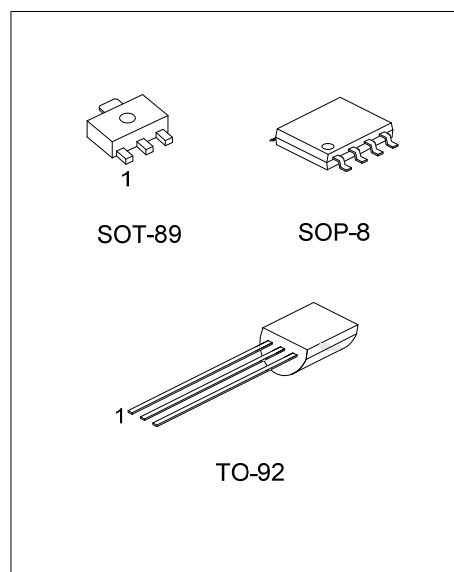


**79LXX****LINEAR INTEGRATED CIRCUIT****3-TERMINAL 0.1A NEGATIVE VOLTAGE REGULATOR****DESCRIPTION**

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**

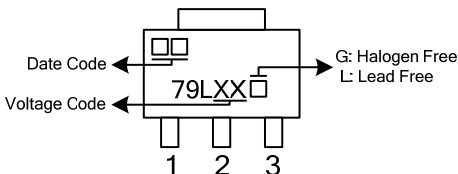
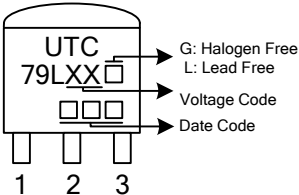
Ordering Number		Package	Pin Assignment								Packing
Lead Free	Halogen Free		1	2	3	4	5	6	7	8	
79LXXL-AB3-R	79LXXG-AB3-R	SOT-89	G	I	O	-	-	-	-	-	Tape Reel
79LXXL-S08-R	79LXXG-S08-R	SOP-8	O	I	I	N	G	I	I	N	Tape Reel
79LXXL-S08-T	79LXXG-S08-T	SOP-8	O	I	I	N	G	I	I	N	Tube
79LXXL-T92-B	79LXXG-T92-B	TO-92	G	I	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	(1) B: Tape Box, K: Bulk, R: Tape Reel, T: Tube (2) AB3: SOT-89, S08: SOP-8, T92: TO-92 (3) G: Halogen Free, L: Lead Free (4) XX: refer to Marking Information
	(2)Package Type	
	(3)Lead Free	
	(4)Output Voltage Code	

■ MARKING INFORMATION

PACKAGE	VOLTAGE CODE	MARKING
SOT-89	05:-5.0V 06:-6.0V 08:-8.0V 09:-9.0V	 The diagram shows a SOT-89 package with three pins labeled 1, 2, and 3. Markings on the package include 'Date Code' (two small squares), 'Voltage Code' (two small squares), '79LXX' (the main part number), and 'G: Halogen Free' and 'L: Lead Free' (small squares).
TO-92	10:-10V 12:-12V 15:-15V 18:-18V 24:-24V	 The diagram shows a TO-92 package with three pins labeled 1, 2, and 3. Markings on the package include 'UTC' (top), '79LXX' (middle), 'Voltage Code' (two small squares), 'Date Code' (two small squares), and 'G: Halogen Free' and 'L: Lead Free' (small squares).

■ ABSOLUTE MAXIMUM RATINGS

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

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($T_J=25^{\circ}C$, $C_1=0.33\mu F$, $C_{OUT}=1\mu F$, 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	$\frac{\Delta V_{OUT}}{\Delta V_{IN} \times V_{OUT}}$	$V_{IN}=-7 \sim -20V$, $I_{OUT}=40mA$		15	150	mV
Load Regulation	$\frac{\Delta V_{OUT}}{\Delta I_{OUT} \times V_{OUT}}$	$V_{IN}=-10V$, $I_{OUT}=1 \sim 100mA$		7	60	mV
Quiescent current	I_Q	$V_{IN}=-10V$, $I_{OUT}=40mA$		3.5	6.0	mA
Ripple Rejection	RR	$V_{IN}=-8 \sim -18V$, $I_{OUT}=40mA$, $e_{IN}=1V_{P-P}$, $f=120Hz$	41	71		dB
Output Voltage Noise	eN	$V_{IN}=-10V$, $I_{OUT}=40mA$ $BW=10Hz \sim 100kHz$		120		μV

