

T-52-13-25

T-58-11-13

## ■ Hybrid Voltage Regulators (Linear Type)

| Type No. | Maximum Ratings (Ta=25°C) |                         |                       |                               |                          | Electrical Characteristics (Ta=25°C) |                         |                                |                   |                   |                     | Fig. No. | Remarks |        |      |    |    |  |
|----------|---------------------------|-------------------------|-----------------------|-------------------------------|--------------------------|--------------------------------------|-------------------------|--------------------------------|-------------------|-------------------|---------------------|----------|---------|--------|------|----|----|--|
|          | V <sub>IN</sub><br>(V)    | I <sub>out</sub><br>(A) | P <sub>c</sub><br>(W) | T <sub>op</sub><br>(°C)       | T <sub>stg</sub><br>(°C) | V <sub>out</sub><br>(V)              | V <sub>DIF</sub><br>(V) | ΔV <sub>o</sub> /ΔT<br>(mV/°C) | Line Reg.<br>(mV) | Load Reg.<br>(mV) | Ripple Rej.<br>(dB) |          |         |        |      |    |    |  |
| STR90050 | 25                        | 2                       | 50                    | -20~+100<br>(T <sub>c</sub> ) | -30~+125                 | 5±0.1                                | 1.0                     | ±0.5                           | 10                | 40                | 54                  | 5        |         |        |      |    |    |  |
| 90090    |                           |                         |                       |                               |                          | 9±0.1                                |                         | ±1.0                           | 15                | 60                |                     |          |         |        |      |    |    |  |
| 90120    |                           |                         |                       |                               |                          | 30                                   |                         |                                |                   |                   |                     |          |         | 12±0.2 | ±1.5 | 20 | 80 |  |
| 90150    | 15±0.2                    |                         |                       |                               |                          |                                      |                         |                                |                   |                   |                     |          |         |        |      |    |    |  |

| Type No. | Maximum Ratings (Ta=25°C) |          |        |               |           | Electrical Characteristics (Ta=25°C) |          |                |                |                |                  | Fig. No. | Remarks |
|----------|---------------------------|----------|--------|---------------|-----------|--------------------------------------|----------|----------------|----------------|----------------|------------------|----------|---------|
|          | VIN (V)                   | Iout (A) | Pd (W) | Top (°C)      | Tstg (°C) | Vout (V)                             | VoDf (V) | ΔVo/ΔT (mV/°C) | Line Reg. (mV) | Load Reg. (mV) | Ripple Rej. (dB) |          |         |
| SI-3052V | 15                        | 2.0      | 50     | -20~+100 (Tc) | -30~+125  | 5±0.1                                | 1.0      | ±0.5           | 10             | 40             | 54               | 6        |         |
| -3122V   | 25                        |          |        |               |           | 12±0.2                               |          | ±1.5           | 20             | 80             |                  |          |         |
| -3152V   |                           |          |        |               |           | 15±0.2                               |          |                |                |                |                  |          |         |
| STR9005  | 15                        | 4.0      | 75     | -20~+100 (Tc) | -30~+125  | 5±0.1                                | 1.0      | ±0.5           | 10             | 40             | 54               | 1        |         |
| 9012     | 25                        |          |        |               |           | 12±0.2                               |          | ±1.5           | 30             | 80             |                  |          |         |
| 9015     |                           |          |        |               |           | 15±0.2                               |          |                | 50             | 100            |                  |          |         |
| SI-3052P | 30                        | 2.0      | 50     | -20~+80       | -30~+125  | 5±0.1                                | 3.0      | ±0.5           | 2              | 40             | 60               | 6        |         |
| -3122P   | 35                        |          |        |               |           | 12±0.2                               |          | ±1.5           | 10             | 80             |                  |          |         |
| -3152P   | 40                        |          |        |               |           | 15±0.2                               |          |                |                |                |                  |          |         |
| -3242P   |                           |          |        |               |           | 24±0.2                               |          | ±2.5           | 25             | 120            |                  |          |         |

