

HA179L00 Series

R03DS0070EJ0400

Rev.4.00

3-terminal Negative Fixed Voltage Regulators

Apr 12, 2013

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

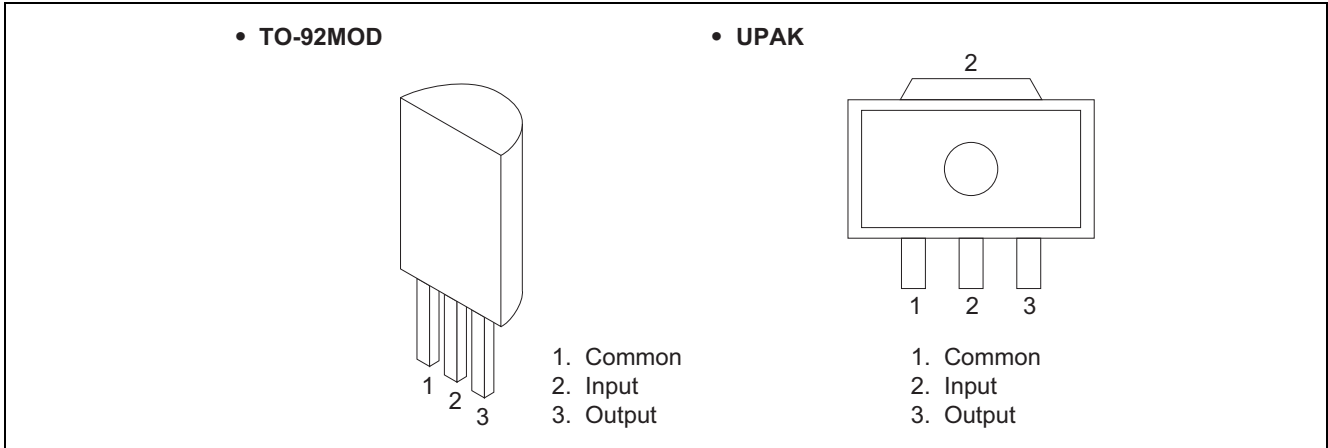
Part No.	Output Voltage (V)	Output Voltage Tolerance (%)	Package Name	Package Code	Taping Abbreviation (Quantity)	Application
HA179L05-TZ	-5	±4	TO-92MOD	PRSS0003DC-A	TZ (2,500pcs/box)	Commercial use
HA179L05P-TZ			Industrial use			
HA179L05U-TL			UPAK			PLZZ0004CA-A

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

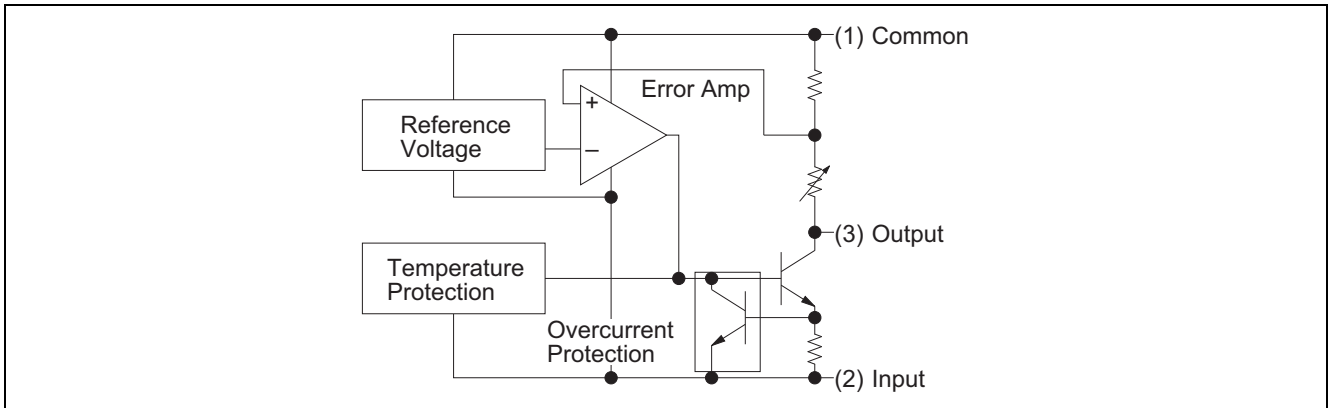
Part No.	Output Voltage (V)	Output Voltage Tolerance (%)	Package Name	Package Code	Taping Abbreviation (Quantity)	Application
HA179L12-TZ	-12	±4	TO-92MOD	PRSS0003DC-A	TZ (2,500pcs/box)	Commercial use
HA179L12P-TZ			Industrial use			
HA179L12U-TL			UPAK			PLZZ0004CA-A

