

MINISTRY OF SUPPLY - DLRD(A)/TRE

VALVE ELECTRONIC

CV455

| | | |
|--|--------------------------------------|------------------------------|
| Specification MOS(A)/CV455 Issue 4 Dated 6.8.53 To be read in conjunction with K1001 | <u>SECURITY</u> | |
| | <u>Specification</u> UNCLASSIFIED | <u>Valve</u> UNCLASSIFIED |

—————> Indicates a charge

| | | | | | | |
|---|--------|--------|------|---|-----------|------|
| TYPE OF VALVE * Double Triode CATHODE - Indirectly-heated ENVELOPE - Glass - Unmetallised PROTOTYPE - 12AT7 RTMA DESIGNATION - 12AT7 | | | | <u>MARKING</u> | | |
| | | | | See K1001/4. Additional Marking 12AT7. | | |
| | | | | <u>BASE</u> | | |
| | | | | B9A | | |
| <u>RATING</u> | | | | <u>CONNECTIONS</u> | | |
| | | | | <u>Note</u> | | |
| Heater Voltage | (V) | 12.6 | A | Pin | Electrode | |
| Heater Current | (A) | 0.15 | A | 1 | A (b) | |
| Max. Anode Voltage | (V) | 380 | D | 2 | G1(b) | |
| Max. No-load Anode Voltage | (V) | 550 | D | 3 | C (b) | |
| Max. Anode Dissipation | (W) | 2.8 | B, D | 4 | H | |
| Max. Heater-Cathode Voltage | (V) | 100 | | 5 | H | |
| Mutual Conductance | (mA/V) | 5.5 | C | 6 | A (a) | |
| Amplification Factor | | 60 | C | 7 | G1(a) | |
| Anode Impedance | (ohms) | 10,000 | C | 8 | C (a) | |
| | | | | 9 | HCT | |
| <u>CAPACITANCES (pF)</u> | | | | <u>DIMENSIONS</u> | | |
| | | | | See K1001/A1/D4 | | |
| Cg-a | | 1.6 | B | Dimension (mm) | Min. | Max. |
| Cg-e | | 2.25 | B | A | - | 55.6 |
| Ce-e | | 0.4 | B | B | - | 22.4 |
| Ca-a (max.) | | 0.4 | B | | | |
| <u>NOTES</u> | | | | | | |
| A. Centre-tapped heater. | | | | | | |
| B. Each section. Measured without metal screen. | | | | | | |
| C. Measured at: Va = 250V; Vg1 = 0; Rc = 200 ohms. | | | | | | |
| D. Absolute maximum value. | | | | | | |

TESTS

To be performed in addition to those applicable in K1001

| Test Conditions | | | | | Test | Limits | | No. Tested | Note |
|-----------------|--------|--------|---------------------|--------------|-----------------------------|--------|------|----------------|------|
| | | | | | | Min. | Max. | | |
| a | | | | | <u>CAPACITANCES (pF)</u> | | | | |
| | | | | | Ca(a) - g(a) | 1.3 | 1.9 | 6 | 2 |
| | | | | | Ca(b) - g(b) | 1.3 | 1.9 | | |
| | | | | | Cg(a) - e(a) | 1.5 | 3.0 | | |
| | | | | | Cg(b) - e(b) | 1.5 | 3.0 | week | |
| | | | | | Ca(a) - e(a) | 0.1 | 0.7 | | |
| | | | | | Ca(b) - e(b) | 0.1 | 0.7 | | |
| | | | | Ca(a) - a(b) | - | 0.4 | | | |
| b | Vh (V) | Va (V) | Vg ₁ (V) | Rc (ohms) | Ih (A) | .138 | .162 | 100% or S | |
| | 12.6 | 0 | 0 | - | | | | | |
| c | 12.6 | 250 | 0 | 200 | Ia (mA) | 7 | 14 | 100% | 1 |
| d | 12.6 | 250 | -20 | 200 | Ia (μA) | - | 100 | 100% | 1 |
| e | 12.6 | 250 | 0 | 200 | Reverse I _g (uA) | 0 | 1.5 | 100% | 1 |
| f | 12.6 | 250 | 0 | 200 | g _m (mA/V) | 4.5 | 6.5 | 100% | 1 |
| g | 12.6 | 250 | 0 | 200 | u | 50 | 70 | 20 per week | 1 |
| h | 11.0 | 250 | 0 | 200 | g _m (mA/V) | 4.0 | - | 100% or S | 1 |
| j | 12.6 | 10 | 10 | 0 max. | Emission (mA) | 50 | - | 100% | 1,3 |

NOTE

1. Each section to be tested separately, with the opposite section earthed, or biased to cut off. Rc to be shunted with C = 1000uF
2. Measured without metal screen.
3. Test voltages to be applied only for sufficient time to obtain steady reading.

