# RECTIFIERS

## Selenium Rectifier Stacks

## Types SM & RM

### DESCRIPTION

*SenTerCel* selenium stacks have been widely used for many years to provide H.T. supplies for domestic radio and television receivers.

The superiority of the selenium rectifier over all other devices is accepted in its ability to withstand heavy momentary overloads of current. In consequence the peak instantaneous current is virtually unlimited and large reservoir capacitors can be used for the best possible regulation and smoothing. The voltage drop is less than that of an equivalent thermionic valve and output voltages are therefore higher. There is, of course, a complete absence of fragile components so that failure cannot occur due to vibration or shock, an important consideration where portability is envisaged.

Two or more rectifiers can be connected in series when voltages higher than normal ratings are required and an assembly of two rectifiers, on a common spindle and bracket, is available in the radio stacks SMO/1 and SM2/3.

As the air temperature inside a radio or television receiver is considerably above room temperature, the rectifiers have been rated accordingly. Provided that simple precautions are taken to ensure adequate cooling by mounting the rectifier above an air vent or at least below any other heat-producing components, life and reliability are assured.

Graphs showing output characteristics for various combinations of input voltage, series resistance and reservoir capacitor are given on pages 6–15.

The table below gives obsolete types of rectifiers replaced by this range. The same fixing dimensions have been retained but the cross-section area is now slightly smaller.

| Obsolete Type | Replacement Type |
|---|---|
| RM0 | SM0/1 |
| RM1 | SM0/1 |
| RM2 | SM2/3 |
| RM3 | SM2/3 |
| RM5 | SM5 |
| DRM1B | DSM0/1 |
| DRM2B | DSM2/3 |
| DRM3B | DSM2/3 |



*Standard Telephones and Cables Limited*

COMPONENTS GROUP
SEMICONDUCTOR DIVISION (RECTIFIERS), EDINBURGH WAY, HARLOW, ESSEX
Tel.: Harlow 26811

STC

# Types SM & RM

CONTINUED

## MAXIMUM RATINGS (Half-wave with reservoir capacitor)

| Type | Mean Output Current (mA) at ambient temperature of | | Input Voltage ($V_{rms}$) | Peak Inverse Voltage (V) |
|---|---|---|---|---|
| | 35°C | 55°C | | |
| SM0/1 | 60 | 30 | 125 | 350 |
| SM2/3 | 120 | 90 | 125 | 350 |
| DSM0/1 | 60 | 30 | 250** | 700** |
| DSM2/3 | 120 | 90 | 250** | 700** |
| RM4 | 250* | 125 | 250 | 700 |
| SM5 | 300* | 150 | 250 | 700 |

* Up to 40°C ambient. ** Series connected.

## CODING AND POLARITY MARKING

| RECTIFIER MARKING | | |
|---|---|---|
| Type | Code | Polarity |
| SM0/1 | In Red Characters on the Positive End | A Red + on the Positive End |
| SM2/3 | In Red Characters on the Positive End | A Red + on the Positive End |
| DSM0/1<br>DSM2/3 | In Black Characters on the Negative End | A Red band on each Positive Tag |
| RM4<br>SM5 | In Red Characters on the Positive End | A Red + on the Positive End |

## GENERAL INFORMATION

### Ambient Temperature

The ambient temperature stated refers to the temperature of the air in which the rectifier is situated. As the air temperature inside a normally ventilated equipment may be considerably higher than the room temperature, a suitable allowance should be made.

### Maximum Plate Temperature

The maximum temperature to which rectifiers may be allowed to rise is 75°C. Under no circumstances should this temperature be exceeded.

### "Series Resistance"

It is recommended that a series resistor be connected between the a.c. input and the rectifier in order to reduce the peak current and to minimise any ageing which may take place. Recommended values of resistance are included in the regulation curves.

