HA179L00 Series

3-terminal Negative Fixed Voltage Regulators

REJ03D0690-0300
Rev.3.00
Jan 16, 2009

Description

The HA179L00 series are three-terminal fixed output voltage regulators. These are small outline packages which are useful ICs. For application example, as Zener diodes, easy stabilized power sources.

Features

- Some kinds output voltage series
- Superior ripple rejection ratio for audio frequency
- Large maximum power dissipation: 800 mW
- Over current and over temperature protection
- Ordering Information

Part No.	Output Voltage (V)	Output Voltage Tolerance (%)	Package Name	Package Code	Taping Abbreviation (Quantity)	Application
HA179L05-TZ	–5	±4	TO-92MOD	PRSS0003DC-A	TZ (2,500pcs/box)	Commercial use
HA179L05P-TZ						Industrial use
HA179L05U-TL			UPAK	PLZZ0004CA-A	TL (1,000pcs/reel)	Commercial use

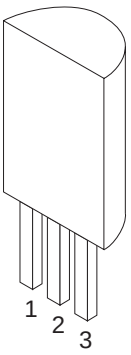
Part No.	Output Voltage (V)	Output Voltage Tolerance (%)	Package Name	Package Code	Taping Abbreviation (Quantity)	Application
HA179L08-TZ	–8	±4	TO-92MOD	PRSS0003DC-A	TZ (2,500pcs/box)	Commercial use
HA179L08P-TZ						Industrial use
HA179L08U-TL			UPAK	PLZZ0004CA-A	TL (1,000pcs/reel)	Commercial use

Part No.	Output Voltage (V)	Output Voltage Tolerance (%)	Package Name	Package Code	Taping Abbreviation (Quantity)	Application
HA179L12-TZ	–12	±4	TO-92MOD	PRSS0003DC-A	TZ (2,500pcs/box)	Commercial use
HA179L12P-TZ						Industrial use
HA179L12U-TL			UPAK	PLZZ0004CA-A	TL (1,000pcs/reel)	Commercial use

Part No.	Output Voltage (V)	Output Voltage Tolerance (%)	Package Name	Package Code	Taping Abbreviation (Quantity)	Application
HA179L15-TZ	–15	±4	TO-92MOD	PRSS0003DC-A	TZ (2,500pcs/box)	Commercial use
HA179L15P-TZ						Industrial use
HA179L15U-TL			UPAK	PLZZ0004CA-A	TL (1,000pcs/reel)	Commercial use

