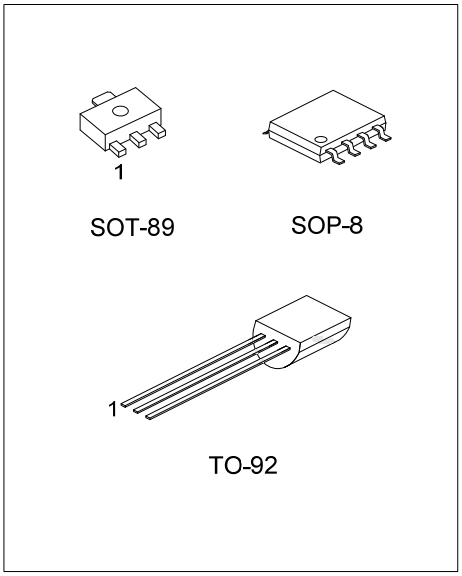
79LXX *LINEAR INTEGRATED CIRCUIT*

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.

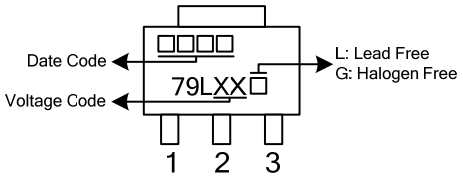
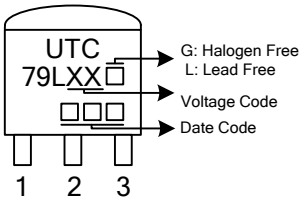
■ ORDERING INFORMATION

Ordering Number		Package	Pin Assignment								Packing
Lead Free	Halogen Free		1	2	3	4	5	6	7	8	
79LXXL-AB3-R	79LXXG-AB3-R	SOT-89	G	I	O	-	-	-	-	-	Tape Reel
79LXXL-S08-R	79LXXG-S08-R	SOP-8	O	I	I	N	G	I	I	N	Tape Reel
79LXXL-S08-T	79LXXG-S08-T	SOP-8	O	I	I	N	G	I	I	N	Tube
79LXXL-T92-B	79LXXG-T92-B	TO-92	G	I	O	-	-	-	-	-	Tape Box
79LXXL-T92-K	79LXXG-T92-K	TO-92	G	I	O	-	-	-	-	-	Bulk
79LXXL-T92-R	79LXXG-T92-R	TO-92	G	I	O	-	-	-	-	-	Tape Reel

Notes: 1. XX: Output Voltage, refer to Marking Information.
2. Note: Pin Assignment: I:V_{IN} O:V_{OUT} G:GND

79LXXL-AB3-R (1)Packing Type (2)Package Type (3)Lead Free (4)Output Voltage Code	(1) B: Tape Box, K: Bulk, R: Tape Reel, T: Tube (2) AB3: SOT-89, S08: SOP-8, T92: TO-92 (3) L: Lead Free, G: Halogen Free (4) XX: refer to Marking Information

■ MARKING INFORMATION

PACKAGE	VOLTAGE CODE	MARKING
SOT-89	05:-5.0V 06:-6.0V 08:-8.0V 09:-9.0V 10:-10V 12:-12V 15:-15V 18:-18V 24:-24V	
TO-92		

■ ABSOLUTE MAXIMUM RATINGS

PARAMETER		SYMBOL	VALUE	UNIT
Input Voltage	V_{OUT} = -5~ -9V	V_{IN}	-30	V
	V_{OUT} = -12~ -15V		-35	V
	V_{OUT} = -18~ -24V		-35	V
Power Dissipation	SOT-89	P_D	350	mW
	SOP-8		300	mW
	TO-92		625	mW
Operating Temperature		T_{OPR}	-40 ~ +85	°C
Storage Temperature		T_{STG}	-40 ~ +125	°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.

■ ELECTRICAL CHARACTERISTICS

79L05(T_J=25°C, C1=0.33μF, C_{OUT}=1μF, unless otherwise specified)

PARAMETER	SYMBOL	TEST CONDITIONS	MIN	TYP	MAX	UNIT
Output Voltage	V_{OUT}	V_{IN}=-10V, I_{OUT}=40mA	-4.8	-5.0	-5.2	V
Line Regulation	$\frac{\Delta V_{OUT}}{\Delta V_{IN} \times V_{OUT}}$	V_{IN}=-7~-20V, I_{OUT} =40mA		15	150	mV
Load Regulation	$\frac{\Delta V_{OUT}}{\Delta I_{OUT} \times V_{OUT}}$	V_{IN}=-10V, I_{OUT} =1~100mA		7	60	mV
Quiescent current	I_Q	V_{IN}=-10V, I_{OUT} =40mA		3.5	6.0	mA
Ripple Rejection	RR	V_{IN}=-8~-18V, I_{OUT} =40mA, e_{IN}=1V_{P-P} ,f=120Hz	41	71		dB
Output Voltage Noise	eN	V_{IN}=-10V, I_{OUT} =40mA BW=10Hz~100kH		120		μV