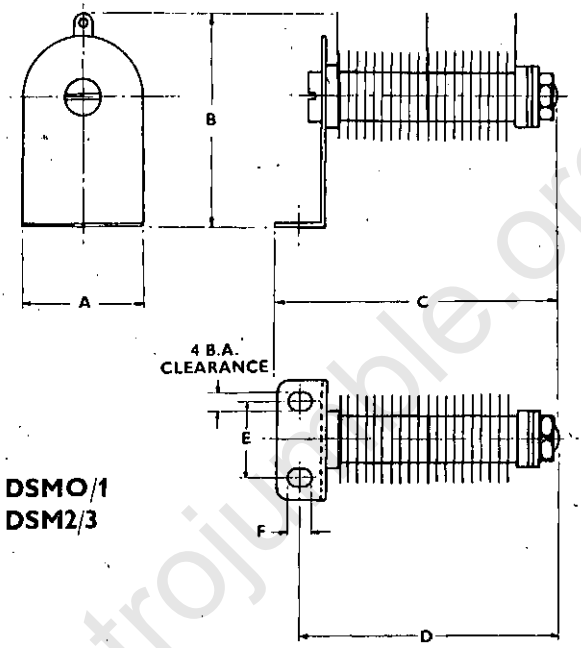
### Ventilation and Mounting

Rectifiers must be mounted with the plates vertical and be provided with unrestricted ventilation, and should be placed so that they do not receive pre-heated air from other components.

# Types SM & RM

CONTINUED

## DIMENSIONS



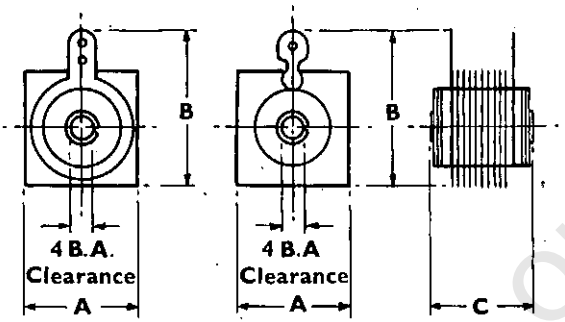

**DSMO/1**
**DSM2/3**

| Type | | DSM0/1 | | DSM2/3 | |
|---|---|---|---|---|---|
| Nominal Dimensions | | in | cm | in | cm |
| | A | 1 | 2,54 | $1\frac{3}{8}$ | 3,50 |
| | B | $1\frac{3}{4}$ | 4,45 | $2\frac{1}{32}$ | 5,16 |
| | C | $2\frac{3}{8}$ | 6,04 | $2\frac{7}{16}$ | 6,20 |
| | D | $2\frac{9}{16}$ | 5,56 | $2\frac{1}{4}$ | 5,72 |
| | E | $\frac{5}{8}$ | 1,60 | $\frac{5}{8}$ | 1,60 |
| | F | $\frac{13}{64}$ | 0,52 | $\frac{13}{64}$ | 0,52 |

