,Ta=25 C		250		μV
Ripple rejection	RR	f=120Hz, Vi=-18.5V to -28.5V	54	60		dB
Dropout voltage	Vo	lo=1.0A,Tj=25 C		2		V
Short circuit current	Isc	Vi=-35V,Ta=25 C		300		mA
peak current	lpk	Tj=25 C		2.2		Α

### Contek7918 ELECTRICAL CHARACTERISTICS

(Refer to test circuits, 0<Tj<125 C,lo=500mA,Vi=-27V,Ci=2.2uF,Co=1uF,unless otherwise specified)

PARAMETER	SYMBOL	TEST CONDITIONS	MIN	TYP	MAX	UNIT
		Tj=25 C	-17.3	-18.0	-18.7	V
Output voltage	Vo	5.0mA <lo<1.0a,po<15w< td=""><td></td><td></td><td></td><td></td></lo<1.0a,po<15w<>				
		Vi=-21V to -33V	-17.1	-18	-18.9	V
Line regulation	ΔVo	Tj=25 C,Vi=-21V to -33V		15	360	mV
		Tj=25 C,Vi=-24V to -30V		8	180	mV
Load regulation	ΔVο	Tj=25 C,lo=5.0mA to 1.5A		15	360	mV
		Tj=25 C,lo=250mA to 750mA		5.0	180	mV
Quiescent current	IQ	Tj=25 C		3	6	mA
Quiescent current change	ΔlQ	Io=5mA to 1.0A			0.5	mA
		Vi=-21V to -32V			1.0	mA
Output voltage drift	ΔVo/ΔΤ	lo=5mA		-1		mV/ C
Output noise voltage	VN	f=10hz to 100kHz,Ta=25 C		300		μV
Ripple rejection	RR	f=120Hz, Vi=-22V to -32V	54	60		dB
Dropout voltage	Vo	lo=1.0A,Tj=25 C		2		V
Short circuit current	Isc	Vi=-35V,Ta=25 C		300		mA
peak current	lpk	Tj=25 C		2.2		Α



### Contek7924 ELECTRICAL CHARACTERISTICS

(Refer to test circuits, 0<Tj<125 C,lo=500mA,Vi=-33V,Ci=2.2uF,Co=1uF,unless otherwise specified)

PARAMETER	SYMBOL	TEST CONDITIONS	MIN	TYP	MAX	UNIT
		Tj=25 C	-23	-24	-25	V
Output voltage	Vo	5.0mA <lo<1.0a,po<15w< td=""><td></td><td></td><td></td><td></td></lo<1.0a,po<15w<>				
		Vi=-27V to -38V	-22.8	-24	-25.2	V
Line regulation	ΔVo	Tj=25 C,Vi=-27V to -38V		15	480	mV
		Tj=25 C,Vi=-30V to -36V		8	240	mV
Load regulation	ΔVo	Tj=25 C,lo=5.0mA to 1.5A		15	480	mV
		Tj=25 C,lo=250mA to 750mA		5.0	240	mV
Quiescent current	IQ	Tj=25 C		3	6	mA
Quiescent current change	ΔlQ	Io=5mA to 1.0A			0.5	mA
		Vi=-27V to -38V			1.0	mA
Output voltage drift	ΔVo/ΔΤ	lo=5mA		-1		mV/ C
Output noise voltage	VN	f=10hz to 100kHz,Ta=25 C		400		μV
Ripple rejection	RR	f=120Hz, Vi=-28V to -38V	54	60		dB
Dropout voltage	Vo	lo=1.0A,Tj=25 C		2		V
Short circuit current	Isc	Vi=-35V,Ta=25 C		300		mA
peak current	lpk	Tj=25 C		2.2		Α

### APPLICATION CIRCUITS

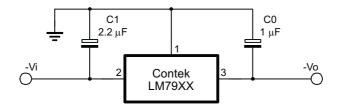


Fig.1 Fixed output regulator

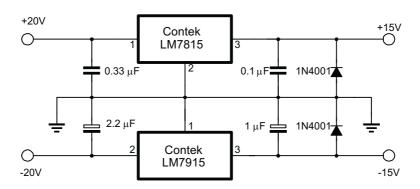


Fig.2 Split power supply(+-15V,1A)



### LM79XX

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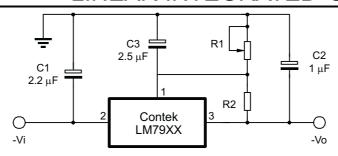


Fig.3 Circuit for increasing output voltage