79L06(T_J=25°C, C1=0.33μF, C_{OUT}=1μF, unless otherwise specified)

PARAMETER	SYMBOL	TEST CONDITIONS	MIN	TYP	MAX	UNIT
Output Voltage	V_{OUT}	V_{IN}=-12V, I_{OUT} =40mA	-5.76	-6.0	-6.24	V
Line Regulation	$\frac{\Delta V_{OUT}}{\Delta V_{IN} \times V_{OUT}}$	V_{IN}=-8.5~-20V, I_{OUT} =40mA		15	150	mV
Load Regulation	$\frac{\Delta V_{OUT}}{\Delta I_{OUT} \times V_{OUT}}$	V_{IN}=-12V, I_{OUT} =1~100mA		7	60	mV
Quiescent current	I_Q	V_{IN}=-12V, I_{OUT} =40mA		3.5	6.0	mA
Ripple Rejection	RR	V_{IN}=-9~ -19V, I_{OUT} =40mA e_{IN}=1V_{P-P}, f=120Hz	41	71		dB
Output Voltage Noise	eN	V_{IN}=-12V, I_{OUT} =40mA BW=10Hz~100kH		120		μV

79L08(T_J=25°C, C1=0.33μF, C_{OUT}=1μF, unless otherwise specified)

PARAMETER	SYMBOL	Test conditions	MIN	TYP	MAX	UNIT
Output Voltage	V_{OUT}	V_{IN}=-14V, I_{OUT} =40mA	-7.68	-8.0	-8.32	V
Line Regulation	$\frac{\Delta V_{OUT}}{\Delta V_{IN} \times V_{OUT}}$	V_{IN}=-10.5~-23V, I_{OUT} =40mA		24	175	mV
Load Regulation	$\frac{\Delta V_{OUT}}{\Delta I_{OUT} \times V_{OUT}}$	V_{IN}=-14V, I_{OUT} =1~100mA		10	80	mV
Quiescent current	I_Q	V_{IN}=-14V, I_{OUT} =40mA		3.5	6.0	mA
Ripple Rejection	RR	V_{IN}=-11~ -21V, I_{OUT} =40mA e_{IN}=1V_{P-P} ,f=140Hz	39	68		dB
Output Voltage Noise	eN	V_{IN}=-14V, I_{OUT} =40mA BW=10Hz~100kH		190		μV

■ ELECTRICAL CHARACTERISTICS(Cont.)

79L09(T_J=25°C, C1=0.33μF, C_{OUT}=1μF, unless otherwise specified)

PARAMETER	SYMBOL	TEST CONDITIONS	MIN	TYP	MAX	UNIT
Output Voltage	V_{OUT}	V_{IN}=-15V, I_{OUT} =40mA	-8.64	-9.0	-9.36	V
Line Regulation	$\frac{\Delta V_{OUT}}{\Delta V_{IN} \times V_{OUT}}$	V_{IN}=-12.5~-24V, I_{OUT} =40mA		27	200	mV
Load Regulation	$\frac{\Delta V_{OUT}}{\Delta I_{OUT} \times V_{OUT}}$	V_{IN}=-15V, I_{OUT} =1~100mA		12	90	mV
Quiescent current	I_Q	V_{IN}=-15V, I_{OUT} =40mA		3.5	6.0	mA
Ripple Rejection	RR	V_{IN}=-12~ -22V, I_{OUT} =40 mA e_{IN}=1V_{P-P} ,f=150Hz	37	64		dB
Output Voltage Noise	eN	V_{IN}=-15V, I_{OUT} =40mA BW=10Hz~100kH		210		μV

79L12(T_J=25°C, C1=0.33μF, C_{OUT}=1μF, unless otherwise specified)

