

**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, -10V, -12V, -15V, -18V and -24V available.
- * Thermal overload shutdown protection.
- * Short circuit current limiting.

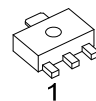
ORDERING INFORMATION

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-T92-B	79LXXG-T92-B	TO-92	G	I	O	-	-	-	-	-	Tape Box
79LXXL-T92-K	79LXXG-T92-K	TO-92	G	I	O	-	-	-	-	-	Bulk

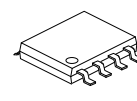
Notes: 1. XX: Output Voltage, refer to Marking Information

2. Note: Pin Assignment: I: V_{IN} O: V_{OUT} G: GND

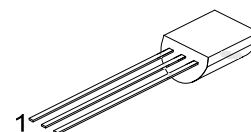
	(1)Packing Type	(1) R: Tape Reel, B: Tape Box, K: Bulk
	(2)Package Type	(2) AB3: SOT-89, S08: SOP-8, T92: TO-92
	(3)Green Package	(3) G: Halogen Free and Lead Free, L: Lead Free
	(4)Output Voltage Code	(4) XX: refer to Marking Information



SOT-89



SOP-8

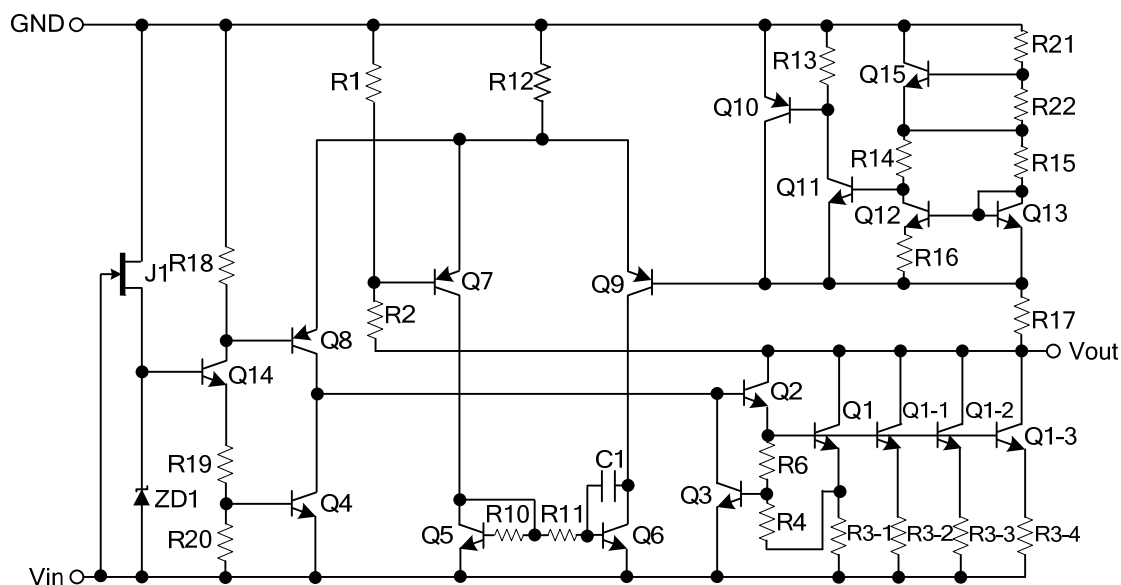


TO-92

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		
SOP-8		

BLOCK DIAGRAM



■ 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	500	mW
	SOP-8		660	mW
	TO-92		625	mW
Operating Junction Temperature		T_J	+150	°C
Operating Temperature		T_{OPR}	-40 ~ +125	°C
Storage Temperature		T_{STG}	-40 ~ +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	SOT-89	θ_{JA}	200	°C/W
	SOP-8		150	°C/W
	TO-92		160	°C/W
Junction to Case	SOT-89	θ_{JC}	50	°C/W
	SOP-8		45	°C/W
	TO-92		83	°C/W

■ ELECTRICAL CHARACTERISTICS

79L05 ($T_J=25^\circ\text{C}$, $C_1=0.33\mu\text{F}$, $C_{OUT}=1\mu\text{F}$, unless otherwise specified)

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

79L06 ($T_J=25^\circ\text{C}$, $C_1=0.33\mu\text{F}$, $C_{OUT}=1\mu\text{F}$, unless otherwise specified)

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

ELECTRICAL CHARACTERISTICS(Cont.)

