

SANKEN LINEAR REGULATOR HYBRID IC

Type : STR-D3000

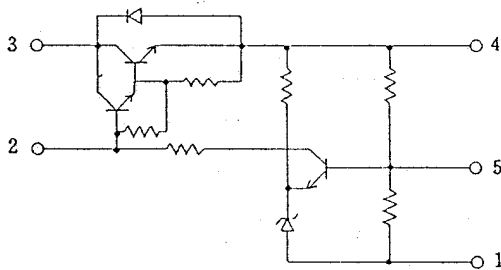
1. Scope:

The present specifications shall only apply to Sanken Linear Regulator Hybrid IC, STR-D3000.

2. General:

- 2.1 Category: Hybrid IC
- 2.2 Construction: Hybrid IC based on the Silicon 3-layer Planar Transistor. Drive Circuit and Reference Voltage Circuit are built in.
- 2.3 Application: For off-line TV power supply.
- 2.4 Output voltage is fixed.
- 2.5 Full mode (isolated) package.

3. Equivalent Circuit



- 1. Common (-)
- 2. Base
- 3. Input
- 4. Output
- 5. Blank (Output Cont : STR-D3010 only)

4. Appearance and Outline Drawings:

- 4.1 Appearance  
The body shall be clean and shall not bear any stain, rust or flaw.
- 4.2 Outline Drawings  
Refer to Page 7.

5. Marking

The type number and lot number shall be legitimately be marked by laser printing. Refer to Page 7.

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6. Ratings

6.1 Maximum Rating ( $T_a=25^\circ\text{C}$ )

Description	Symbol	Rating	Unit	Conditions
Peak Input Voltage	$V_{IN}$	200	V	
Output Current	$I_o$	1.0	A	
Power Dissipation	$P_D$	20	W	
Operating Temperature	$T_{OP}$	-20~+125	$^\circ\text{C}$	※1
Storage Temperature	$T_{STG}$	-30~+125	$^\circ\text{C}$	
Junction Temperature of the Power Transistor	$T_j$	150	$^\circ\text{C}$	

※1: Recommended Temperature  $T_{OP}(T_c)=100^\circ\text{C}$  ( $T_c$  denotes the temperature of inner frame)

6.2 Electrical Characteristics ( $T_a = 25^\circ\text{C}$ )

Description		Symbol	Rating	Unit	Condition
Set Output Voltage	Measured Circuit#1		Refer to P.3	V	※2
	Measured Circuit#2				
Output Voltage Variation 1 (vs. Input Voltage) Measured Circuit #1			Refer to P.3	V	
Output Voltage Variation 2 (vs. Input Voltage) Measured Circuit #1			Refer to P.3	V	
Temperature Coefficient of Output Voltage			Refer to P.3		
Saturation Voltage between Input and Output		$V_{CE(SAT)}$	1.5 MAX.	V	$I_C = 1A, I_B = 10mA$
DC Current Gain		$h_{FE}$	1500~6500		$I_C = 1A, V_{CE} = 4V$
Cut-off Current between Input and Output		$I_{CEO}$	100 MAX.	$\mu\text{A}$	$V_{CE} = 200V$
Thermal Resistance of Power Transistor		$\theta_{J-C}$	1.8	$^\circ\text{C/W}$	Between Junction and the internal of frame
Emitter-Base Current		$I_{EB(S/B)}$	300 MAX.	mA	$t = 65 \text{ ms}$

※2: The set output voltage denotes the voltage appears after power is turned on and paused for 5 seconds. When there is any question on the output voltage, it can be determined by the measured circuit #2.

Date: Oct. 1, 1990

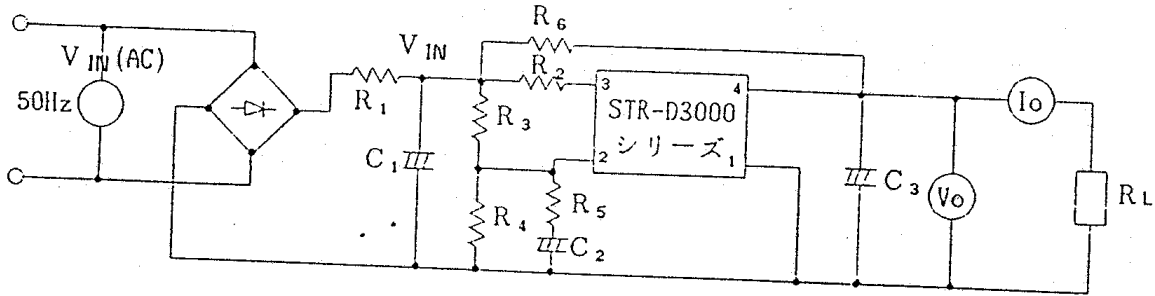
Specification No.: SSE-16436E

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### 7. Electrical Characteristic