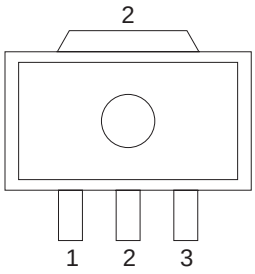
Pin Arrangement

• **TO-92MOD**



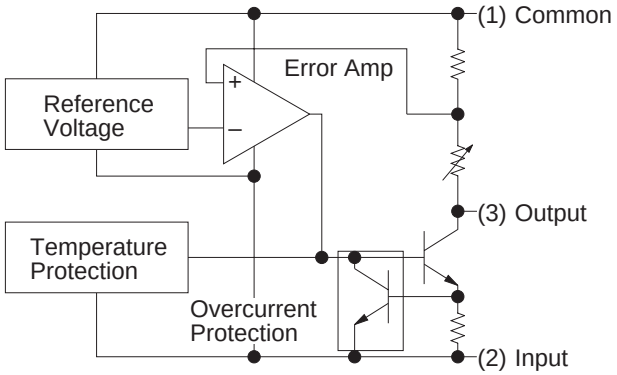
1. Common
2. Input
3. Output

• **UPAK**

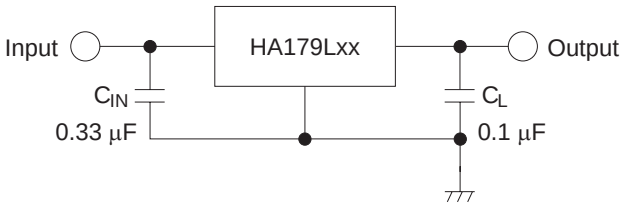


1. Common
2. Input
3. Output

Block Diagram



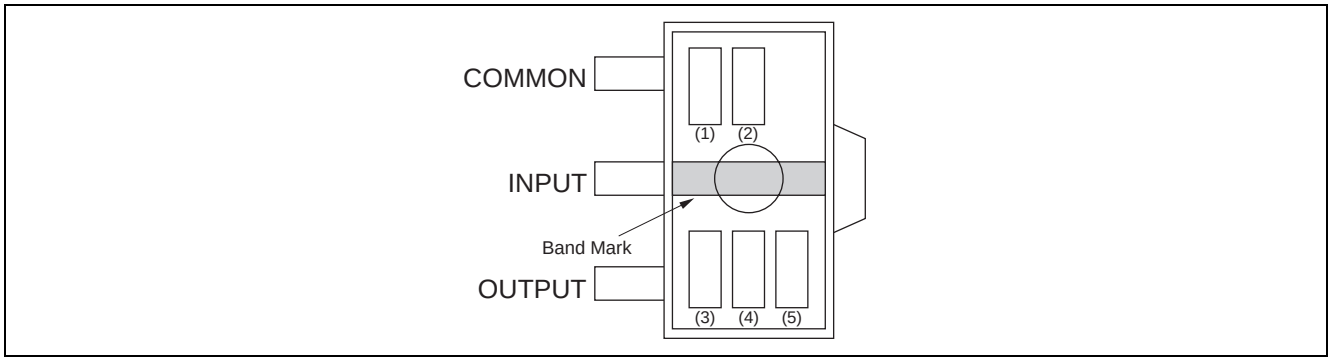
Standard Circuit



UPAK Product (HA179L00U) Mark Patterns

The mark patterns shown below are used on UPAK products, as the package is small. Note that the product code and mark pattern are different.

The pattern is laser-printed.



Notes: 1. Boxes (1) to (5) in the figures show the position of the letters or numerals, and are not actually marked on the package.
2. (1) and (2) show the product-specific mark pattern. (see table 1)

Table 1

Output Voltage (V)	Type No.	Mark Pattern (2 digit)
–5	HA179L05U	9B
–8	HA179L08U	9E
–12	HA179L12U	9H
–15	HA179L15U	9J

3. (3) shows the production year code (the last digit of the year).
4. (4) shows the production month code (see table 2).

Table 2

Production Month	1	2	3	4	5	6	7	8	9	10	11	12
Marked Code	A	B	C	D	E	F	G	H	J	K	L	M

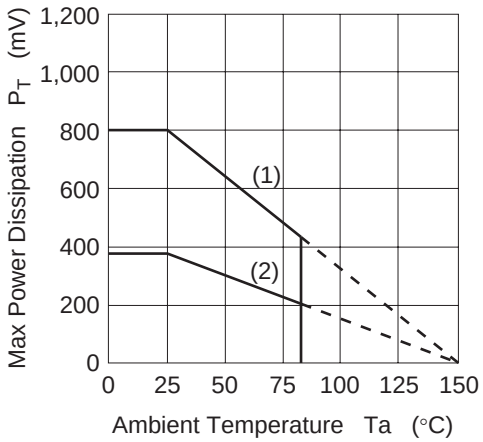
5. (5) shows the production week code.

Absolute Maximum Ratings

(Ta = 25°C)

Item	Symbol	Rating		Unit
		HA179L00P, HA179L00 Series	HA179L00U Series	
Input voltage	V_{IN}	–35	–35	V
Max power dissipation	P_T *1	800	800 *2	mW
Operating ambient temperature	Topr	–40 to +85	–40 to +85	°C
Storage temperature	Tstg	–55 to +150	–55 to +150	°C

Notes: 1. Ta ≤ 25°C, If Ta > 25°C, derate by 6.4 mW/°C
2. 15 mm × 25 mm × 0.7 mm glass epoxy board, Ta ≤ 25°C



(1) HA179L00P, HA179L00
HA179L00U
15 mm × 25 mm × 0.7 mm Alumina Ceramic Board
(2) HA179L00U at non-mounted

Electrical Characteristics

HA179L05P, HA179L05, HA179L05U

(V_{IN} = –10 V, I_{OUT} = 40 mA, 0°C ≤ Tj ≤ 125°C, C_{IN} = 0.33 µF, C_L = 0.1 µF)