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

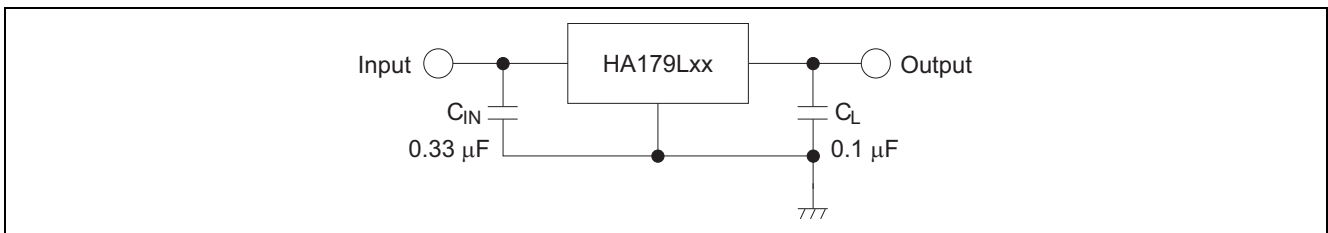
Pin Arrangement



Block Diagram



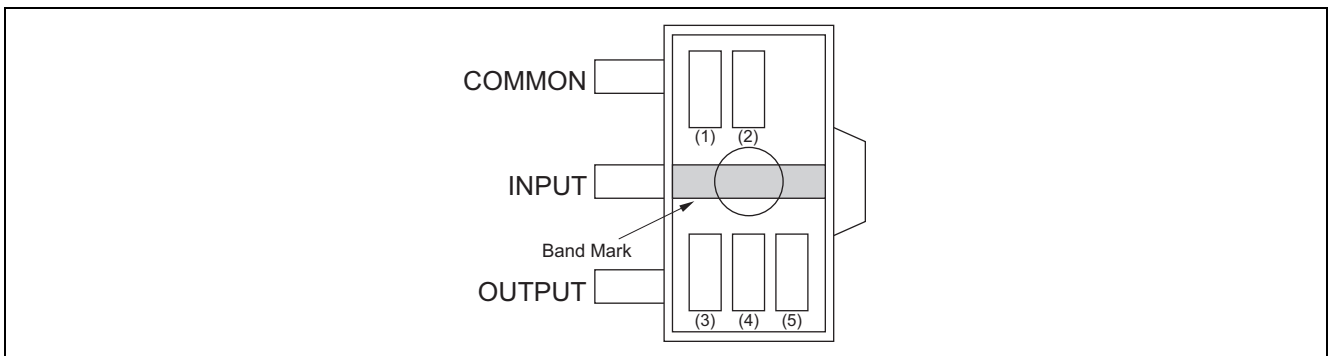
Standard Circuit



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

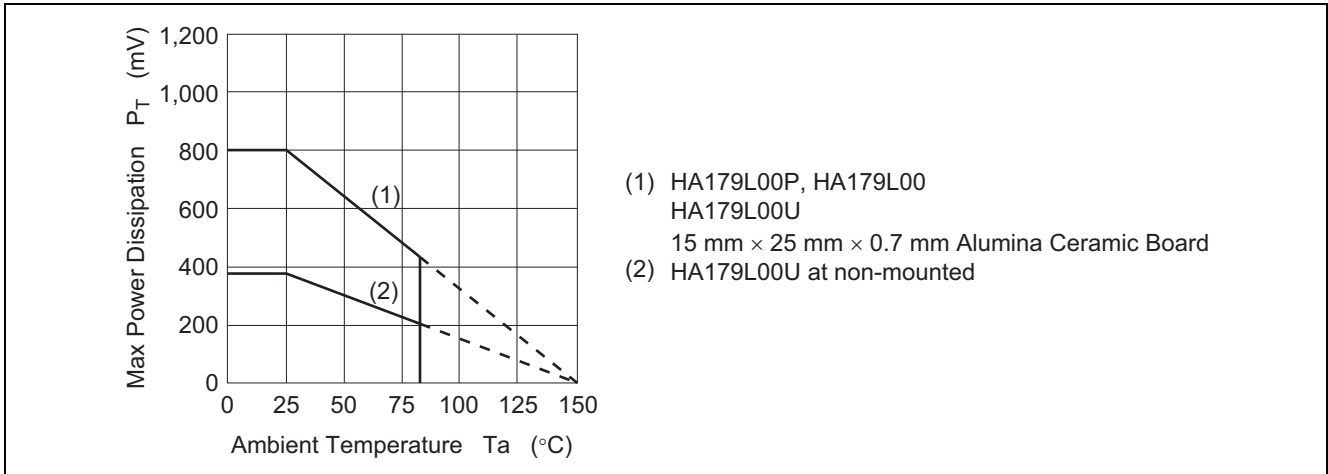
5. (5) shows the production week code.

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	T _{opr}	-40 to +85	-40 to +85	°C
Storage temperature	T _{stg}	-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 alumina ceramic board, Ta ≤ 25°C



Electrical Characteristics

HA179L05P, HA179L05, HA179L05U

($V_{IN} = -10\text{ V}$, $I_{OUT} = 40\text{ mA}$, $0^\circ\text{C} \leq T_j \leq 125^\circ\text{C}$, $C_{IN} = 0.33\ \mu\text{F}$, $C_L = 0.1\ \mu\text{F}$)

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

HA179L08P, HA179L08, HA179L08U

($V_{IN} = -14\text{ V}$, $I_{OUT} = 40\text{ mA}$, $0^\circ\text{C} \leq T_j \leq 125^\circ\text{C}$, $C_{IN} = 0.33\ \mu\text{F}$, $C_L = 0.1\ \mu\text{F}$)

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

HA179L12P, HA179L12, HA179L12U

 $(V_{IN} = -19\text{ V}, I_{OUT} = 40\text{ mA}, 0^{\circ}\text{C} \leq T_j \leq 125^{\circ}\text{C}, C_{IN} = 0.33\text{ }\mu\text{F}, C_L = 0.1\text{ }\mu\text{F})$