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~100kHz		190		μV

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~100kHz		210		μV

79L10 (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} =-16V, I _{OUT} =40mA	-9.6	-10	-10.4	V
Line Regulation	$\frac{\Delta V_{OUT}}{\Delta V_{IN} \times V_{OUT}}$	V _{IN} =-13~-24V, I _{OUT} =40mA		30	220	mV
Load Regulation	$\frac{\Delta V_{OUT}}{\Delta I_{OUT} \times V_{OUT}}$	V _{IN} =-16V, I _{OUT} =1~100mA		15	95	mV
Quiescent current	I _Q	V _{IN} =-16V, I _{OUT} =40mA		3.5	6.0	mA
Ripple Rejection	RR	V _{IN} =-13~-23V, I _{OUT} =40mA e _{IN} =1V _{P-P} , f=150Hz	37	64		dB
Output Voltage Noise	eN	V _{IN} =-16V, I _{OUT} =40mA BW=10Hz~100kHz		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~100kHz		210		μV

■ ELECTRICAL CHARACTERISTICS(Cont.)

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	$V_{IN}=-18.5\sim-28.5\text{V}$, $I_{OUT}=40\text{mA}$ $e_{IN}=1\text{V}_{P-P}$, $f=230\text{Hz}$	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

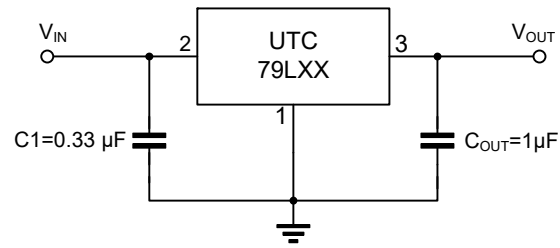
79L18 ($T_J=25^\circ\text{C}$, $C_1=0.33\mu\text{F}$, $C_{OUT}=1\mu\text{F}$, unless otherwise specified)

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	$V_{IN}=-23\sim-33\text{V}$, $I_{OUT}=40\text{mA}$ $e_{IN}=1\text{V}_{P-P}$, $f=270\text{Hz}$	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