PARAMETER	SYMBOL	TEST CONDITIONS	MIN	TYP	MAX	UNIT
Output Voltage	V_{OUT}	V_{IN}=-19V, I_{OUT} =40mA	-11.52	-12.0	-12.48	V
Line Regulation	$\frac{\Delta V_{OUT}}{\Delta V_{IN} \times V_{OUT}}$	V_{IN}=-14.5~-27V, I_{OUT} =40mA		36	250	mV
Load Regulation	$\frac{\Delta V_{OUT}}{\Delta I_{OUT} \times V_{OUT}}$	V_{IN}=-19V, I_{OUT} =1~100mA		16	100	mV
Quiescent current	I_Q	V_{IN}=-19V, I_{OUT} =40mA		3.5	6.0	mA
Ripple Rejection	RR	V_{IN}=-15~ -25V, I_{OUT} =40mA e_{IN}=1V_{P-P} ,f=190Hz	37	64		dB
Output Voltage Noise	eN	V_{IN}=-19V, I_{OUT} =40mA BW=10Hz~100kH		210		μV

79L15(T_J=25°C, C1=0.33μF, C_{OUT}=1μF, unless otherwise specified)

PARAMETER	SYMBOL	TEST CONDITIONS	MIN	TYP	MAX	UNIT
Output Voltage	V_{OUT}	V_{IN}=-23V, I_{OUT} =40mA	-14.4	-15.0	-15.6	V
Line Regulation	$\frac{\Delta V_{OUT}}{\Delta V_{IN} \times V_{OUT}}$	V_{IN}=-17.5~-30V, I_{OUT} =40mA		45	300	mV
Load Regulation	$\frac{\Delta V_{OUT}}{\Delta I_{OUT} \times V_{OUT}}$	V_{IN}=-23V, I_{OUT} =1~100mA		20	150	mV
Quiescent current	I_Q	V_{IN}=-23V, I_{OUT} =40mA		3.5	6.0	mA
Ripple Rejection	RR	V_{IN}=-18.5~ -28.5V, I_{OUT} =40mA e_{IN}=1V_{P-P} ,f=230Hz	34	63		dB
Output Voltage Noise	eN	V_{IN}=-23V, I_{OUT} =40mA BW=10Hz~100kH		340		μV

79L18(T_J=25°C, C1=0.33μF, C_{OUT}=1μF, unless otherwise specified)

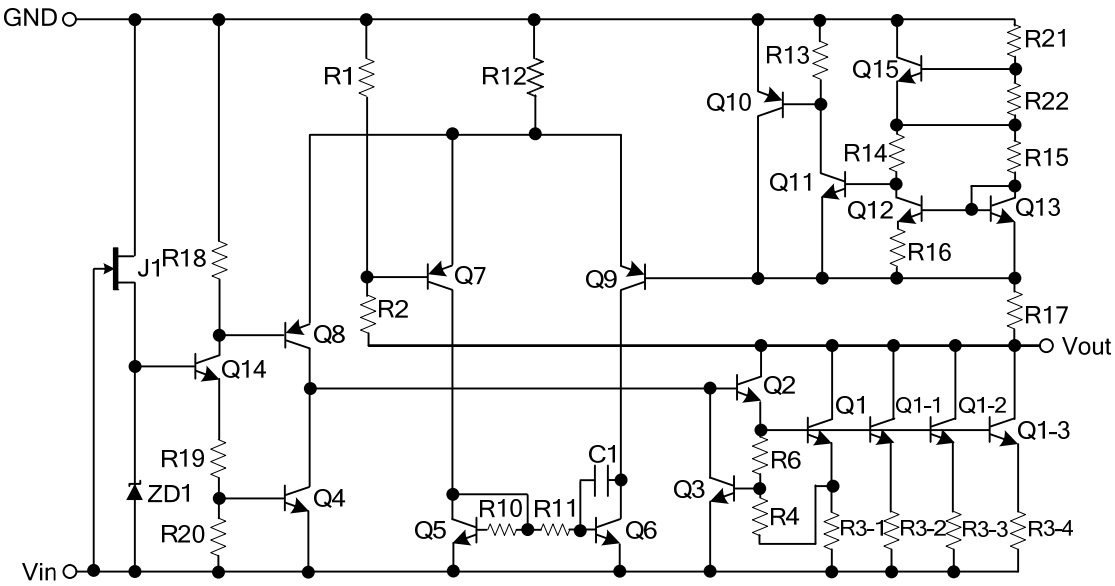
PARAMETER	SYMBOL	TEST CONDITIONS	MIN	TYP	MAX	UNIT
Output Voltage	V_{OUT}	V_{IN}=-27V, I_{OUT} =40mA	-17.28	-18.0	-18.72	V
Line Regulation	$\frac{\Delta V_{OUT}}{\Delta V_{IN} \times V_{OUT}}$	V_{IN}=-20.5~-33V, I_{OUT} =40mA		54	300	mV
Load Regulation	$\frac{\Delta V_{OUT}}{\Delta I_{OUT} \times V_{OUT}}$	V_{IN}=-27V, I_{OUT} =1~100mA		23	170	mV
Quiescent current	I_Q	V_{IN}=-27V, I_{OUT} =40mA		3.5	6.0	mA
Ripple Rejection	RR	V_{IN}=-23~ -33V, I_{OUT} =40mA e_{IN}=1V_{P-P} ,f=270Hz	33	60		dB
Output Voltage Noise	eN	V_{IN}=-27V, I_{OUT} =40mA BW=10Hz~100kH		410		μV