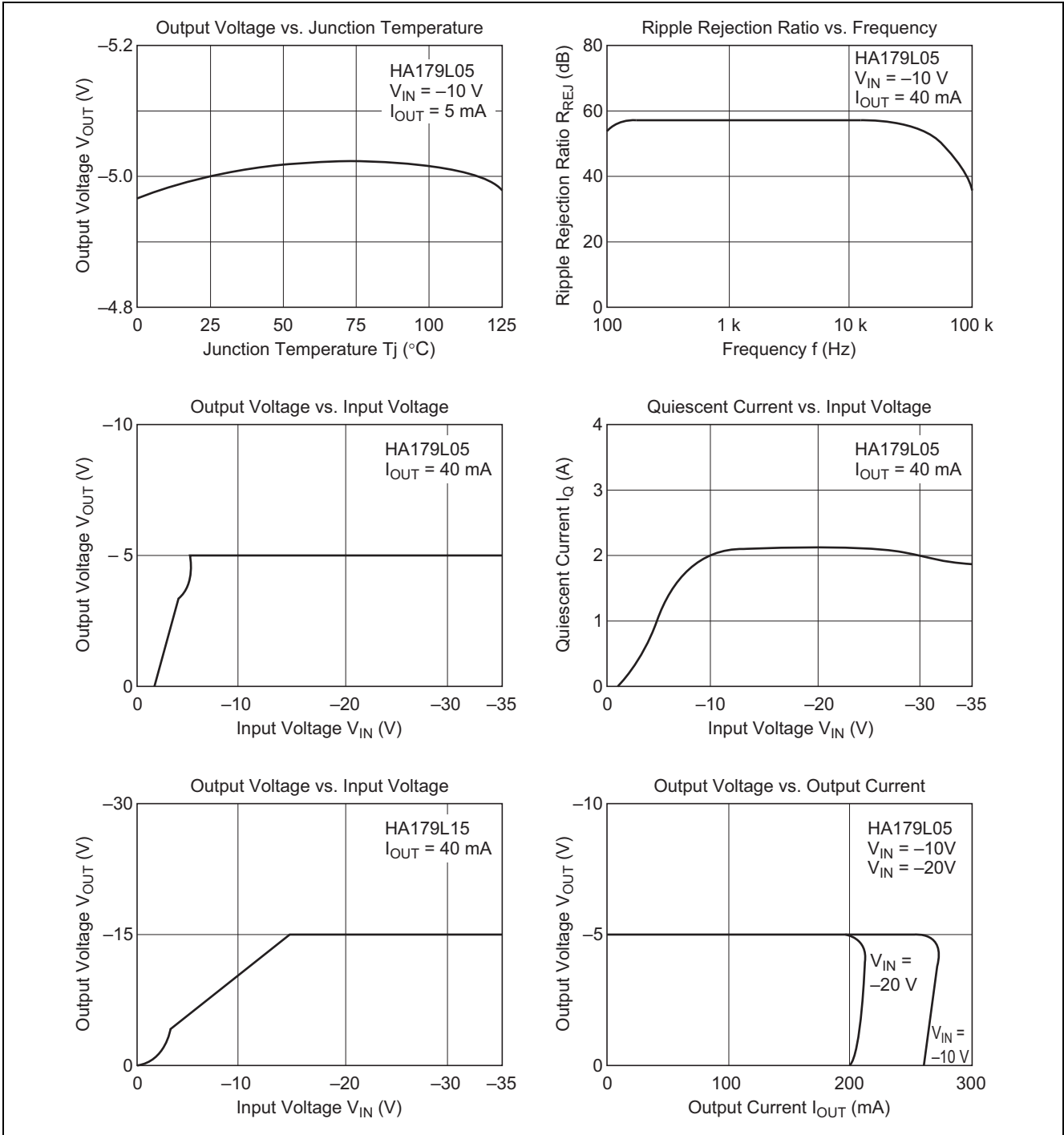
Item	Symbol	Min	Typ	Max	Unit	Test Condition
Output voltage	V_{OUT}	-11.52	-12	-12.48	V	$T_j = 25^{\circ}\text{C}$
		-11.40	—	-12.60		$V_{IN} = -19\text{ V}, 1.0\text{ mA} \leq I_{OUT} \leq 70\text{ mA}$
Line regulation	ΔV_{OLINE}	—	120	250	mV	$T_j = 25^{\circ}\text{C}$
		—	100	200		$-27\text{ V} \leq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

HA179L15P, HA179L15, HA179L15U

 $(V_{IN} = -23\text{ V}, I_{OUT} = 40\text{ mA}, 0^{\circ}\text{C} \leq T_j \leq 125^{\circ}\text{C}, C_{IN} = 0.33\text{ }\mu\text{F}, C_L = 0.1\text{ }\mu\text{F})$