79L06($T_J=25^{\circ}C$, $C_1=0.33\mu F$, $C_{OUT}=1\mu F$, 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	$\frac{\Delta V_{OUT}}{\Delta V_{IN} \times V_{OUT}}$	$V_{IN}=-8.5 \sim -20V$, $I_{OUT}=40mA$		15	150	mV
Load Regulation	$\frac{\Delta V_{OUT}}{\Delta I_{OUT} \times V_{OUT}}$	$V_{IN}=-12V$, $I_{OUT}=1 \sim 100mA$		7	60	mV
Quiescent current	I_Q	$V_{IN}=-12V$, $I_{OUT}=40mA$		3.5	6.0	mA
Ripple Rejection	RR	$V_{IN}=-9 \sim -19V$, $I_{OUT}=40mA$ $e_{IN}=1V_{P-P}$, $f=120Hz$	41	71		dB
Output Voltage Noise	eN	$V_{IN}=-12V$, $I_{OUT}=40mA$ $BW=10Hz \sim 100kHz$		120		μV

79L08($T_J=25^{\circ}C$, $C_1=0.33\mu F$, $C_{OUT}=1\mu F$, 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	$\frac{\Delta V_{OUT}}{\Delta V_{IN} \times V_{OUT}}$	$V_{IN}=-10.5 \sim -23V$, $I_{OUT}=40mA$		24	175	mV
Load Regulation	$\frac{\Delta V_{OUT}}{\Delta I_{OUT} \times V_{OUT}}$	$V_{IN}=-14V$, $I_{OUT}=1 \sim 100mA$		10	80	mV
Quiescent current	I_Q	$V_{IN}=-14V$, $I_{OUT}=40mA$		3.5	6.0	mA
Ripple Rejection	RR	$V_{IN}=-11 \sim -21V$, $I_{OUT}=40mA$ $e_{IN}=1V_{P-P}$, $f=140Hz$	39	68		dB
Output Voltage Noise	eN	$V_{IN}=-14V$, $I_{OUT}=40mA$ $BW=10Hz \sim 100kHz$		190		μV

■ ELECTRICAL CHARACTERISTICS(Cont.)

79L09($T_J=25^\circ\text{C}$, $C_1=0.33\mu\text{F}$, $C_{OUT}=1\mu\text{F}$, unless otherwise specified)

PARAMETER	SYMBOL	TEST CONDITIONS	MIN	TYP	MAX	UNIT
Output Voltage	V_{OUT}	$V_{IN}=-15\text{V}$, $I_{OUT}=40\text{mA}$	-8.64	-9.0	-9.36	V
Line Regulation	$\frac{\Delta V_{OUT}}{\Delta V_{IN} \times V_{OUT}}$	$V_{IN}=-12.5\sim-24\text{V}$, $I_{OUT}=40\text{mA}$		27	200	mV
Load Regulation	$\frac{\Delta V_{OUT}}{\Delta I_{OUT} \times V_{OUT}}$	$V_{IN}=-15\text{V}$, $I_{OUT}=1\sim100\text{mA}$		12	90	mV
Quiescent current	I_Q	$V_{IN}=-15\text{V}$, $I_{OUT}=40\text{mA}$		3.5	6.0	mA
Ripple Rejection	RR	$V_{IN}=-12\sim-22\text{V}$, $I_{OUT}=40\text{mA}$ $e_{IN}=1V_{P-P}$, $f=150\text{Hz}$	37	64		dB
Output Voltage Noise	eN	$V_{IN}=-15\text{V}$, $I_{OUT}=40\text{mA}$ $BW=10\text{Hz}\sim100\text{kHz}$		210		μV

79L12($T_J=25^\circ\text{C}$, $C_1=0.33\mu\text{F}$, $C_{OUT}=1\mu\text{F}$, unless otherwise specified)

PARAMETER	SYMBOL	TEST CONDITIONS	MIN	TYP	MAX	UNIT
Output Voltage	V_{OUT}	$V_{IN}=-19\text{V}$, $I_{OUT}=40\text{mA}$	-11.52	-12.0	-12.48	V
Line Regulation	$\frac{\Delta V_{OUT}}{\Delta V_{IN} \times V_{OUT}}$	$V_{IN}=-14.5\sim-27\text{V}$, $I_{OUT}=40\text{mA}$		36	250	mV
Load Regulation	$\frac{\Delta V_{OUT}}{\Delta I_{OUT} \times V_{OUT}}$	$V_{IN}=-19\text{V}$, $I_{OUT}=1\sim100\text{mA}$		16	100	mV
Quiescent current	I_Q	$V_{IN}=-19\text{V}$, $I_{OUT}=40\text{mA}$		3.5	6.0	mA
Ripple Rejection	RR	$V_{IN}=-15\sim-25\text{V}$, $I_{OUT}=40\text{mA}$ $e_{IN}=1V_{P-P}$, $f=190\text{Hz}$	37	64		dB
Output Voltage Noise	eN	$V_{IN}=-19\text{V}$, $I_{OUT}=40\text{mA}$ $BW=10\text{Hz}\sim100\text{kHz}$		210		μV