## ■ Hybrid Voltage Regulators (Chopper Type)

| Type No. | Maximum Ratings (T <sub>a</sub> =25°C) |                      |                    |          |           | Electrical Characteristics (T <sub>a</sub> =25°C) |                     |                |                |                |                  | Fig. No. | Remarks |
|----------|----------------------------------------|----------------------|--------------------|----------|-----------|---------------------------------------------------|---------------------|----------------|----------------|----------------|------------------|----------|---------|
|          | V <sub>IN</sub> (V)                    | I <sub>out</sub> (A) | P <sub>d</sub> (W) | Top (°C) | Tstg (°C) | V <sub>out</sub> (V)                              | V <sub>IN</sub> (V) | ΔVo/ΔT (mV/°C) | Line Reg. (mV) | Load Reg. (mV) | Ripple Rej. (dB) |          |         |
| STR2005  | 45                                     | 2.0                  | 75                 | -20~+100 | -20~-+125 | 5.1±0.1                                           | 11~40               | —              | 50             | 100            | 45               | 1        |         |
| 2012     |                                        |                      |                    |          |           | 12±0.2                                            | 18~45               |                |                |                |                  |          |         |
| 2013     |                                        |                      |                    |          |           | 13±0.2                                            | 19~45               |                |                |                |                  |          |         |
| 2015     |                                        |                      |                    |          |           | 15±0.2                                            | 21~45               |                |                |                |                  |          |         |
| 2024     | 50                                     |                      |                    |          |           | 24±0.3                                            | 30~50               |                | 80             |                |                  |          |         |

## ■ Hybrid Stepping Motor Drivers

| Type No. | Maximum Ratings (T <sub>A</sub> =25°C) |                       |                        |             |              | Electrical Characteristics (T <sub>A</sub> =25°C) |                     |                       |                                                  |                         | Fig. No. | Remarks        |
|----------|----------------------------------------|-----------------------|------------------------|-------------|--------------|---------------------------------------------------|---------------------|-----------------------|--------------------------------------------------|-------------------------|----------|----------------|
|          | Vcc (V)<br>(surge)                     | I <sub>L</sub><br>(A) | T <sub>J</sub><br>(°C) | Top<br>(°C) | Tstg<br>(°C) | Vcc(V)                                            |                     |                       | I <sub>o</sub><br>(A)                            | I <sub>in</sub><br>(mA) |          |                |
|          |                                        |                       |                        |             |              | min                                               | typ                 | max                   |                                                  |                         |          |                |
| SI-7200E | 70                                     | 1.2                   | 125                    | -20~+80     | -30~+100     | 20                                                | 30                  | 50                    | 1.0                                              | 1.6                     | 7        | Bipolar drive  |
| SI-7230E |                                        | 3.0                   |                        |             |              |                                                   |                     |                       | 2.5                                              |                         |          |                |
| SI-7115B | 40                                     | 1.7                   | 125                    | -20~+80     | -30~+100     | 20                                                | 24                  | 30                    | 1.5                                              | 5                       | 8        | Unipolar drive |
| SI-7300A | 48                                     | 1.7                   | 125                    | -20~+80     | -30~+100     | 15                                                | 30                  | 42                    | 1.5                                              | 45                      | 9        | Unipolar drive |
| SI-7330A | 42                                     | 3.2                   | 125                    | -20~+80     | -30~+100     | 15                                                | 30                  | 35                    | 3.0                                              | 45                      | 10       | Unipolar drive |
| SI-7500A | 40                                     | 1.2                   | 125                    | -20~+80     | -30~+100     | 17                                                | 24                  | 30                    | 1.0                                              | 0.21                    | 10       | Unipolar drive |
| SI-7200M | 50                                     | 1.2                   | 125                    | -20~+80     | -30~+100     | 15                                                | 30                  | 40                    | 1.0                                              | 1.6                     | 9        | Bipolar drive  |
| SI-7230M | 70                                     | 3.2                   | 125                    | -20~+80     | -30~+100     | 15(Vcc1)<br>4.5(Vcc2)                             | 30(Vcc1)<br>5(Vcc2) | 45(Vcc1)<br>5.5(Vcc2) | 0.2~3(I <sub>o</sub> )<br>0.58(I <sub>om</sub> ) | 1.6                     | 10       | Bipolar drive  |