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

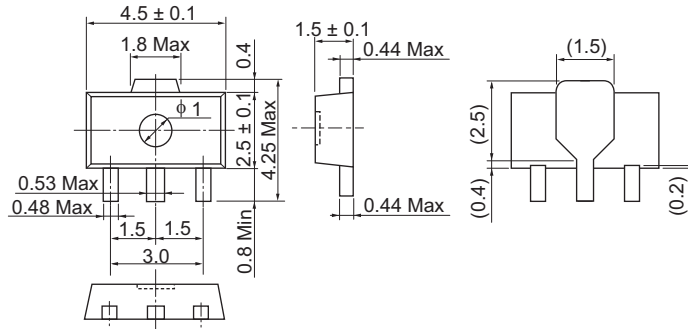
Characteristic Curves



Package Dimensions

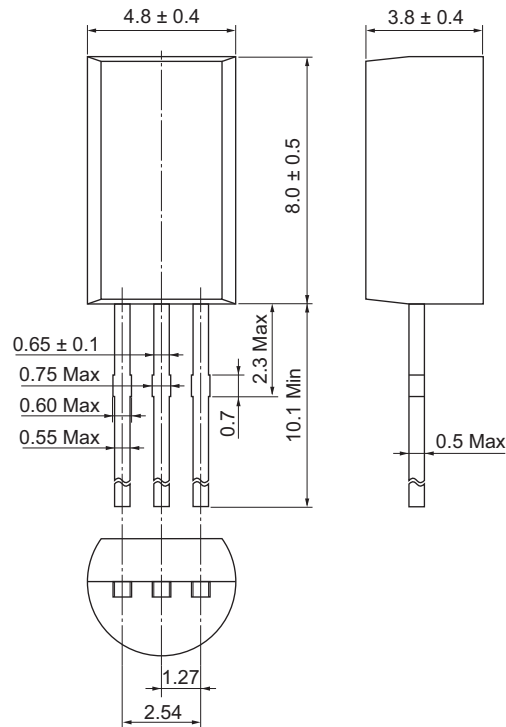
Package Name	JEITA Package Code	RENESAS Code	Previous Code	MASS[Typ.]
UPAK	SC-62	PLZZ0004CA-A	UPAK / UPAKV	0.050g

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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Renesas Electronics America Inc.
2880 Scott Boulevard Santa Clara, CA 95050-2554, U.S.A.
Tel: +1-408-588-6000, Fax: +1-408-588-6130

Renesas Electronics Canada Limited
1101 Nicholson Road, Newmarket, Ontario L3Y 9C3, Canada
Tel: +1-905-898-5441, Fax: +1-905-898-3220

Renesas Electronics Europe Limited
Dukes Meadow, Millboard Road, Bourne End, Buckinghamshire, SL8 5FH, U.K
Tel: +44-1628-651-700, Fax: +44-1628-651-804

Renesas Electronics Europe GmbH
Arcadiastrasse 10, 40472 Düsseldorf, Germany
Tel: +49-211-65030, Fax: +49-211-6503-1327

Renesas Electronics (China) Co., Ltd.
7th Floor, Quantum Plaza, No.27 ZhiChunLu Haidian District, Beijing 100083, P.R.China
Tel: +86-10-8235-1155, Fax: +86-10-8235-7679

Renesas Electronics (Shanghai) Co., Ltd.
Unit 204, 205, AZIA Center, No.1233 Lujiazui Ring Rd., Pudong District, Shanghai 200120, China
Tel: +86-21-5877-1818, Fax: +86-21-6887-7858 / -7898

Renesas Electronics Hong Kong Limited
Unit 1601-1613, 16/F., Tower 2, Grand Century Place, 193 Prince Edward Road West, Mongkok, Kowloon, Hong Kong
Tel: +852-2886-9318, Fax: +852 2886-9022/9044

Renesas Electronics Taiwan Co., Ltd.
13F, No. 363, Fu Shing North Road, Taipei, Taiwan
Tel: +886-2-8175-9600, Fax: +886 2-8175-9670

Renesas Electronics Singapore Pte. Ltd.
80 Bendemeer Road, Unit #06-02 Hyflux Innovation Centre Singapore 339949
Tel: +65-6213-0200, Fax: +65-6213-0300

Renesas Electronics Malaysia Sdn.Bhd.
Unit 906, Block B, Menara Amcorp, Amcorp Trade Centre, No. 18, Jln Persiaran Barat, 46050 Petaling Jaya, Selangor Darul Ehsan, Malaysia
Tel: +60-3-7955-9390, Fax: +60-3-7955-9510

Renesas Electronics Korea Co., Ltd.
11F., Samik Lavied' or Bldg., 720-2 Yeoksam-Dong, Kangnam-Ku, Seoul 135-080, Korea
Tel: +82-2-558-3737, Fax: +82-2-558-5141