79L15($T_J=25^\circ\text{C}$, $C_1=0.33\mu\text{F}$, $C_{OUT}=1\mu\text{F}$, unless otherwise specified)

PARAMETER	SYMBOL	TEST CONDITIONS	MIN	TYP	MAX	UNIT
Output Voltage	V_{OUT}	$V_{IN}=-23\text{V}$, $I_{OUT}=40\text{mA}$	-14.4	-15.0	-15.6	V
Line Regulation	$\frac{\Delta V_{OUT}}{\Delta V_{IN} \times V_{OUT}}$	$V_{IN}=-17.5\sim-30\text{V}$, $I_{OUT}=40\text{mA}$		45	300	mV
Load Regulation	$\frac{\Delta V_{OUT}}{\Delta I_{OUT} \times V_{OUT}}$	$V_{IN}=-23\text{V}$, $I_{OUT}=1\sim100\text{mA}$		20	150	mV
Quiescent current	I_Q	$V_{IN}=-23\text{V}$, $I_{OUT}=40\text{mA}$		3.5	6.0	mA
Ripple Rejection	RR	$V_{IN}=-18.5\sim-28.5\text{V}$, $I_{OUT}=40\text{mA}$ $e_{IN}=1V_{P-P}$, $f=230\text{Hz}$	34	63		dB
Output Voltage Noise	eN	$V_{IN}=-23\text{V}$, $I_{OUT}=40\text{mA}$ $BW=10\text{Hz}\sim100\text{kHz}$		340		μV

79L18($T_J=25^\circ\text{C}$, $C_1=0.33\mu\text{F}$, $C_{OUT}=1\mu\text{F}$, unless otherwise specified)

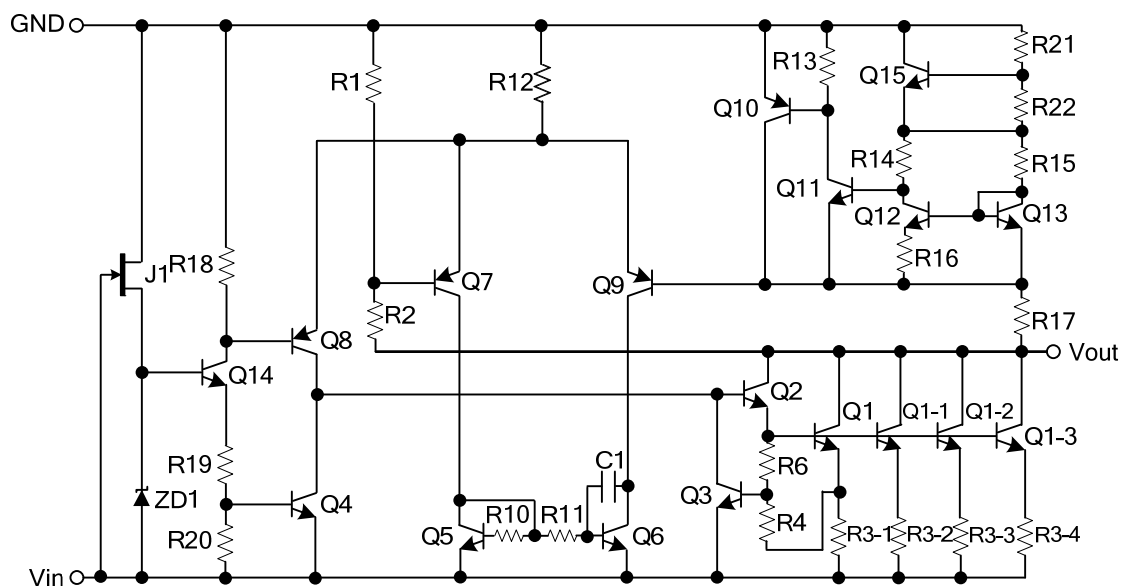
PARAMETER	SYMBOL	TEST CONDITIONS	MIN	TYP	MAX	UNIT
Output Voltage	V_{OUT}	$V_{IN}=-27\text{V}$, $I_{OUT}=40\text{mA}$	-17.28	-18.0	-18.72	V
Line Regulation	$\frac{\Delta V_{OUT}}{\Delta V_{IN} \times V_{OUT}}$	$V_{IN}=-20.5\sim-33\text{V}$, $I_{OUT}=40\text{mA}$		54	300	mV
Load Regulation	$\frac{\Delta V_{OUT}}{\Delta I_{OUT} \times V_{OUT}}$	$V_{IN}=-27\text{V}$, $I_{OUT}=1\sim100\text{mA}$		23	170	mV
Quiescent current	I_Q	$V_{IN}=-27\text{V}$, $I_{OUT}=40\text{mA}$		3.5	6.0	mA
Ripple Rejection	RR	$V_{IN}=-23\sim-33\text{V}$, $I_{OUT}=40\text{mA}$ $e_{IN}=1V_{P-P}$, $f=270\text{Hz}$	33	60		dB
Output Voltage Noise	eN	$V_{IN}=-27\text{V}$, $I_{OUT}=40\text{mA}$ $BW=10\text{Hz}\sim100\text{kHz}$		410		μV