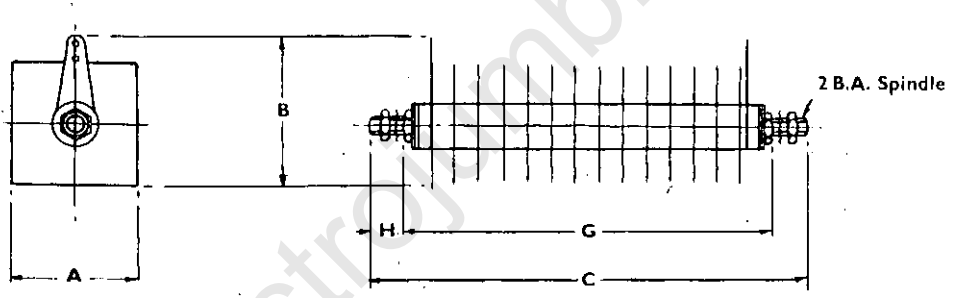
STC

# Types SM & RM

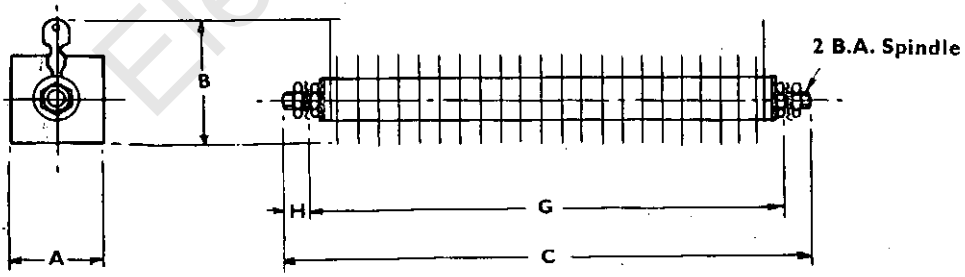
CONTINUED




SMO/1 SM2/3




RM4




SM5

# Types SM & RM

CONTINUED

| TYPE | Nominal Dimensions | | | | | | Maximum Dimensions | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| | A | | B | | C | | G | | H | |
| | in | cm | in | cm | in | cm | in | cm | in | cm |
| SM0/1 | $\frac{23}{32}$ | 1,84 | 1 | 2,54 | $\frac{7}{8}$ | 2,24 | — | — | — | — |
| SM2/3 | 1 | 2,54 | $1\frac{13}{32}$ | 3,58 | $\frac{7}{8}$ | 2,24 | — | — | — | — |
| RM4 | $1\frac{3}{8}$ | 3,50 | $1\frac{11}{16}$ | 4,30 | 5 | 12,70 | $4\frac{9}{32}$ | 10,88 | $\frac{5}{16}$ | 0,80 |
| SM5 | 1 | 2,54 | $1\frac{13}{32}$ | 3,58 | 6 | 15,24 | $5\frac{15}{32}$ | 13,90 | $\frac{1}{4}$ | 0,64 |

## WEIGHTS

| Type | SM0/1 | SM2/3 | RM4 | SM5 | DSM0/1 | DSM2/3 |
|---|---|---|---|---|---|---|
| Ounces | 1 | $1\frac{1}{2}$ | $4\frac{1}{2}$ | $4\frac{1}{2}$ | 2 | 3 |
| Grammes | 28 | 42 | 126 | 126 | 56 | 98 |