Item	Symbol	Min	Typ	Max	Unit	Test Condition	
Output voltage	V_{OUT}	–4.8	–5.0	–5.2	V	Tj = 25°C	
		–4.75	—	–5.25		V_{IN} = –10 V, 1.0 mA ≤ I_{OUT} ≤ 70 mA	
Line regulation	ΔV_{OLINE}	—	55	150	mV	Tj = 25°C	–20 V ≤ V_{IN} ≤ –7 V
		—	45	100			–20 V ≤ V_{IN} ≤ –8 V
Load regulation	ΔV_{OLOAD}	—	16	—	mV	Tj = 25°C	1.0 mA ≤ I_{OUT} ≤ 150 mA
		—	11	60			1.0 mA ≤ I_{OUT} ≤ 100 mA
		—	5.0	30			1.0 mA ≤ I_{OUT} ≤ 40 mA
Quiescent current	I_Q	—	2.0	4.0	mA	Tj = 25°C	
Quiescent current change	ΔI_Q	—	—	1.5	mA	Tj = 25°C	–20 V ≤ V_{IN} ≤ –8.0 V
		—	—	1.0			1.0 mA ≤ I_{OUT} ≤ 40 mA
Voltage drop	V_{DROP}	—	1.3	—	V	Tj = 25°C	
Output short circuit current	I_{OS}	—	300	—	mA	Tj = 25°C	

HA179L08P, HA179L08, HA179L08U

(V_{IN} = –14 V, I_{OUT} = 40 mA, 0°C ≤ Tj ≤ 125°C, C_{IN} = 0.33 µF, C_L = 0.1 µF)

Item	Symbol	Min	Typ	Max	Unit	Test Condition	
Output voltage	V_{OUT}	–7.68	–8.0	–8.32	V	Tj = 25°C	
		–7.60	—	–8.40		V_{IN} = –14 V, 1.0 mA ≤ I_{OUT} ≤ 70 mA	
Line regulation	ΔV_{OLINE}	—	65	175	mV	Tj = 25°C	–23 V ≤ V_{IN} ≤ –10.5 V
		—	55	125			–23 V ≤ V_{IN} ≤ –11 V
Load regulation	ΔV_{OLOAD}	—	22	—	mV	Tj = 25°C	1.0 mA ≤ I_{OUT} ≤ 150 mA
		—	15	80			1.0 mA ≤ I_{OUT} ≤ 100 mA
		—	7.0	40			1.0 mA ≤ I_{OUT} ≤ 40 mA
Quiescent current	I_Q	—	2.0	4.0	mA	Tj = 25°C	
Quiescent current change	ΔI_Q	—	—	1.5	mA	Tj = 25°C	–23 V ≤ V_{IN} ≤ –11 V
		—	—	1.0			1.0 mA ≤ I_{OUT} ≤ 40 mA
Voltage drop	V_{DROP}	—	1.3	—	V	Tj = 25°C	
Output short circuit current	I_{OS}	—	270	—	mA	Tj = 25°C	

HA179L12P, HA179L12, HA179L12U

(V_{IN} = –19 V, I_{OUT} = 40 mA, 0°C ≤ Tj ≤ 125°C, C_{IN} = 0.33 µF, C_L = 0.1 µF)