■ ELECTRICAL CHARACTERISTICS(Cont.)

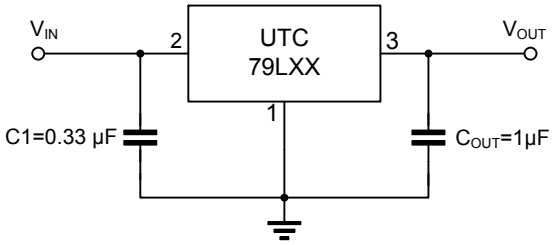
79L24(T_J=25°C, C1=0.33μF, C_{OUT}=1μF, unless otherwise specified)

PARAMETER	SYMBOL	TEST CONDITIONS	MIN	TYP	MAX	UNIT
Output Voltage	V_{OUT}	V_{IN}=-33V, I_{OUT} =40mA	-23.04	-24.0	-24.96	V
Line Regulation	$\frac{\Delta V_{OUT}}{\Delta V_{IN} \times V_{OUT}}$	V_{IN}=-27~-38V,Io=40mA		72	350	mV
Load Regulation	$\frac{\Delta V_{OUT}}{\Delta I_{OUT} \times V_{OUT}}$	V_{IN}=-33V, I_{OUT} =1~100mA		30	200	mV
Quiescent current	I_Q	V_{IN}=-33V, I_{OUT} =40mA		3.5	6.0	mA
Ripple Rejection	RR	V_{IN}=-29~ -35V, I_{OUT} =40mA e_{IN}=1V_{P-P} ,f=330Hz	31	55		dB
Output Voltage Noise	eN	V_{IN}=-33V, I_{OUT} =40mA BW=10Hz~100kH		550		μV

■ BLOCK DIAGRAM

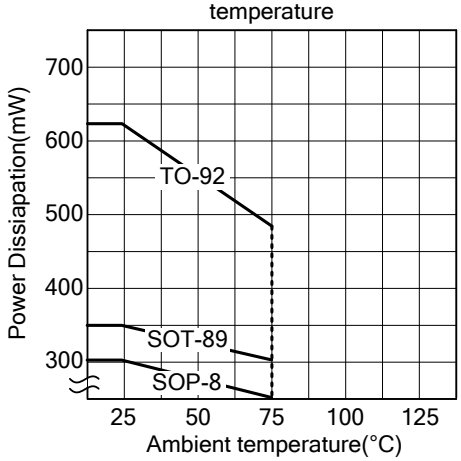


■ APPLICATION CIRCUIT

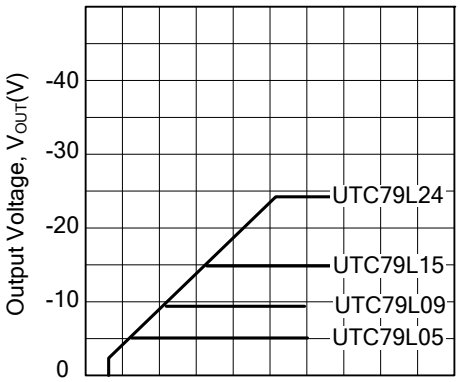


■ TYPICAL CHARACTERISTICS

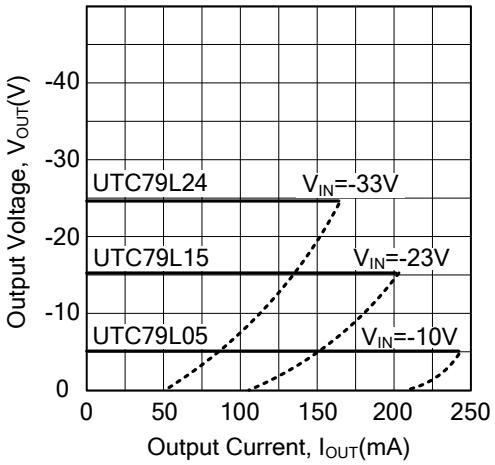
Power dissipation vs. ambient temperature