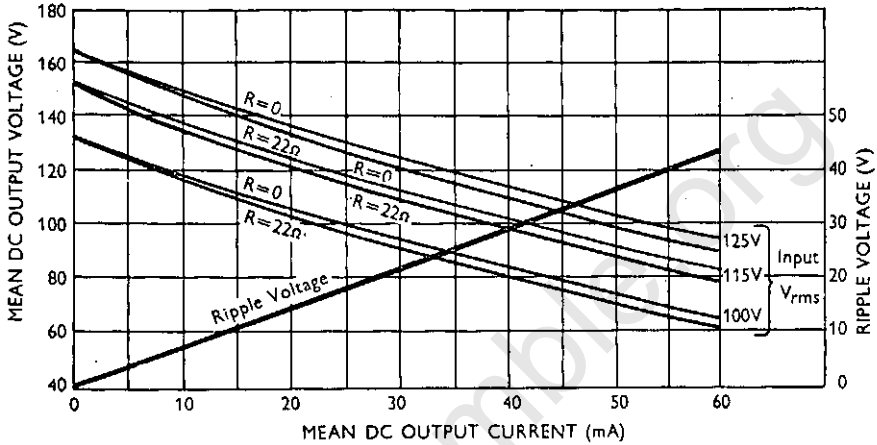
STC

# Types SM & RM

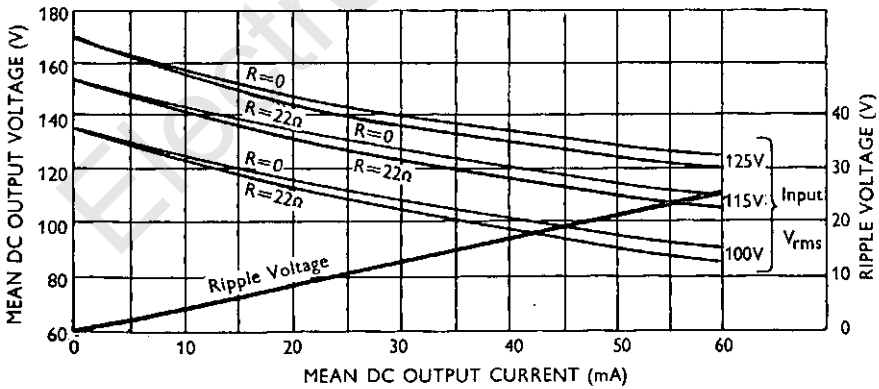
CONTINUED

## SM/01

**Output Characteristics with 8 μF Reservoir Capacitor**




**Output Characteristics with 16 μF Reservoir Capacitor**

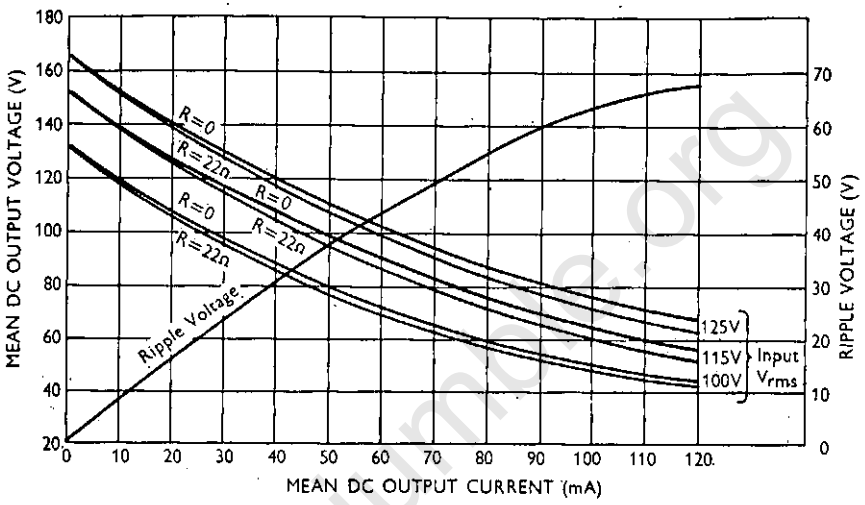


# Types SM & RM

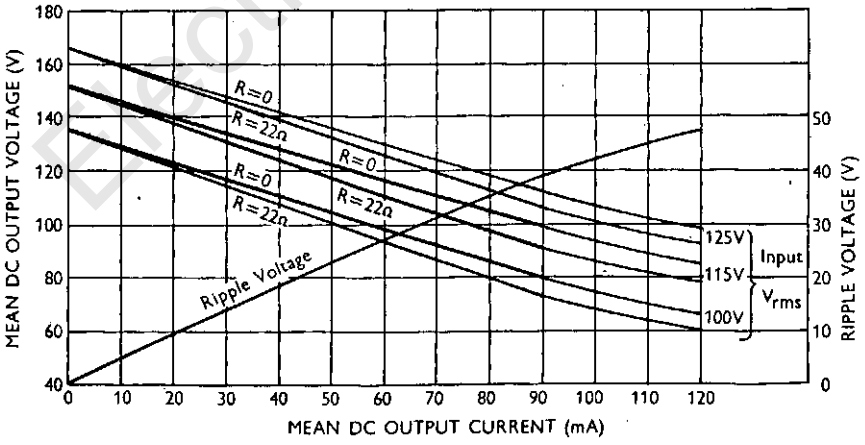
CONTINUED

## SM2/3

### Output Characteristics with 8 μF Reservoir Capacitor




### Output Characteristics with 16 μF Reservoir Capacitor

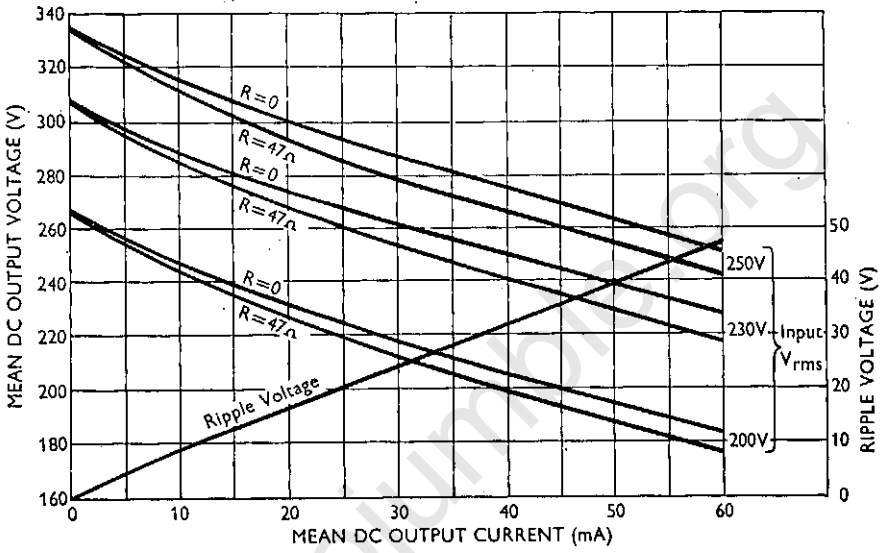