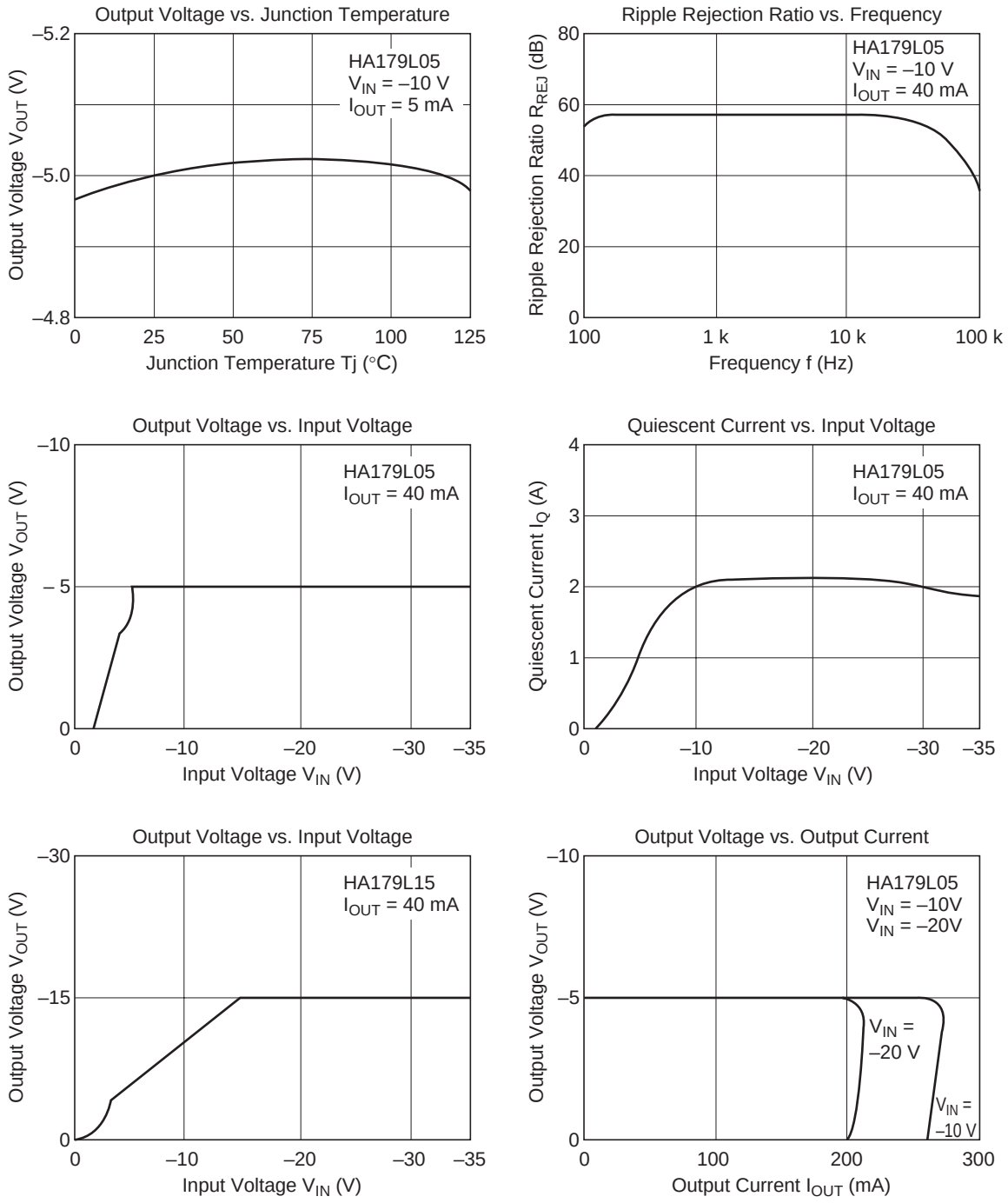
Item	Symbol	Min	Typ	Max	Unit	Test Condition	
Output voltage	V_{OUT}	–11.52	–12	–12.48	V	Tj = 25°C	
		–11.40	—	–12.60		V_{IN} = –19 V, 1.0 mA ≤ I_{OUT} ≤ 70 mA	
Line regulation	ΔV_{OLINE}	—	120	250	mV	Tj = 25°C	–27 V ≤ V_{IN} ≤ –14.5 V
		—	100	200			–27 V ≤ V_{IN} ≤ –16 V
Load regulation	ΔV_{OLOAD}	—	28.5	—	mV	Tj = 25°C	1.0 mA ≤ I_{OUT} ≤ 150 mA
		—	20	100			1.0 mA ≤ I_{OUT} ≤ 100 mA
		—	10	50			1.0 mA ≤ I_{OUT} ≤ 40 mA
Quiescent current	I_Q	—	2.6	4.6	mA	Tj = 25°C	
Quiescent current change	ΔI_Q	—	—	1.5	mA	Tj = 25°C	–27 V ≤ V_{IN} ≤ –16 V
		—	—	1.0			1.0 mA ≤ I_{OUT} ≤ 40 mA
Voltage drop	V_{DROP}	—	1.3	—	V	Tj = 25°C	
Output short circuit current	I_{OS}	—	250	—	mA	Tj = 25°C	