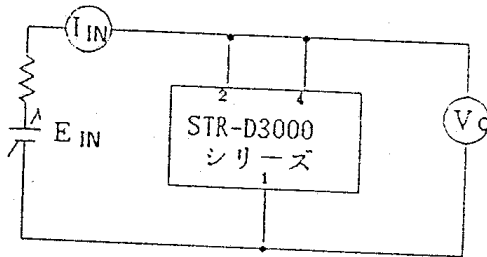
Description	Part Number	STR-D3010	STR-D3012	STR-D3013	STR-D3015	STR-D3020	STR-D3023	STR-D3025	STR-D3030	STR-D3034	STR-D3035
Ratings	Set Output Voltage	110±0.8V	112±0.8V	113±0.8V	115±0.8V	120±0.8V	123±0.8V	125±0.8V	130±0.8V	134±0.8V	135±0.8V
	Output Voltage vs. Input Voltage	I <sub>IN</sub> = 5.9 mA		I <sub>IN</sub> = 5.9 mA		I <sub>IN</sub> = 7.2 mA		I <sub>IN</sub> = 6.9 mA			
Measured Circuit #1	Output Voltage vs. Input Voltage	V <sub>IN</sub> = 134 V(DC), I <sub>o</sub> = 0.5 A									
	Output Voltage vs. Input Voltage	V <sub>IN</sub> = 161 V(DC), I <sub>o</sub> = 0.5 A									
Ratings		Δ 2.4 V									
Measured Circuit #1	Output Voltage vs. Input Voltage	V <sub>IN</sub> = 125 ~ 150 V(DC)									
	Output Current	I <sub>o</sub> = 0.5 A									
Ratings		Δ 0.5 V									
Measured Circuit #1	Output Voltage	V <sub>IN</sub> = 134 V(DC)									
	Output Current	I <sub>o</sub> = 0.25 ~ 0.5 A									
Ratings		± 0 mV/°C typ									
Measured Circuit #1	Temperature Coefficient	V <sub>IN</sub> = 161 V(DC), I <sub>o</sub> = 0.5 A									
	Output Voltage	I <sub>o</sub> = -20 ~ 100 °C									
Circuit Constant of measured circuit #1	Output Voltage	R <sub>3</sub> = 10 KΩ		R <sub>3</sub> = 10 KΩ		R <sub>3</sub> = 12 KΩ		R <sub>3</sub> = 12 KΩ		R <sub>3</sub> = 12 KΩ	
	Output Voltage	R <sub>4</sub> = 220 KΩ		R <sub>4</sub> = 330 KΩ		R <sub>4</sub> = 220 KΩ		R <sub>4</sub> = 220 KΩ		R <sub>4</sub> = 330 KΩ	

Measured Circuit #1



$R_1: 1.0 \Omega$ ,  $R_2: 2.2 \Omega$ ,  $R_3: K\Omega$ ,  $R_4: K\Omega$ ,  $R_5: 47 \Omega$ ,  $R_6: 220 \Omega$   
 $C_1: 470 \mu F$ ,  $C_2: 33 \mu F$ ,  $C_3: 33 \mu F$

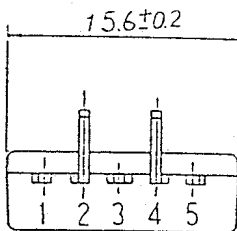
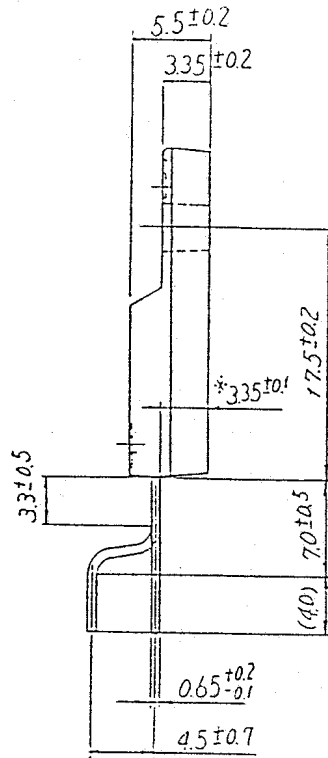
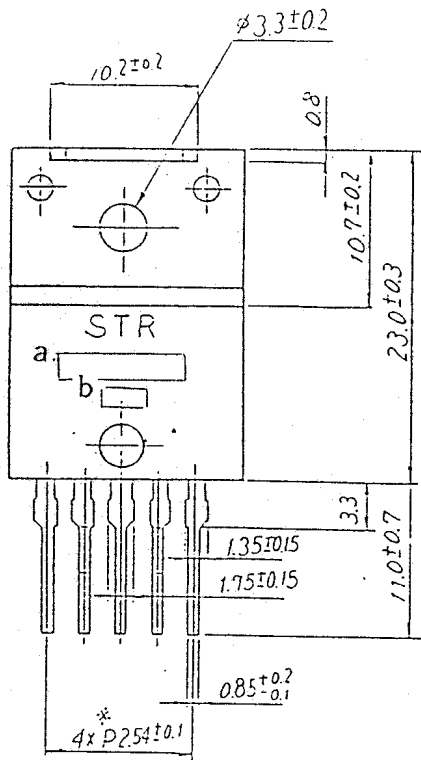
Measured Circuit #2



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1. Common (-)
2. Base
3. Input
4. Output
5. Blank (Output Cont...STR-D3010 only)

a. Part Number : D3000 series

b. Lot display :

1st. digit : Last number of ~~the~~ year

2nd. digit : Month

1~9 : Jan.~Sept.

0 : October

N : November

D : December

3rd. and

4th digits : Date 01~31 in a month

Unit : mm