DATA SHEET

Valve Electronic Type CV 455

TYPICAL OPERATING CONDITIONS

As Class A1 Amplifier (per Section)

| | | | | |
|--------------------------|--------|-------|--------|-------|
| Anode Voltage | 100 | 180 | 250 | Volts |
| Anode Current | 3.7 | 11.0 | 10 | mA |
| Grid Voltage | -1 | -1 | -2 | Volts |
| Anode Impedance | 13,500 | 9,400 | 10,000 | Ohms |
| Mutual Conductance | 4.0 | 6.6 | 5.5 | mA/V |
| Amplification Factor | 54 | 62 | 55 | - |
| Grid Voltage for Cut-off | -6 | -8 | -12 | Volts |

As Resistance Coupled Amplifier (per Section)

A curve is attached showing the relation of various parameters for certain given conditions.

As a Frequency Changer up to 450 mc/s.

Typical curves and circuit diagrams are attached.

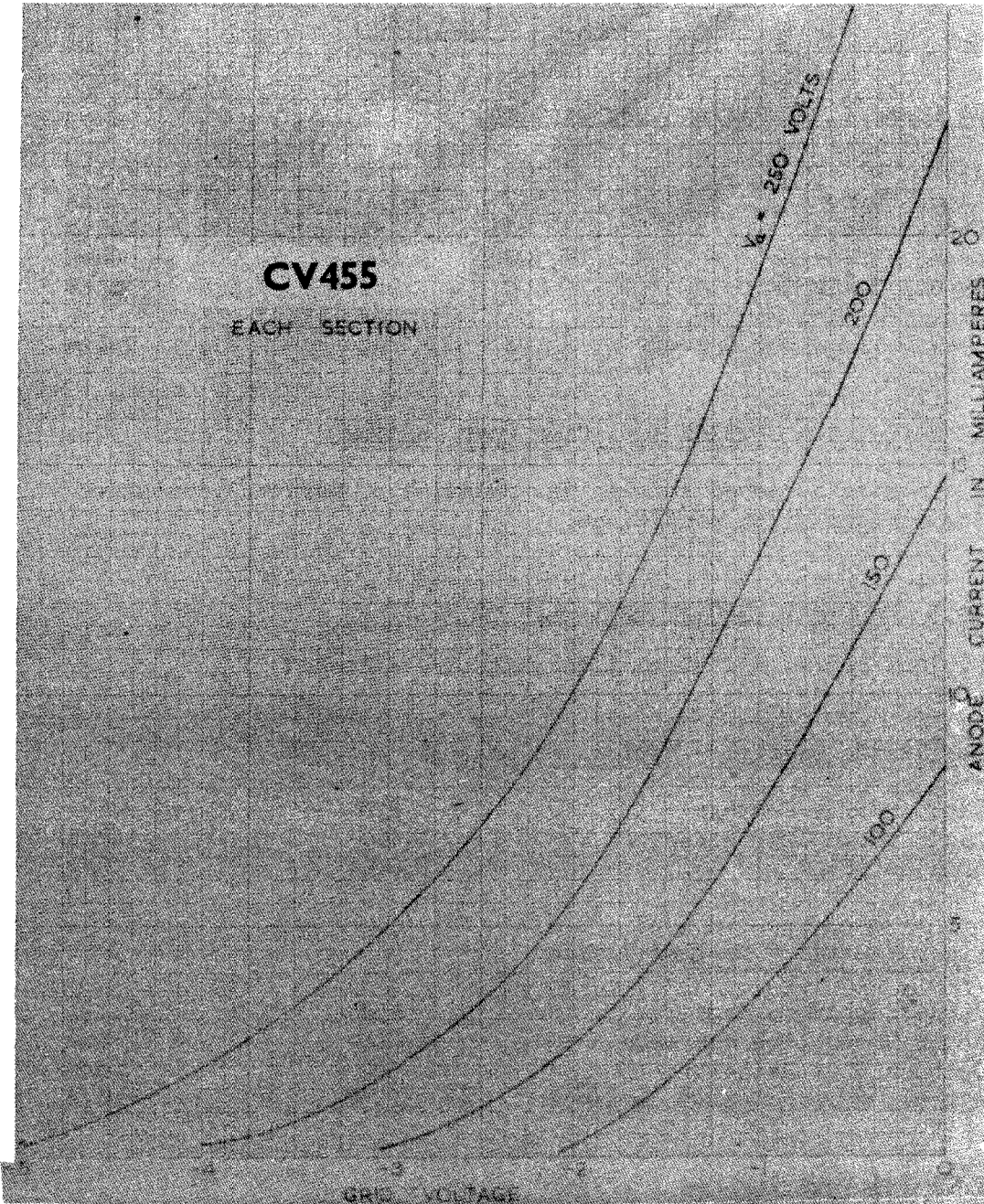
Oscillator Section - Typical Values.

