

UTC 79LXX LINEAR INTEGRATED CIRCUIT

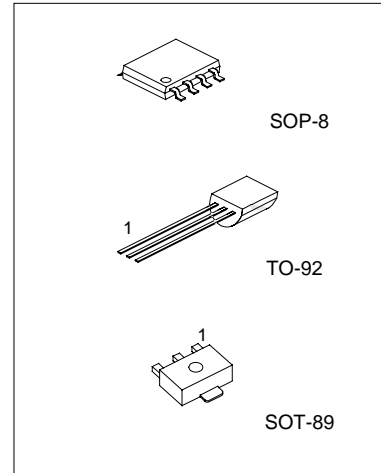
3-TERMINAL 0.1A NEGATIVE VOLTAGE REGULATOR

DESCRIPTION

The UTC 79LXX family is monolithic fixed voltage regulator integrated circuit. They are suitable for applications that required supply current up to 100mA.

FEATURES

- *Output current up to 100mA
- *Fixed output voltage of -5V, -6V, -8V, -9V, -12V, -15V, -18V and -24V available
- *Thermal overload shutdown protection
- *Short circuit current limiting

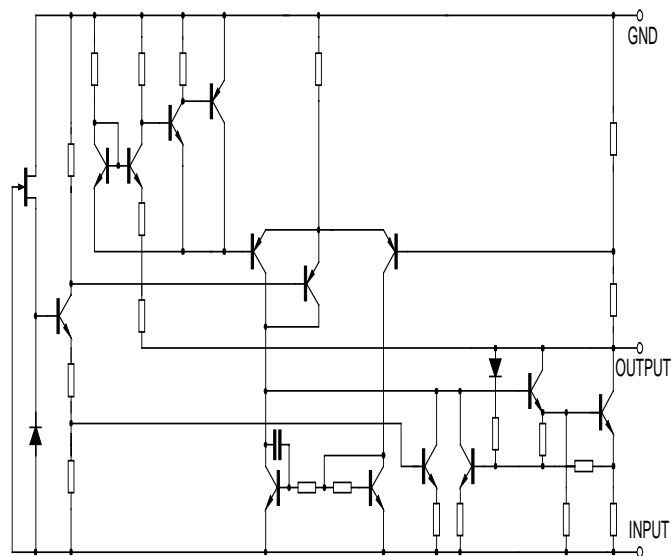


SOP-8 : 1. Vout ; 2,3,6,7 Vin ; 5. GND; 4,8 NC

TO-92 : 1: GND 2: Input 3: Output

SOT-89: 1: GND 2: Input 3: Output

TEST CIRCUIT



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ABSOLUTE MAXIMUM RATINGS (Operating temperature range applies unless otherwise specified)

PARAMETER	SYMBOL	VALUE	UNIT
Input voltage(for Vo=-5~-9V) (for Vo=-12~-15V) (for Vo=-18~-24V)	V _I	-30	V
	V _I	-35	V
	V _I		
Power Dissipation	P _D	350 (SOT-89) 300 (SOP-8) 625 (TO-92)	mW
Operating Junction Temperature Range	T _{OPR}	-30 ~ +125	°C
Storage Temperature Range	T _{STG}	-40 ~ +125	°C

UTC79L05 ELECTRICAL CHARACTERISTICS

(T_J=25°C, C₁=0.33μF, C_o=0.1μF, unless otherwise specified)

PARAMETER	SYMBOL	TEST CONDITIONS	MIN	TYP	MAX	UNIT
Output Voltage	V _o	V _{IN} =-10V, I _o =40mA	-4.8	-5.0	-5.2	V
Line Regulation	V _o -V _{IN}	V _{IN} =-7~-20V, I _o =40mA		15	150	mV
Load Regulation	V _o -I _o	V _{IN} =-10V, I _o =1~100mA		7	60	mV
Quiescent current	I _Q	V _{IN} =-10V, I _o =40mA		3.5	6.0	mA
Ripple Rejection	RR	V _{IN} =-8~-18V, I _o =40mA, E _{in} =1Vp-p, f=120Hz	41	71		dB
Output Noise Voltage	V _{NO}	V _{IN} =-10V, BW=10Hz~100kHz, I _o =40mA		120		μV

UTC79L06 ELECTRICAL CHARACTERISTICS

(T_J=25°C, C₁=0.33μF, C_o=0.1μF, unless otherwise specified)

PARAMETER	SYMBOL	TEST CONDITIONS	MIN	TYP	MAX	UNIT
Output Voltage	V _o	V _{IN} =-12V, I _o =40mA	-5.76	-6.0	-6.24	V
Line Regulation	V _o -V _{IN}	V _{IN} =-8.5~-20V, I _o =40mA		15	150	mV
Load Regulation	V _o -I _o	V _{IN} =-12V, I _o =1~100mA		7	60	mV
Quiescent current	I _Q	V _{IN} =-12V, I _o =40mA		3.5	6.0	mA
Ripple Rejection	RR	V _{IN} =-9~-19V, I _o =40mA, E _{in} =1Vp-p, f=120Hz	41	71		dB
Output Noise Voltage	V _{NO}	V _{IN} =-12V, BW=10Hz~100kHz, I _o =40mA		120		μV