■ ELECTRICAL CHARACTERISTICS(Cont.)

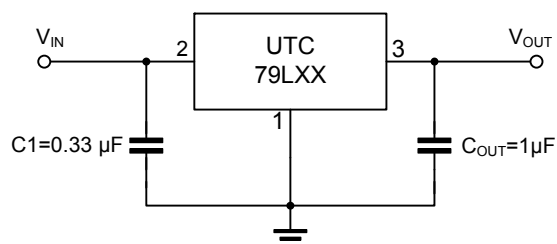
79L24(T_J=25°C, C₁=0.33μF, C_{OUT}=1μF, unless otherwise specified)

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, I _O =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~100kHz		550		μV

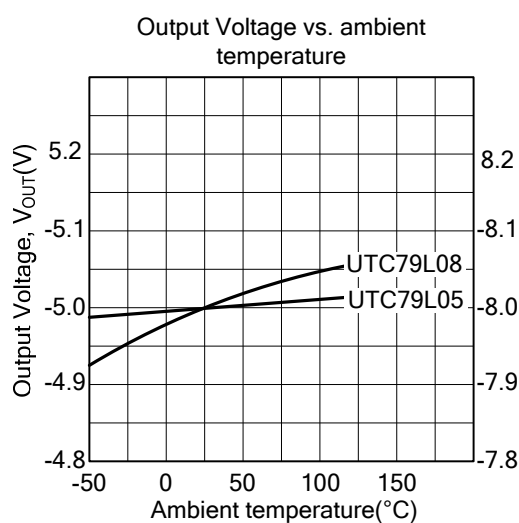
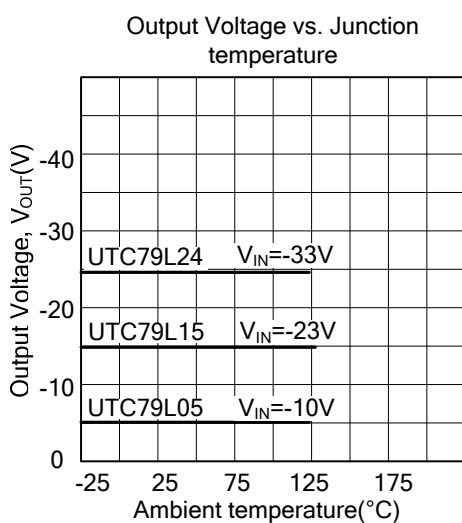
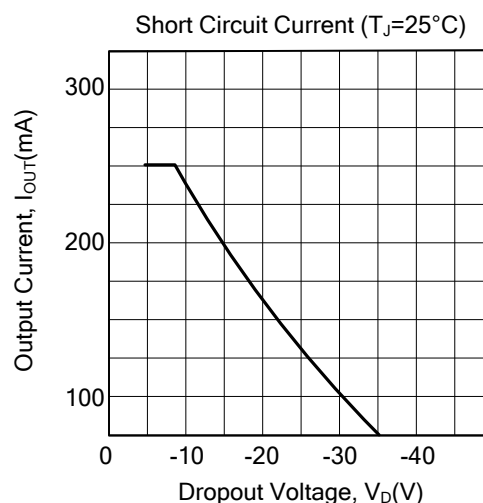
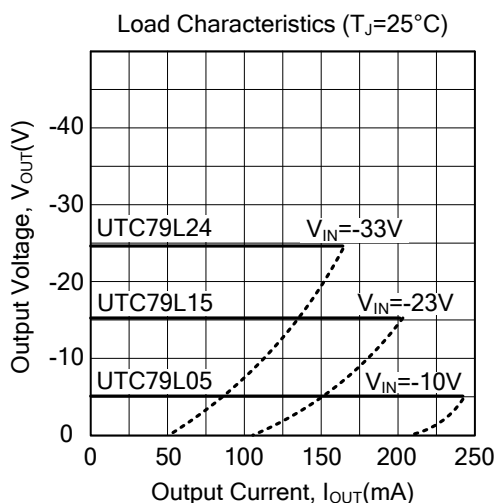
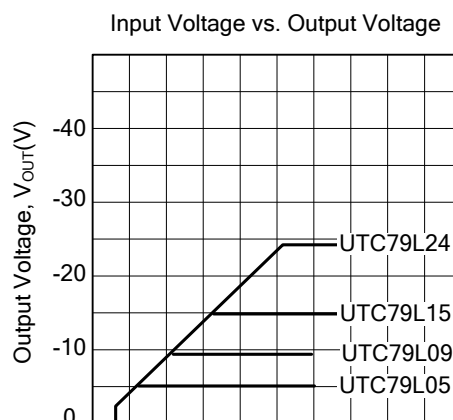
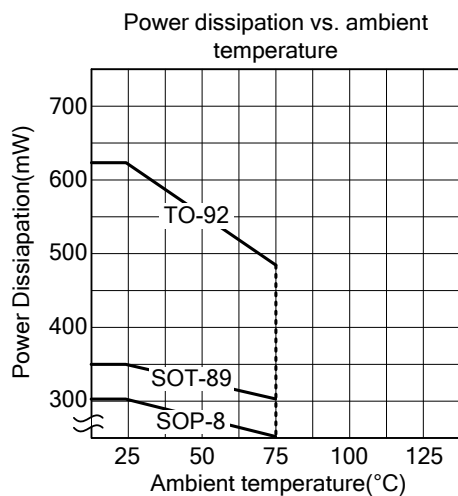
■ BLOCK DIAGRAM



