

# SANKEN ELECTRIC COMPANY, LTD.

## SANKEN SWITCHING REGULATOR HYBRID IC

Type : STR-S5141G

### 1. Scope:

The present specifications shall only apply to Sanken Switching Regulator Hybrid IC, type STR-S5141G.

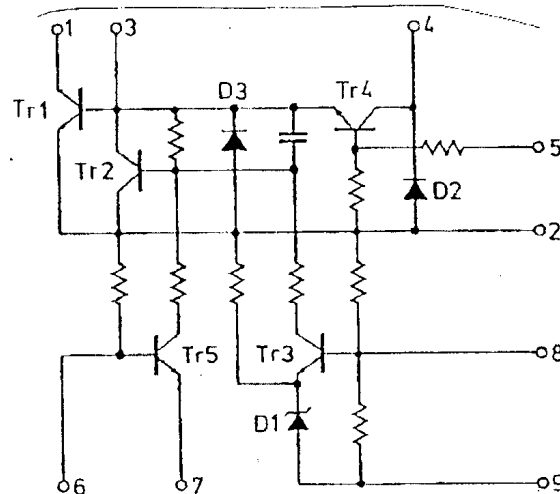
### 2. General:

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: Switching Regulator for R.C.C. type TV.

2.4 Equivalent Circuit:



- |                               |            |
|-------------------------------|------------|
| 1. Collector                  | Power      |
| 2. Emitter/Common             | Transistor |
| 3. Base                       |            |
| 4. Drive                      |            |
| 5. Control                    |            |
| 6. Current Detector (B)       |            |
| 7. Earth/Current Detector (E) |            |
| 8. $V_{ref}$ Control          |            |
| 9. $V_{ref}$ (-)              |            |

### 3. Appearance and Outline Drawings:

#### 3.1 Appearance

The body shall be clean and shall not bear any stain, rust or flaw.

#### 3.2 Outline Drawings

Refer to Page 3.

### 4. Marking

The type number and lot number shall be legitimately be marked by laser printing. Refer to Page 3.

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**5. Absolute Maximum Ratings (Ta=25°C)**

Description	Symbol	Rating	Unit	Conditions
T <sub>r1</sub> Collector-Emitter Voltage	V <sub>CEX</sub>	500	V	※1
Applied Voltage of pin #2-#4	V <sub>2-4</sub>	12	V	
Applied Voltage of pin #2-#5	V <sub>2-5</sub>	12	V	
Applied Voltage of pin #7-#6	V <sub>7-6</sub>	5	V	
T <sub>r1</sub> Collector Current	I <sub>c</sub> (T <sub>r1</sub> )	10	A	Pulse 20 ※2
T <sub>r4</sub> Collector Current	I <sub>c</sub> (T <sub>r4</sub> )	500	mA	
D <sub>2</sub> Forward Current	I <sub>IN</sub> (D <sub>2</sub> )	500	mA	
Maximum Power Dissipation	P <sub>D</sub>	3.2	W	Without Heatsink
		2.7		T <sub>GI</sub> =100°C
T <sub>r1</sub> Junction Temperature	T <sub>J</sub>	+150	°C	
Operating Frame Temperature	T <sub>GI2</sub>	-20~+125	°C	※4
Storage Temperature	T <sub>STG</sub>	-30~+125	°C	
Maximum Output Current	I <sub>O</sub>	1.7	A	V <sub>O</sub> = 115V ※5

※1 : Reference value V<sub>CEO</sub> = 400V Min.

※2 : Pulse condition is similar to what the bias ASO curve regulates.

※3 : T<sub>GI</sub>: The temperature of resin which is below the Power Transistor.

※4 : T<sub>GI2</sub>: Denotes the temperature of internal frame. Recommended T<sub>GI2</sub>=100°C Max.

※5 : Please refer to the Application Circuit of P.4

**6. Electrical Characteristic (Ta=25°C) ★:Characteristic of T<sub>1</sub>**

Description	Symbol	Rating	Unit	Condition
Reference Voltage	V <sub>REF</sub>	41.8±0.3	V	I <sub>IN</sub> =7mA, Circuit #1
Temperature Coefficient of Reference Voltage		±2 Typ.	mV/°C	T <sub>c</sub> =-20~+100°C I <sub>IN</sub> =7mA, Circuit #1
Collector Saturation Voltage★	V <sub>CE</sub> (SAT)	0.5 Max.	V	I <sub>c</sub> =6A, I <sub>B</sub> =1.2A
Collector Cut-off Voltage ★	I <sub>CEX</sub>	1 Max.	mA	V <sub>CE</sub> =500V, V <sub>BE</sub> =-1.5V
Base-Emitter Saturation Voltage ★	V <sub>BE</sub> (SAT)	1.5 Max.	V	I <sub>c</sub> =6A, I <sub>B</sub> =1.2A
DC Current Gain ★	h <sub>FE</sub>	15~40		V <sub>CE</sub> =4V, I <sub>c</sub> =1A
Thermal Resistance ★	θ <sub>J-GE</sub>	0.7	°C/W	Between Junction and Internal Frame
Switching Time ★	t <sub>s</sub>	10 Max.	μs	Circuit #2
	t <sub>r</sub>	0.6 Max.	μs	Circuit #2

Date: July 25, 1990

Specification No.:

SSE-17167E

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