UTC79L08 ELECTRICAL CHARACTERISTICS

(T_J=25°C, C₁=0.33μF, C_o=0.1μF, unless otherwise specified)

PARAMETER	SYMBOL	Test conditions	MIN	TYP	MAX	UNIT
Output Voltage	V _o	V _{IN} =-14V, I _o =40mA	-7.68	-8.0	-8.32	V
Line Regulation	V _o -V _{IN}	V _{IN} =-10.5~-23V, I _o =40mA		24	175	mV
Load Regulation	V _o -I _o	V _{IN} =-14V, I _o =1~100mA		10	80	mV
Quiescent current	I _Q	V _{IN} =-14V, I _o =40mA		3.5	6.0	mA
Ripple Rejection	RR	V _{IN} =-11~-21V, I _o =40mA, E _{in} =1Vp-p, f=140Hz	39	68		dB
Output Noise Voltage	V _{NO}	V _{IN} =-14V, BW=10Hz~100kHz, I _o =40mA		190		μV

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UTC79L09 ELECTRICAL CHARACTERISTICS

(T_j=25°C, C₁=0.33μF, C_o=0.1μF, unless otherwise specified)

PARAMETER	SYMBOL	TEST CONDITIONS	MIN	TYP	MAX	UNIT
Output Voltage	V _o	V _{IN} =-15V, I _o =40mA	-8.64	-9.0	-9.36	V
Line Regulation	V _o -V _{IN}	V _{IN} =-12.5~-24V, I _o =40mA		27	200	mV
Load Regulation	V _o -I _o	V _{IN} =-15V, I _o =1~100mA		12	90	mV
Quiescent current	I _Q	V _{IN} =-15V, I _o =40mA		3.5	6.0	mA
Ripple Rejection	RR	V _{IN} =-12~-22V, I _o =40mA, E _{in} =1Vp-p, f=150Hz	37	64		dB
Output Noise Voltage	V _{NO}	V _{IN} =-15V, BW=10Hz~100kHz, I _o =40mA		210		μV

UTC79L12 ELECTRICAL CHARACTERISTICS

(T_j=25°C, C₁=0.33μF, C_o=0.1μF, unless otherwise specified)

PARAMETER	SYMBOL	TEST CONDITIONS	MIN	TYP	MAX	UNIT
Output Voltage	V _o	V _{IN} =-19V, I _o =40mA	-11.52	-12.0	-12.48	V
Line Regulation	V _o -V _{IN}	V _{IN} =-14.5~-27V, I _o =40mA		36	250	mV
Load Regulation	V _o -I _o	V _{IN} =-19V, I _o =1~100mA		16	100	mV
Quiescent current	I _Q	V _{IN} =-19V, I _o =40mA		3.5	6.0	mA
Ripple Rejection	RR	V _{IN} =-15~-25V, I _o =40mA, E _{in} =1Vp-p, f=190Hz	37	64		dB
Output Noise Voltage	V _{NO}	V _{IN} =-19V, BW=10Hz~100kHz, I _o =40mA		210		μV

UTC79L15 ELECTRICAL CHARACTERISTICS

(T_j=25°C, C₁=0.33μF, C_o=0.1μF, unless otherwise specified)

PARAMETER	SYMBOL	TEST CONDITIONS	MIN	TYP	MAX	UNIT
Output Voltage	V _o	V _{IN} =-23V, I _o =40mA	-14.4	-15.0	-15.6	V
Line Regulation	V _o -V _{IN}	V _{IN} =-17.5~-30V, I _o =40mA		45	300	mV
Load Regulation	V _o -I _o	V _{IN} =-23V, I _o =1~100mA		20	150	mV
Quiescent current	I _Q	V _{IN} =-23V, I _o =40mA		3.5	6.0	mA
Ripple Rejection	RR	V _{IN} =-18.5~-28.5V, I _o =40mA, E _{in} =1Vp-p, f=230Hz	34	63		dB
Output Noise Voltage	V _{NO}	V _{IN} =-23V, BW=10Hz~100kHz, I _o =40mA		340		μV

UTC79L18 ELECTRICAL CHARACTERISTICS

(T_j=25°C, C₁=0.33μF, C_o=0.1μF, unless otherwise specified)

PARAMETER	SYMBOL	TEST CONDITIONS	MIN	TYP	MAX	UNIT
Output Voltage	V _o	V _{IN} =-27V, I _o =40mA	-17.28	-18.0	-18.72	V
Line Regulation	V _o -V _{IN}	V _{IN} =-20.5~-33V, I _o =40mA		54	300	mV
Load Regulation	V _o -I _o	V _{IN} =-27V, I _o =1~100mA		23	170	mV
Quiescent current	I _Q	V _{IN} =-27V, I _o =40mA		3.5	6.0	mA
Ripple Rejection	RR	V _{IN} =-23~-33V, I _o =40mA, E _{in} =1Vp-p, f=270Hz	33	60		dB
Output Noise Voltage	V _{NO}	V _{IN} =-27V, BW=10Hz~100kHz, I _o =40mA		410		μV