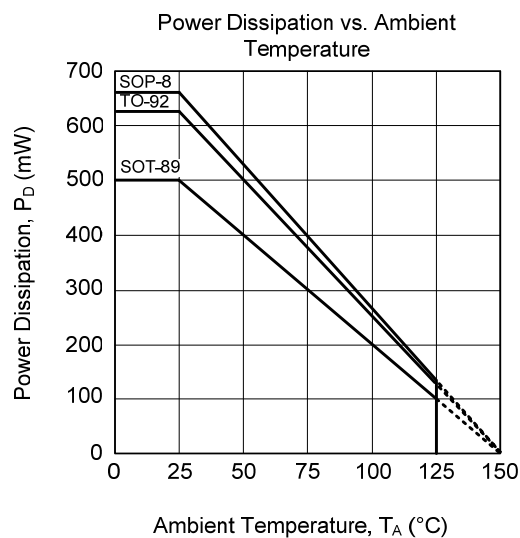
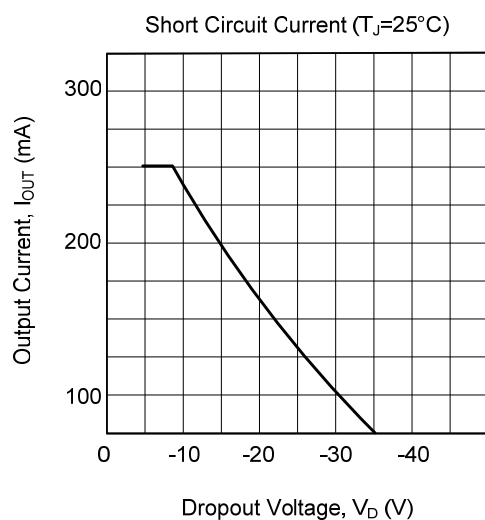
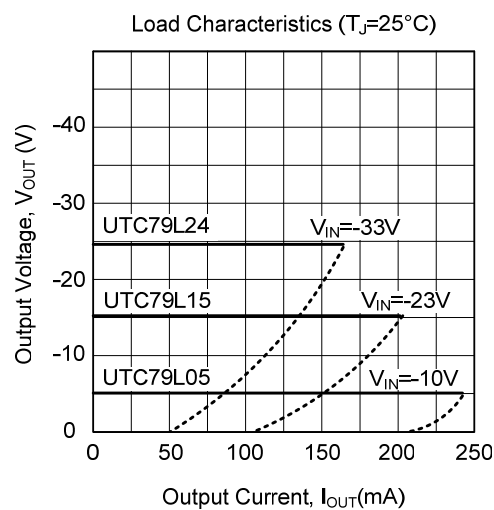
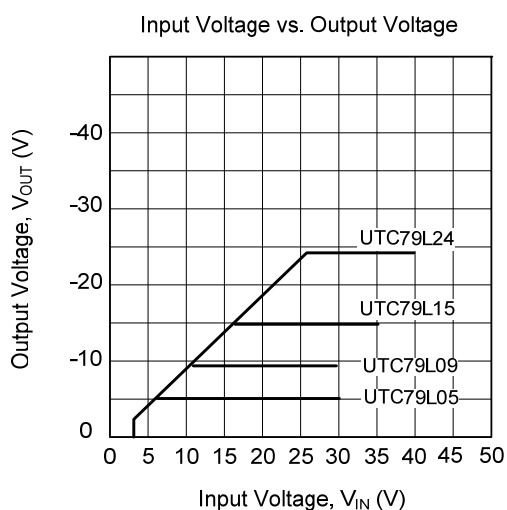
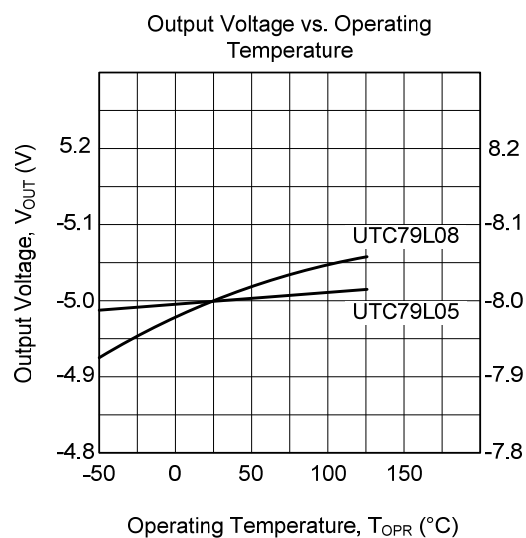
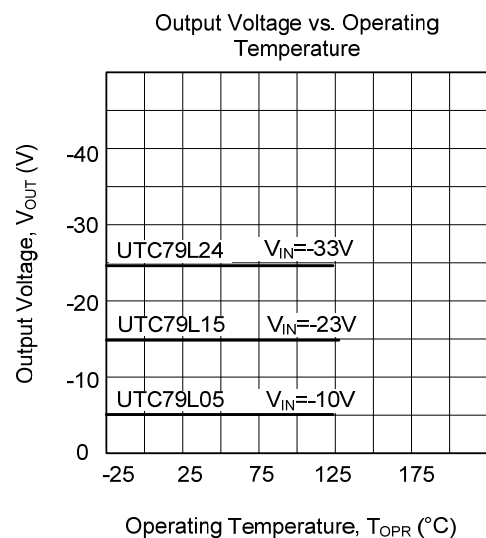
79L24 ($T_J=25^\circ\text{C}$, $C_1=0.33\mu\text{F}$, $C_{OUT}=1\mu\text{F}$, unless otherwise specified)

PARAMETER	SYMBOL	TEST CONDITIONS	MIN	TYP	MAX	UNIT
Output Voltage	V_{OUT}	$V_{IN}=-33\text{V}$, $I_{OUT}=40\text{mA}$	-23.04	-24.0	-24.96	V
Line Regulation	$\frac{\Delta V_{OUT}}{\Delta V_{IN} \times V_{OUT}}$	$V_{IN}=-27\sim-38\text{V}$, $I_O=40\text{mA}$		72	350	mV
Load Regulation	$\frac{\Delta V_{OUT}}{\Delta I_{OUT} \times V_{OUT}}$	$V_{IN}=-33\text{V}$, $I_{OUT}=1\sim100\text{mA}$		30	200	mV
Quiescent current	I_Q	$V_{IN}=-33\text{V}$, $I_{OUT}=40\text{mA}$		3.5	6.0	mA
Ripple Rejection	RR	$V_{IN}=-29\sim-35\text{V}$, $I_{OUT}=40\text{mA}$ $e_{IN}=1\text{V}_{P-P}$, $f=330\text{Hz}$	31	55		dB
Output Voltage Noise	eN	$V_{IN}=-33\text{V}$, $I_{OUT}=40\text{mA}$ $BW=10\text{Hz}\sim100\text{kHz}$		550		μV