T-90-20

## ■ Hybrid Stepping Motor Drivers

| Type No. | Maximum Ratings (Ta=25°C) |         |               |        |      |     |            | Electrical Characteristics (Ta=25°C) |               |     |     |
|----------|---------------------------|---------|---------------|--------|------|-----|------------|--------------------------------------|---------------|-----|-----|
|          | Power Stage               | MOS-FET | Control Stage | TTL    | VREF | Io  | Tstg       | DC Characteristics                   |               |     |     |
|          | Vcc(V)                    | Voss(V) | Vs(V)         | Vin(V) | (V)  | (A) | (°C)       | Control Stage                        | Control Stage |     |     |
|          |                           |         |               |        |      |     |            | Is(mA)                               | Vs(V)         |     |     |
|          |                           |         |               |        |      |     |            | typ                                  | min           | typ | max |
| SLA7020M | 46                        | 100     | 32            | 7      | 2    | 1.5 | -40~+150°C | 10                                   | 10            | 19  | 30  |

| Electrical Characteristics (Ta=25°C) |                       |                      |                      |                                                        |                                                            |                                                            |                                                        |                                              |                     |                       | Remarks | Fig. No.               |                     |
|--------------------------------------|-----------------------|----------------------|----------------------|--------------------------------------------------------|------------------------------------------------------------|------------------------------------------------------------|--------------------------------------------------------|----------------------------------------------|---------------------|-----------------------|---------|------------------------|---------------------|
| DC Characteristics                   |                       |                      |                      |                                                        |                                                            |                                                            |                                                        |                                              | AC Characteristics  |                       |         |                        |                     |
| MOS-FET                              | MOS-FET               | TTL                  | TTL                  | TTL<br>V <sub>IH</sub> (V)<br>at<br>I <sub>O</sub> =1A | TTL<br>V <sub>IL</sub> (V)<br>at<br>V <sub>DSS</sub> =100V | TTL<br>V <sub>IH</sub> (V)<br>at<br>V <sub>DSS</sub> =100V | TTL<br>V <sub>IL</sub> (V)<br>at<br>I <sub>O</sub> =1A | MOS-FET<br>Body diode<br>V <sub>SD</sub> (V) | Switching Time      |                       |         |                        |                     |
| V <sub>DS(ON)</sub> (V)              | I <sub>DSS</sub> (mA) | I <sub>IH</sub> (μA) | I <sub>IL</sub> (mA) |                                                        |                                                            |                                                            |                                                        |                                              | t <sub>r</sub> (μs) | t <sub>stg</sub> (μs) |         |                        | t <sub>f</sub> (μs) |
| max                                  | max                   | max                  | max                  | min                                                    | max                                                        | min                                                        | max                                                    | max                                          | typ                 | typ                   | typ     |                        |                     |
| 0.6                                  | 4                     | 40                   | −0.8                 | 2.0                                                    | 0.8                                                        | 2.0                                                        | 0.8                                                    | 1.1                                          | 0.5                 | 0.7                   | 0.1     | MOS-FET in Power Stage | 11                  |