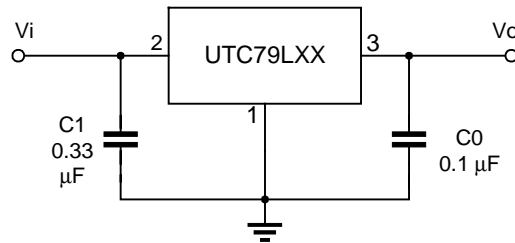
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UTC79L24 ELECTRICAL CHARACTERISTICS

($T_j=25^\circ\text{C}$, $C_1=0.33\mu\text{F}$, $C_o=0.1\mu\text{F}$, unless otherwise specified)

PARAMETER	SYMBOL	TEST CONDITIONS	MIN	TYP	MAX	UNIT
Output Voltage	V_o	$V_{IN}=-33\text{V}, I_o=40\text{mA}$	-23.04	-24.0	-24.96	V
Line Regulation	V_o-V_{IN}	$V_{IN}=-27\sim-38\text{V}, I_o=40\text{mA}$		72	350	mV
Load Regulation	V_o-I_o	$V_{IN}=-33\text{V}, I_o=1\sim 100\text{mA}$		30	200	mV
Quiescent current	I_q	$V_{IN}=-33\text{V}, I_o=40\text{mA}$		3.5	6.0	mA
Ripple Rejection	RR	$V_{IN}=-29\sim-35\text{V}$, $I_o=40\text{mA}, E_{in}=1\text{Vp-p}, f=330\text{Hz}$	31	55		dB
Output Noise Voltage	V_{NO}	$V_{IN}=-33\text{V}$, $BW=10\text{Hz}\sim 100\text{kHz}, I_o=40\text{mA}$		550		μV

APPLICATION CIRCUIT



TYPICAL PERFORMANCE CHARACTERISTICS

Fig.1 Power dissipation vs. ambient temperature

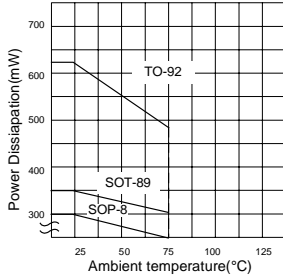


Fig.2 Input Voltage vs. Output Voltage

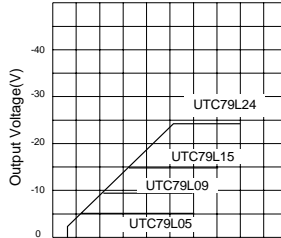


Fig.3 Load Characteristics (Tj=25°C)

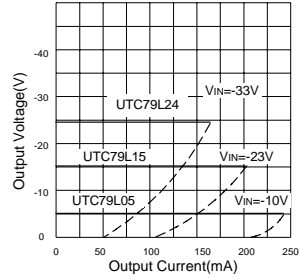


Fig.4 Short Circuit Current (Tj=25°C)

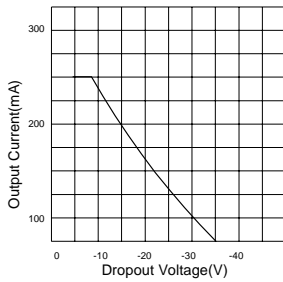


Fig.5 Output Voltage vs. Junction temperature

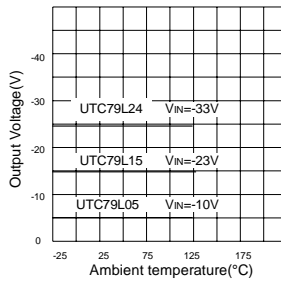


Fig.6 Output Voltage vs. ambient temperature

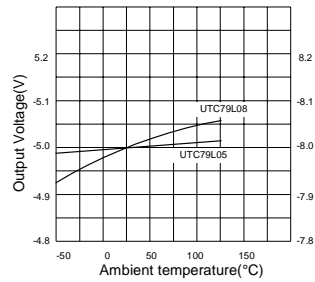


Fig.7 UTC79L05 Dropout Characteristics (Tj=25°C)

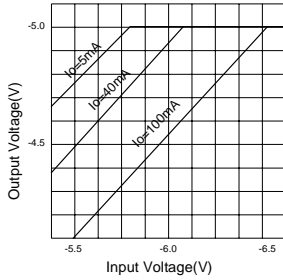


Fig.8 UTC79L08 Dropout Characteristics (Tj=25°C)

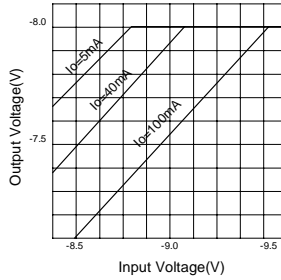


Fig.9 Current vs. Input Voltage (Io=0mA, Tj=25°C)