■ APPLICATION CIRCUIT

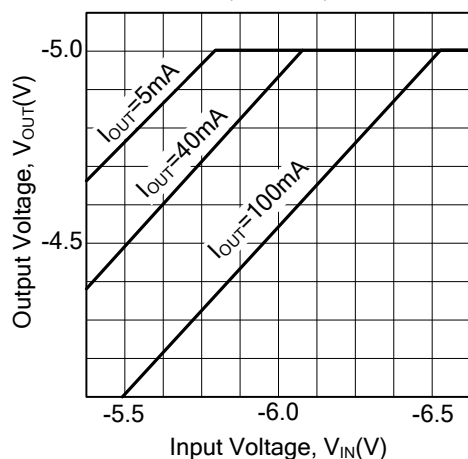


TYPICAL CHARACTERISTICS

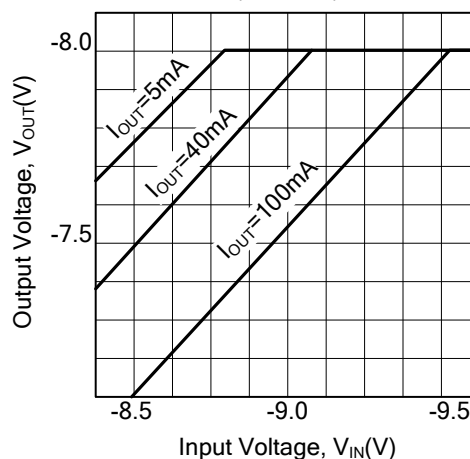


■ TYPICAL CHARACTERISTICS(Cont.)

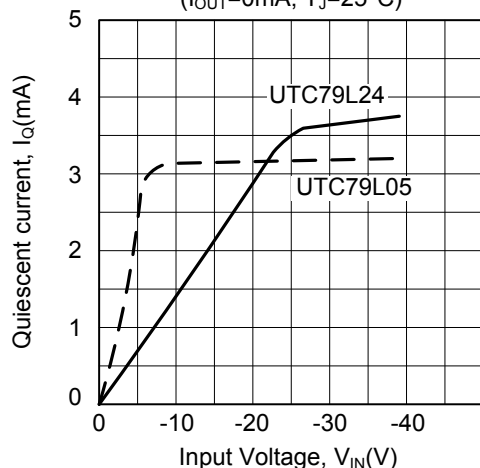
UTC79L05 Dropout Characteristics
($T_J=25^\circ\text{C}$)



UTC79L08 Dropout Characteristics
($T_J=25^\circ\text{C}$)



Current vs. Input Voltage
($I_{OUT}=0\text{mA}$, $T_J=25^\circ\text{C}$)



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