## ● Outline Drawings (Dimensions in mm)

Fig 1

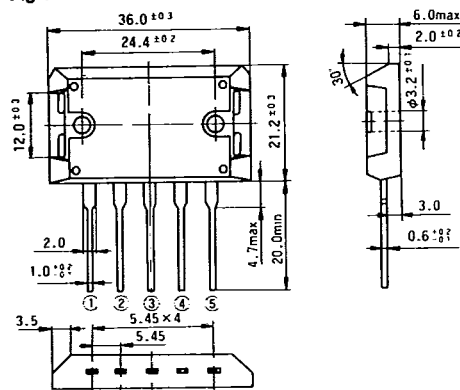


Fig 2

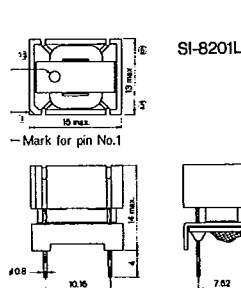


Fig 3

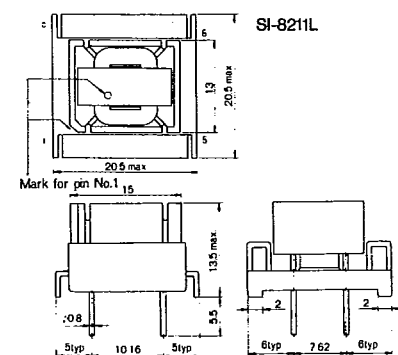


Fig 4

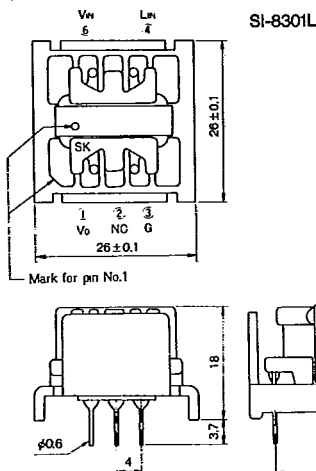


Fig 5

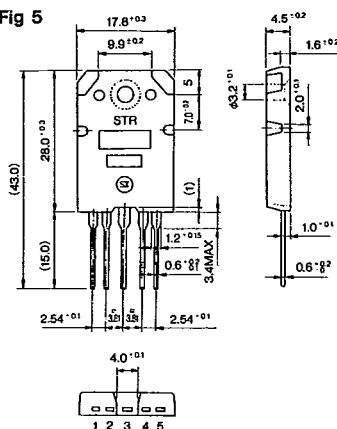


Fig 6 MT-100(TO-3P)