# Types SM & RM

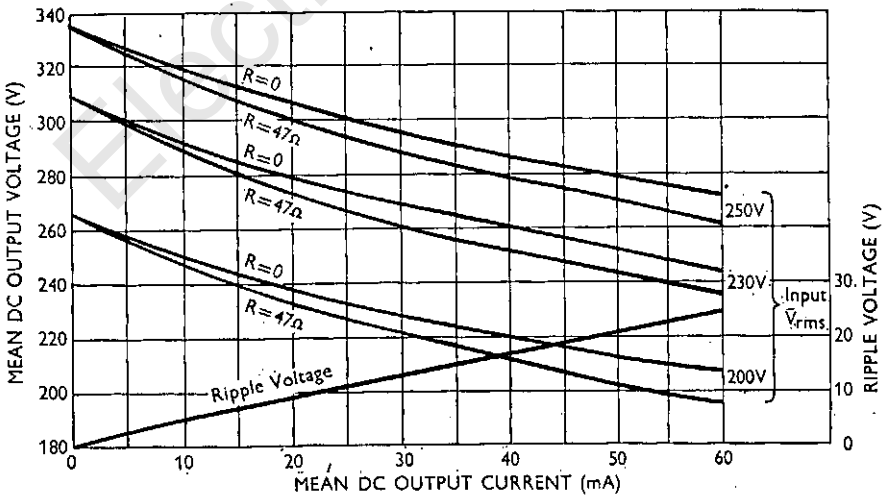
CONTINUED

## DSM 0/1

Output Characteristics with 8 $\mu$F Reservoir Capacitor




Output Characteristics with 16 $\mu$F Reservoir Capacitor

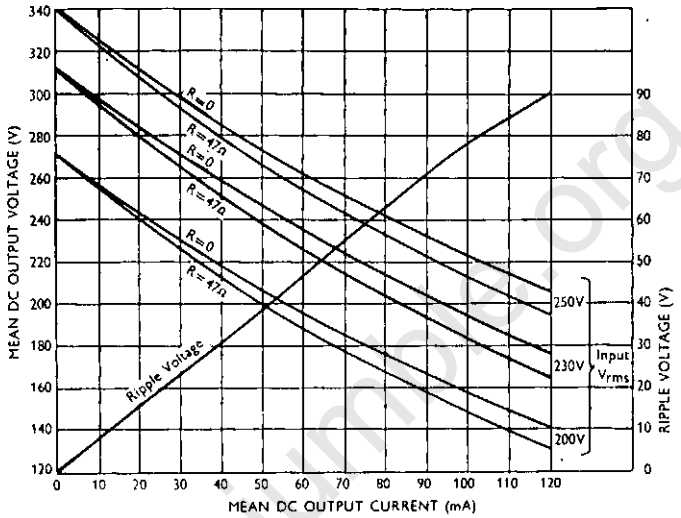


# Types SM & RM

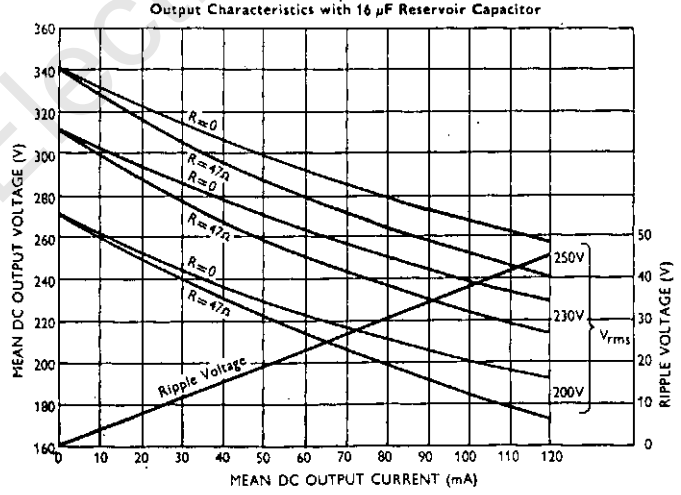
CONTINUED

## DSM 2/3

Output Characteristics with 8 μF Reservoir Capacitor




Output Characteristics with 16 μF Reservoir Capacitor



