

## TWIN DIODE TYPES 3AL5, 6AL5 AND 12AL5

The 3AL5, 6AL5 and 12AL5 are miniature 7-pin twin diode types designed for service as detectors in FM and television circuits as well as automatic-volume-control rectifiers. They are also used as ratio detectors in a-c operated FM receivers. Each diode can be used independently of the other or combined in parallel or full-wave connection. The resonant frequency of each section is approximately 700 megacycles per second.

The 3AL5 has been designed for use in receivers which employ series-connected heaters, especially in television receivers where the picture-tube heater is in series with other heaters. When it is employed in this type of circuit with other tubes having a heater current rating of 600 ma., heater voltage surges across individual tubes are minimized inasmuch as the heater warm-up characteristic is controlled.

### ELECTRICAL:

|                             |                     |           |         |
|-----------------------------|---------------------|-----------|---------|
| Cathode.....                | Coated Unipotential |           |         |
| Heater:                     | 3AL5                | 6AL5      | 12AL5   |
| Voltage (ac or dc) .....    | 3.15                | 6.3 ± 10% | 12.6    |
| Current .....               | 0.60                | 0.30      | 0.15    |
| Warm-up Time (Approx.) ▲ .. | 11                  | - -       | - -     |
|                             |                     |           | Seconds |

### Direct Interelectrode Capacitances:

|                                                              | Shielded* | Unshielded |     |
|--------------------------------------------------------------|-----------|------------|-----|
| Plate 1 to Cathode 1, Heater,<br>and Internal Shield† .....  | 3.2       | 2.5        | μμf |
| Plate 2 to Cathode 2, Heater,<br>and Internal Shield†† ..... | 3.2       | 2.5        | μμf |
| Cathode 1 to Plate 1, Heater,<br>and Internal Shield† .....  | 3.6       | 3.4        | μμf |
| Cathode 2 to Plate 2, Heater,<br>and Internal Shield†† ..... | 3.6       | 3.4        | μμf |
| Plate 1 to Plate 2<br>(Grounded Shield) (Max.) .....         | .026      | .068       | μμf |

### MECHANICAL:

|                         |                              |
|-------------------------|------------------------------|
| Bulb .....              | T-5-1/2                      |
| Base .....              | Small-Button Miniature 7-Pin |
| Basing .....            | 6BT                          |
| Mounting Position ..... | Any                          |

### MAXIMUM RATINGS:

#### Design Maximum Values

|                                         |     |      |       |
|-----------------------------------------|-----|------|-------|
| Peak Inverse Plate Voltage .....        | 330 | max. | Volts |
| Peak Plate Current per Plate .....      | 54  | max. | Ma.   |
| DC Output Current per Plate .....       | 9   | max. | Ma.   |
| Peak Heater-Cathode Voltage:            |     |      |       |
| Heater Negative with Respect to Cathode |     |      |       |
| Total DC + Peak .....                   | 330 | max. | Volts |
| Heater Positive with Respect to Cathode |     |      |       |
| DC Component .....                      | 100 | max. | Volts |
| DC + Peak .....                         | 200 | max. | Volts |

### HALF-WAVE RECTIFIER\*\*

#### Characteristics and Typical Operation

|                                      |     |       |
|--------------------------------------|-----|-------|
| AC Voltage per Plate (RMS) .....     | 117 | Volts |
| Minimum Total Effective Plate Supply |     |       |
| Impedance per Plate .....            | 300 | Ohms  |
| DC Output Current per Plate .....    | 9   | Ma.   |

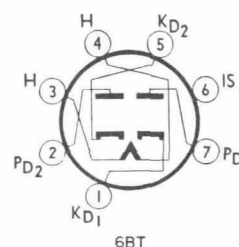
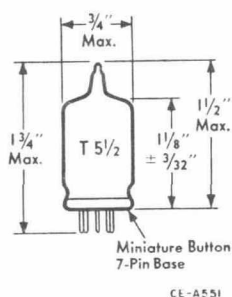
\*\* Units used separately or in parallel.

\* External Shield No. 316 tied to pin 6.

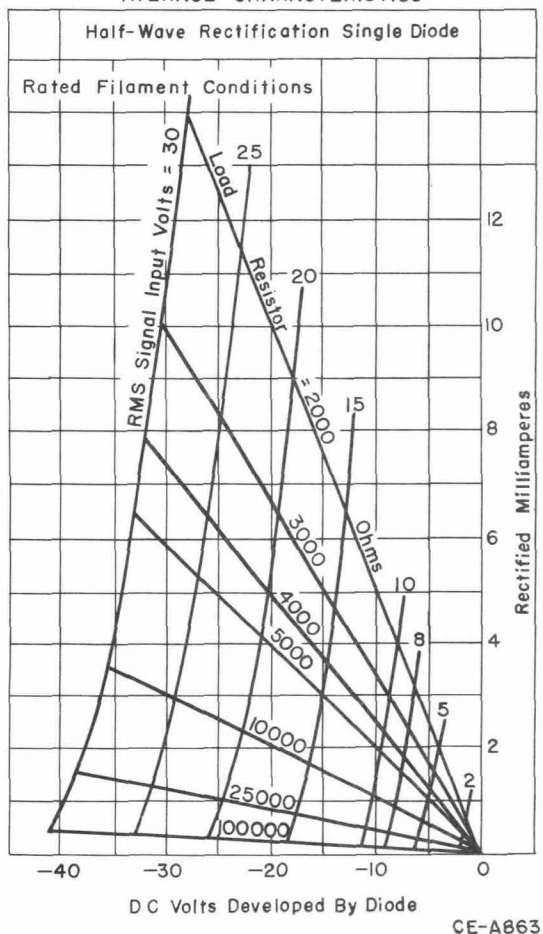
† Ground Plate and Cathode Unit 2.

†† Ground Plate and Cathode Unit 1.

▲ Heater Warm-up Time is defined as the time required for the voltage across the heater to reach 80% of its rated value after applying four times rated heater voltage to a circuit consisting of the tube heater in series with a resistance equal to three times rated heater voltage divided by rated heater current.



## AVERAGE CHARACTERISTICS



## AVERAGE PLATE CHARACTERISTICS