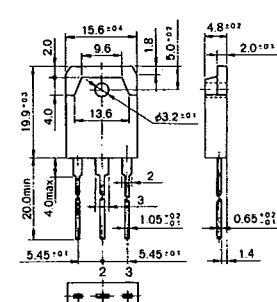


Fig 7

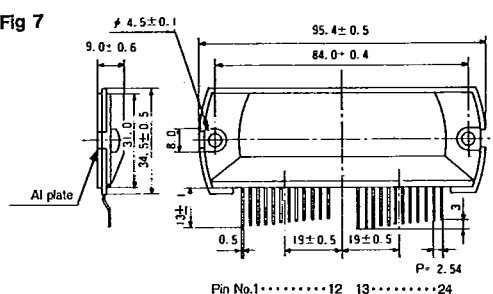


Fig 8

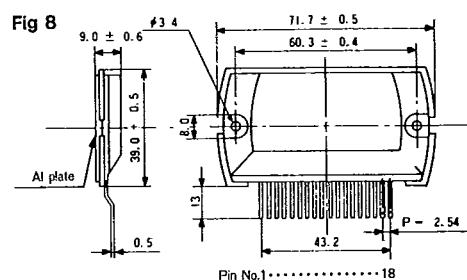


Fig 9

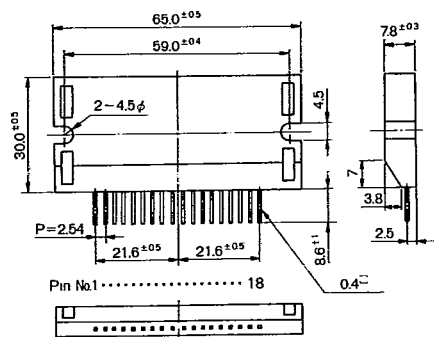


Fig 10

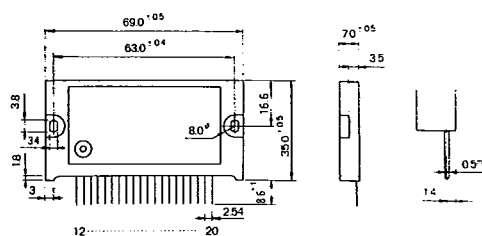
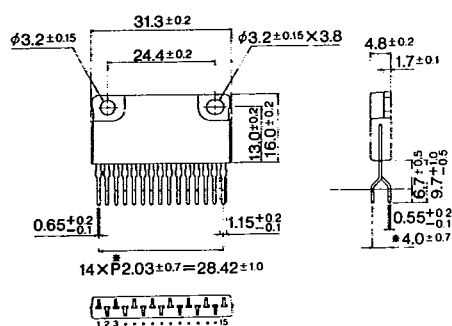
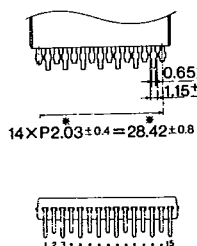


Fig 11 SLA 7020M

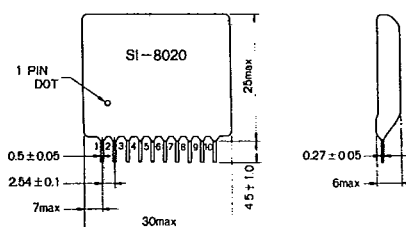


Forming No.853



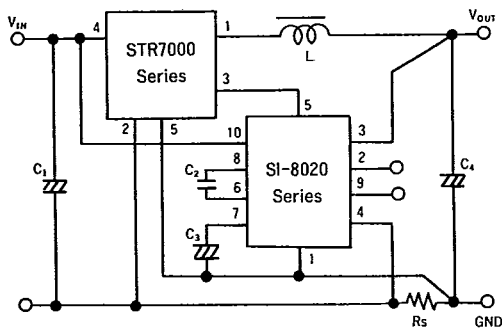
Forming No.855

Fig 12

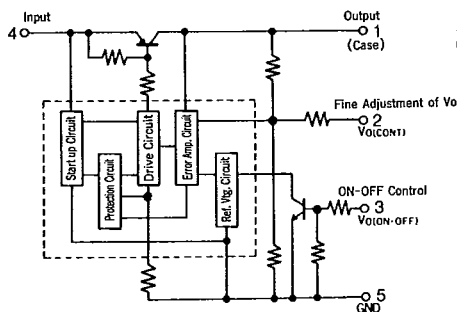


## ● Circuit Diagrams

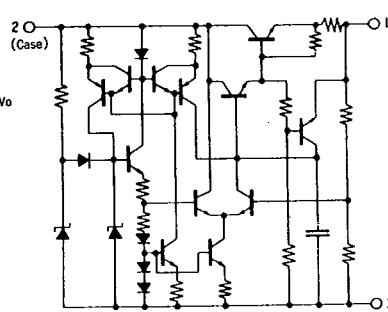
STR7000/SI-8020 Series



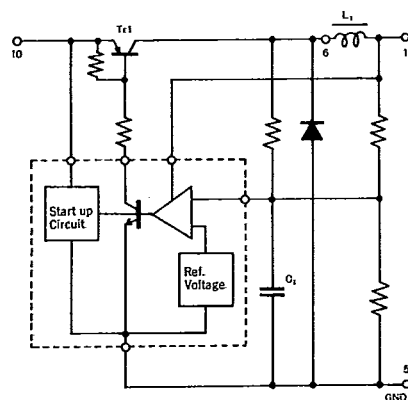
STR9000 Series



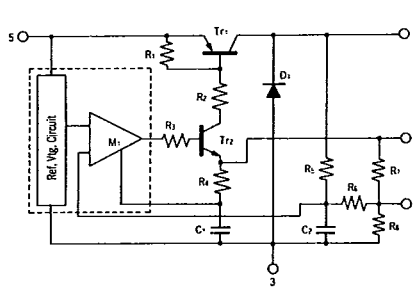
SI-3000P Series



SI-8201L



STR2000 Series



SI-7200E