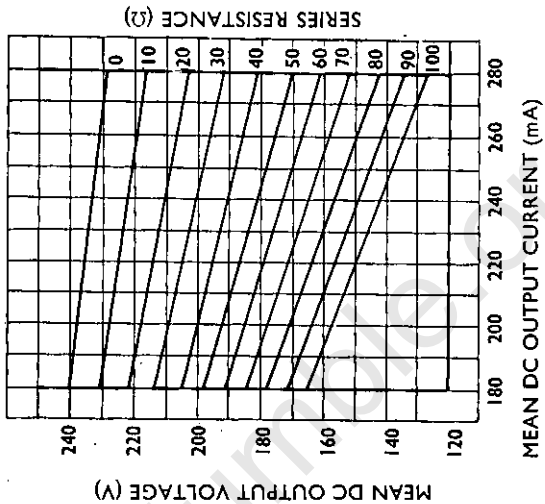
# Types SM & RM

CONTINUED

## RM4

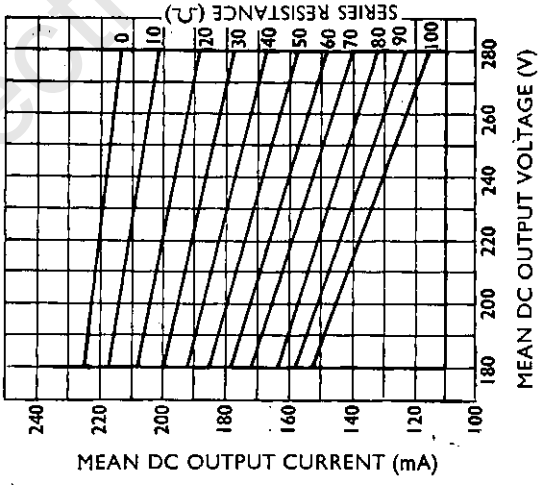
**Output Characteristics with Input Voltage 210 $V_{rms}$**

100 $\mu$F Reservoir Capacitor




**Output Characteristics with Input Voltage 200 $V_{rms}$**

100 $\mu$F Reservoir Capacitor



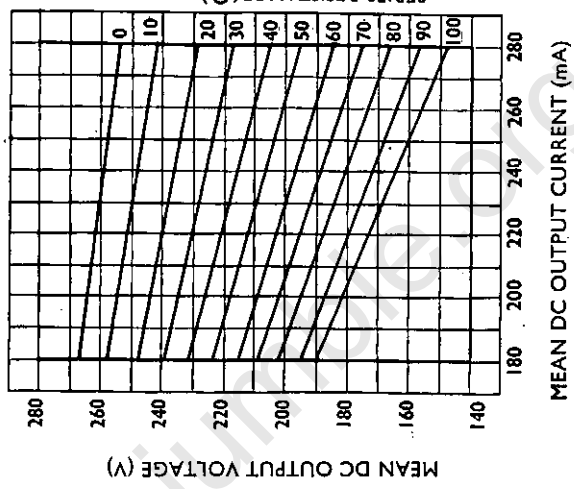
# Types SM & RM

CONTINUED

## RM4

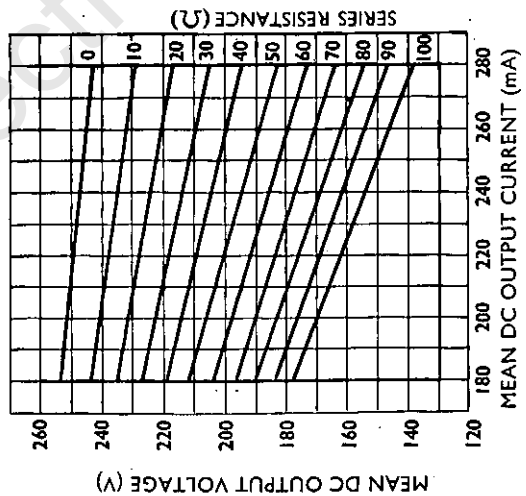
**Output Characteristics with Input Voltage 230 $V_{rms}$**