HA179L15P, HA179L15, HA179L15U

(V_{IN} = –23 V, I_{OUT} = 40 mA, 0°C ≤ Tj ≤ 125°C, C_{IN} = 0.33 µF, C_L = 0.1 µF)

Item	Symbol	Min	Typ	Max	Unit	Test Condition	
Output voltage	V_{OUT}	–14.4	–15	–15.6	V	Tj = 25°C	
		–14.25	—	–15.75		V_{IN} = –23 V, 1.0 mA ≤ I_{OUT} ≤ 70 mA	
Line regulation	ΔV_{OLINE}	—	130	300	mV	Tj = 25°C	–30 V ≤ V_{IN} ≤ –17.5 V
		—	110	250			–30 V ≤ V_{IN} ≤ –20 V
Load regulation	ΔV_{OLOAD}	—	36	—	mV	Tj = 25°C	1.0 mA ≤ I_{OUT} ≤ 150 mA
		—	25	150			1.0 mA ≤ I_{OUT} ≤ 100 mA
		—	12	75			1.0 mA ≤ I_{OUT} ≤ 40 mA
Quiescent current	I_Q	—	2.6	4.6	mA	Tj = 25°C	
Quiescent current change	ΔI_Q	—	—	1.5	mA	Tj = 25°C	–30 V ≤ V_{IN} ≤ –20 V
		—	—	1.0			1.0 mA ≤ I_{OUT} ≤ 40 mA
Voltage drop	V_{DROP}	—	1.3	—	V	Tj = 25°C	
Output short circuit current	I_{OS}	—	240	—	mA	Tj = 25°C	

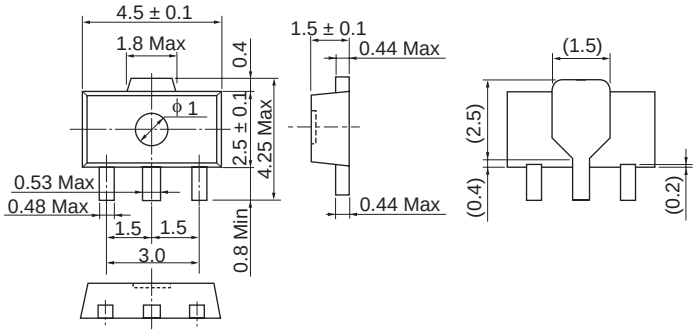
Characteristic Curves



Package Dimensions

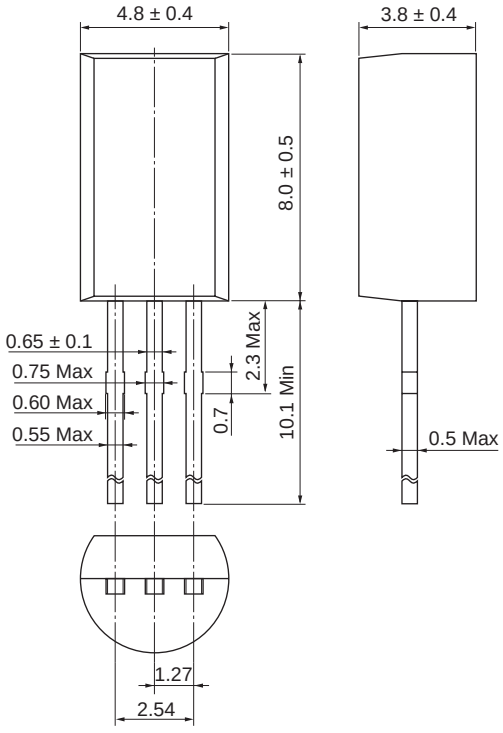
Package Name	JEITA Package Code	RENESAS Code	Previous Code	MASS[Typ.]
UPAK	SC-62	PLZZ0004CA-A	UPAK / UPAKV	0.050g

Unit: mm



Package Name	JEITA Package Code	RENESAS Code	Previous Code	MASS[Typ.]
TO-92 Mod	SC-51	PRSS0003DC-A	TO-92 Mod / TO-92 ModV	0.35g

Unit: mm



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