

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

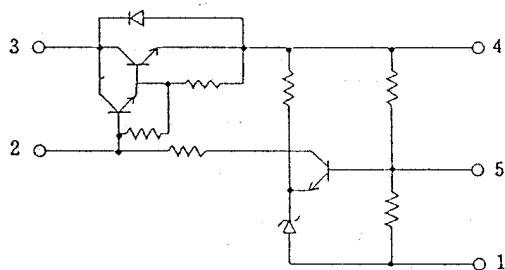
2.2 Construction: Hybrid IC based on the Silicon 3-layer Planar Transistor. Drive Circuit and Reference Voltage Circuit are built in.

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}	$-20\sim+125$	$^\circ\text{C}$	※1
Storage Temperature	T_{STG}	$-30\sim+125$	$^\circ\text{C}$	
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 Measured Circuit#2	Refer to P.3	V	※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.	μA	$V_{CE}=200V$
Thermal Resistance of Power Transistor	θ_{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

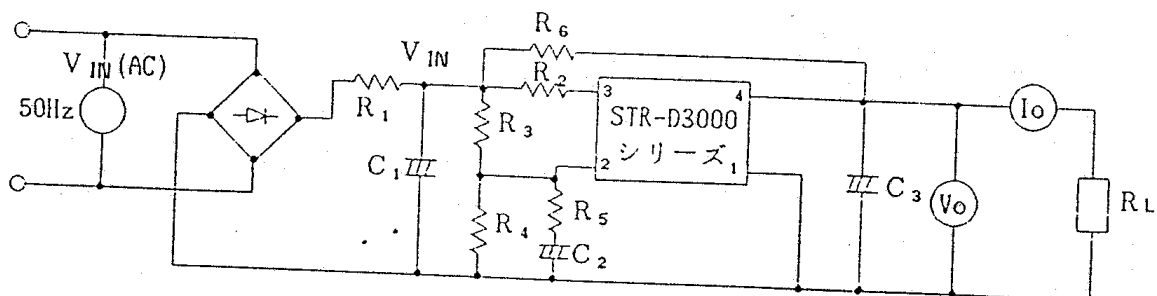
Specification No.: SSE-16436E

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7. Electrical Characteristic

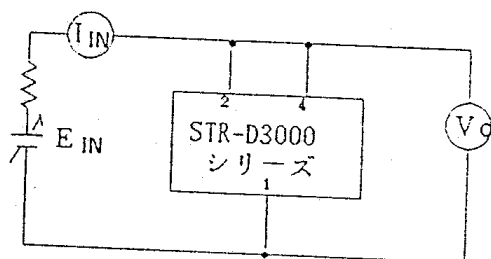
Description		Part Number									
		STR-D3010	STR-D3012	STR-D3013	STR-D3015	STR-D3020	STR-D3023	STR-D3025	STR-D3030	STR-D3034	STR-D3035
Set Output Voltage	Ratings	110±0.8V	112±0.8V	113±0.8V	115±0.8V	120±0.8V	123±0.8V	125±0.8V	130±0.8V	134±0.8V	135±0.8V
	Measured Circuit #2	I _{IN} = 5.9 mA				I _{IN} = 7.2 mA			I _{IN} = 6.9 mA		
Output Voltage vs. Variation	Measured Circuit #1	V _{IN} = 134 V(DC), I _O = 0.5 A				V _{IN} = 161 V(DC), I _O = 0.5 A					
	Ratings	Δ 2.4 V									
Output Voltage	Measured Circuit #1	V _{IN} = 125 ~ 150 V(DC) I _O = 0.5 A			V _{IN} = 145 ~ 170 V(DC) I _O = 0.5 A			V _{IN} = 150 ~ 175 V(DC) I _O = 0.5 A			
	Ratings	Δ 0.5 V									
Output Current	Measured Circuit #1	V _{IN} = 134 V(DC) I _O = 0.25 ~ 0.5 A			V _{IN} = 161 V(DC) I _O = 0.25 ~ 0.5 A						
	Ratings	± 0 mV/°C typ									
Coefficient of Output Voltage	Measured Circuit #1	V _{IN} = 134 V(DC), I _O = 0.5 A I _O = -20 ~ 100 °C				V _{IN} = 161 V(DC), I _O = 0.5 A T _C = -20 ~ 100 °C					
	Circuit Constant of measured circuit #1	R ₃ = 10 KΩ R ₄ = 220 KΩ			R ₃ = 10 KΩ R ₄ = 330 KΩ		R ₃ = 12 KΩ R ₄ = 330 KΩ				

Measured Circuit #1



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

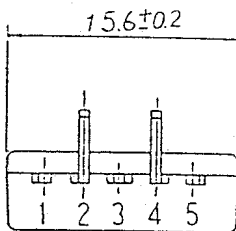
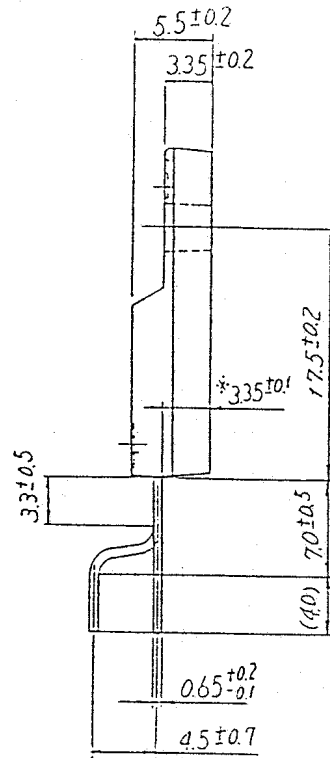
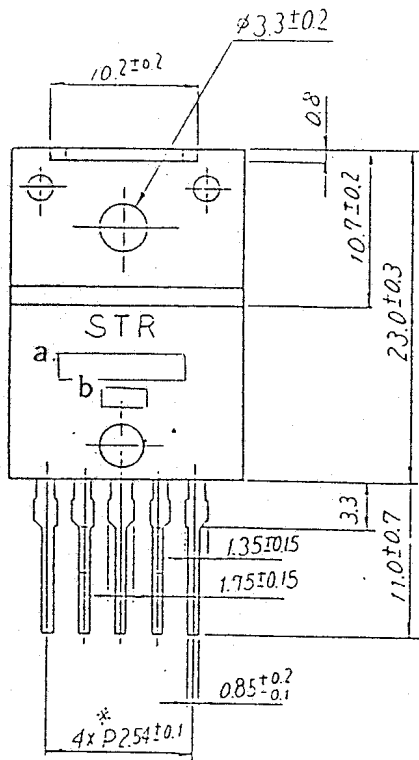
Measured Circuit #2



SSE-16436

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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 ~~45~~ 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