100 μF Reservoir Capacitor




**Output Characteristics with Input Voltage 220 $V_{rms}$**

100 μF Reservoir Capacitor



STC

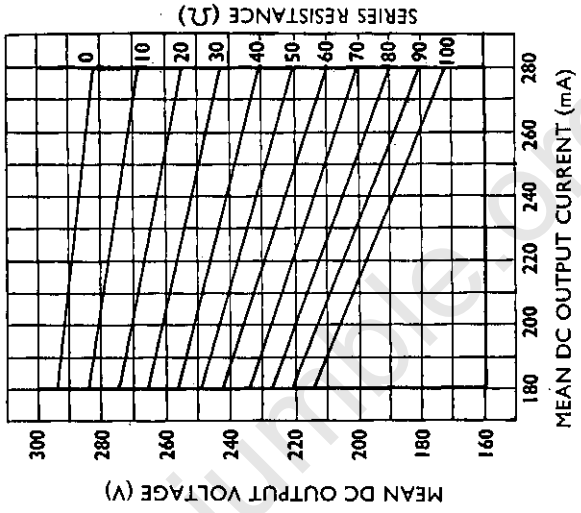
# Types SM & RM

CONTINUED

## RM4

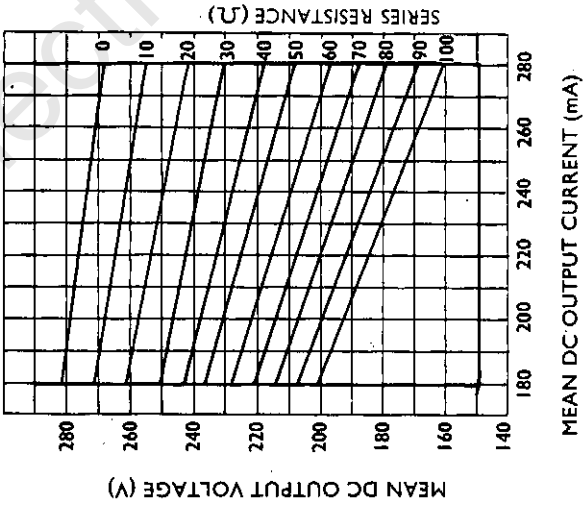
**Output Characteristics with Input Voltage 250 $V_{rms}$**