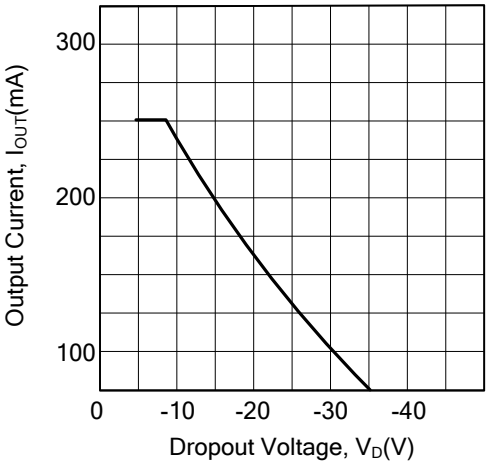
Input Voltage vs. Output Voltage



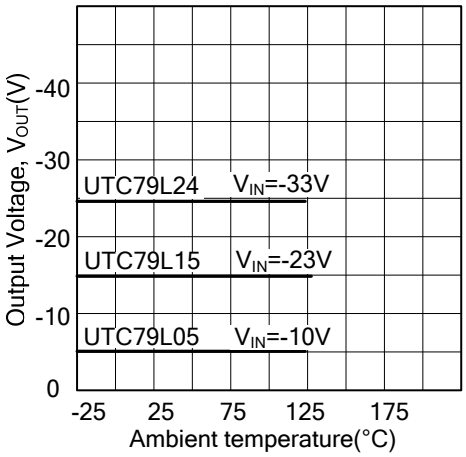
Load Characteristics (T_J=25°C)



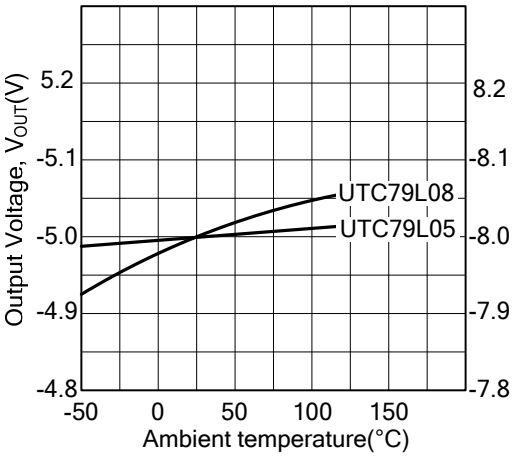
Short Circuit Current (T_J=25°C)



Output Voltage vs. Junction temperature

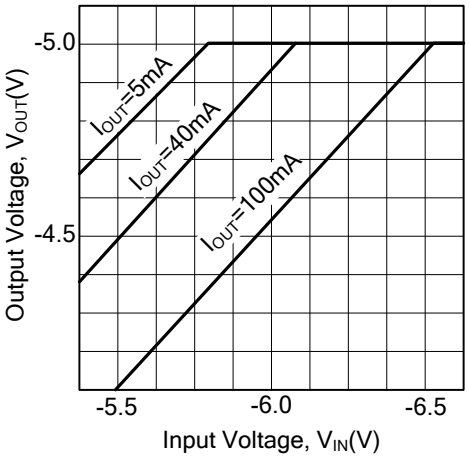


Output Voltage vs. ambient temperature

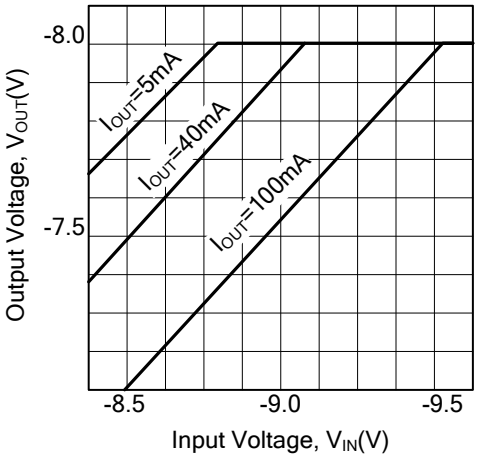


■ TYPICAL CHARACTERISTICS(Cont.)

UTC79L05 Dropout Characteristics
(T_J=25°C)



UTC79L08 Dropout Characteristics
(T_J=25°C)



Current vs. Input Voltage
(I_{OUT}=0mA, T_J=25°C)