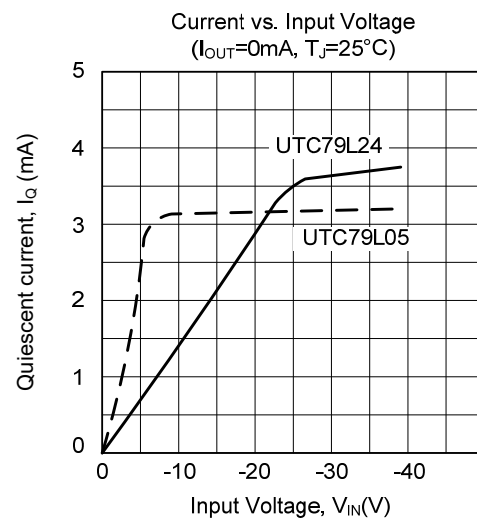
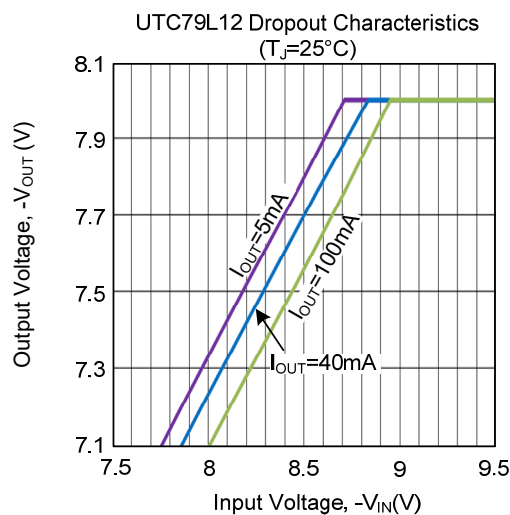
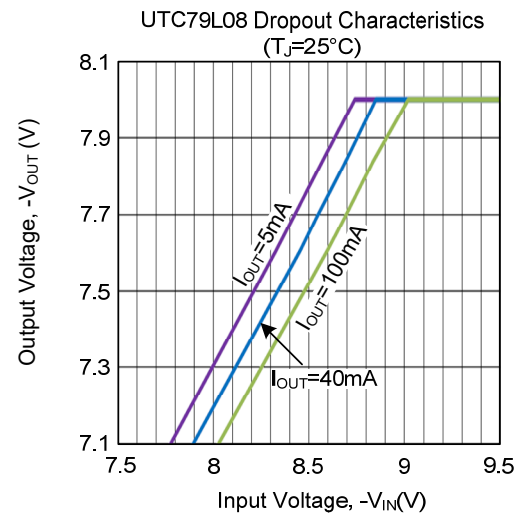
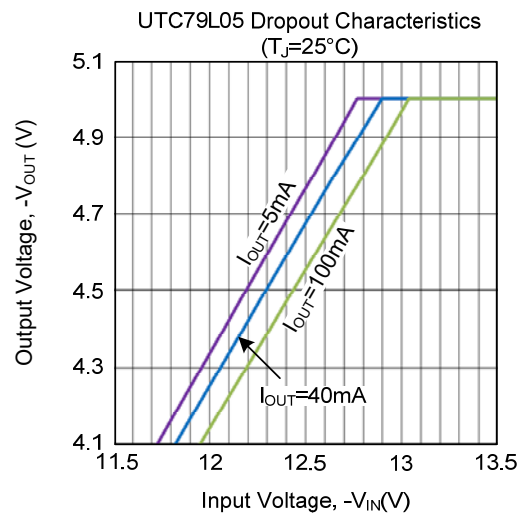
■ APPLICATION CIRCUIT



■ TYPICAL CHARACTERISTICS



■ TYPICAL CHARACTERISTICS (Cont.)



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