100 $\mu$F Reservoir Capacitor




**Output Characteristics with Input Voltage 240 $V_{rms}$**

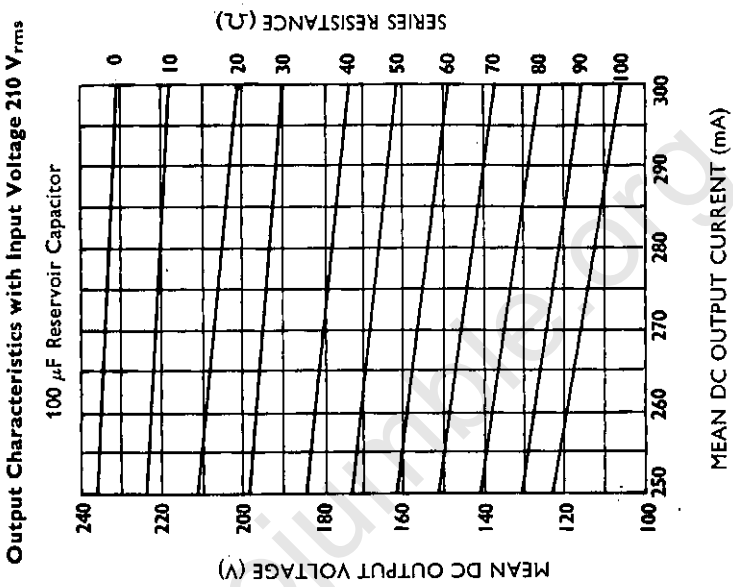
100 $\mu$F Reservoir Capacitor

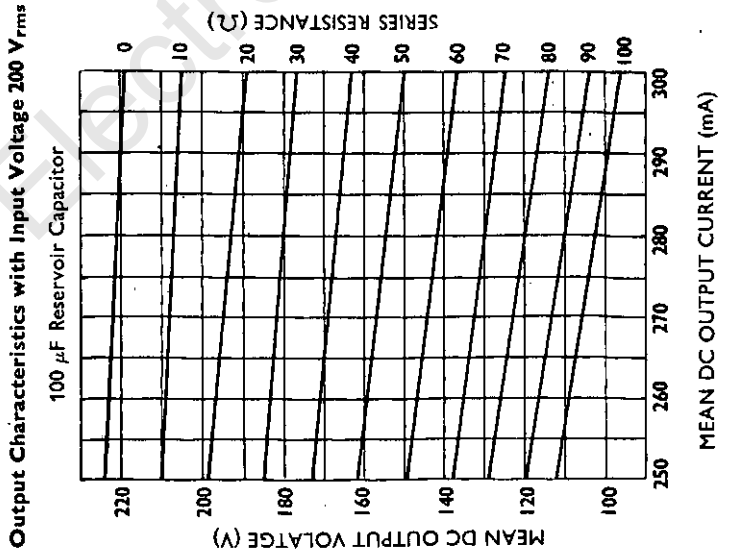


# Types SM & RM

CONTINUED

## SM5



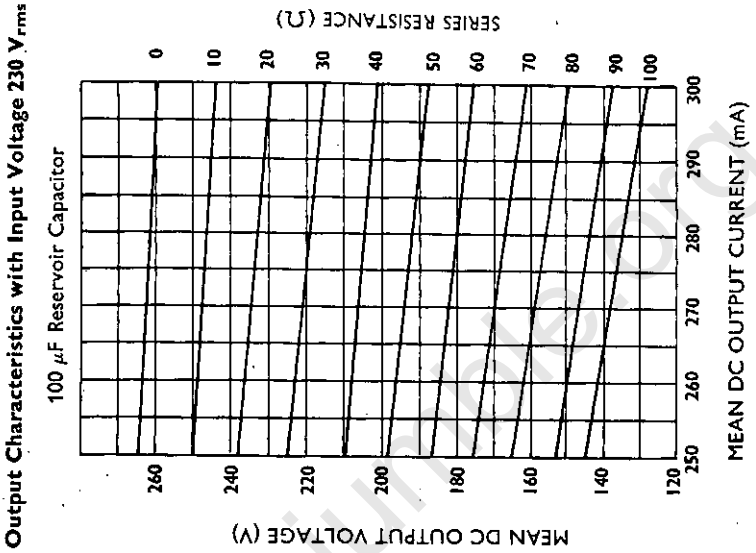



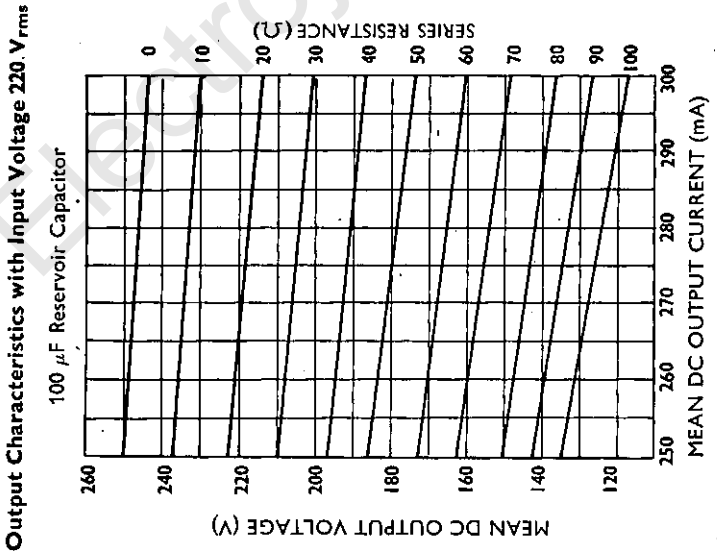
STC

# Types SM & RM

CONTINUED

## SM5



# Types SM & RM

CONTINUED

## SM5