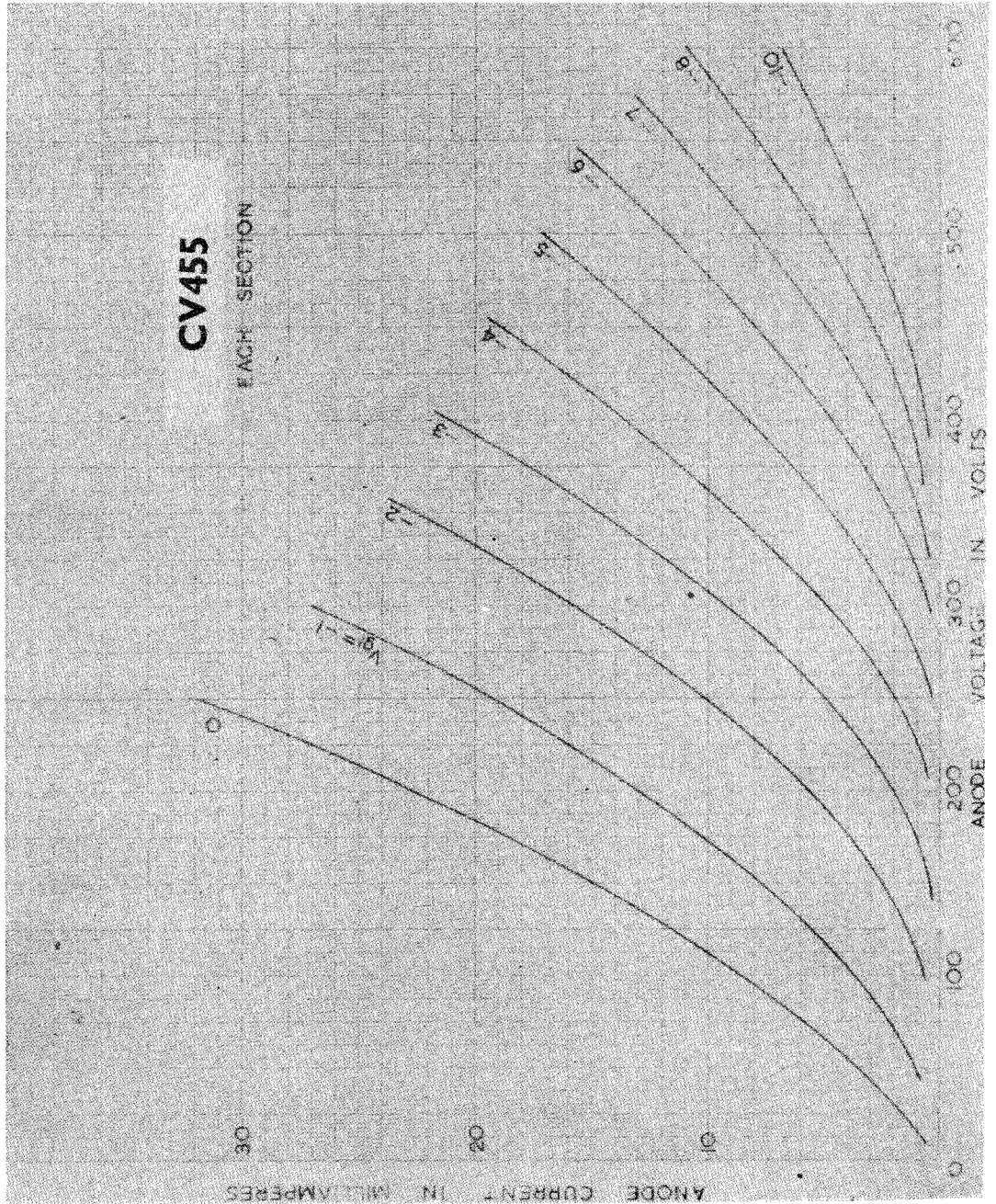
| | | |
|---------------------------|--------|-------|
| Anode Supply Voltage | 250 | Volts |
| Anode Decoupling Resistor | 1,000 | Ohms |
| Grid Resistor | 10,000 | Ohms |

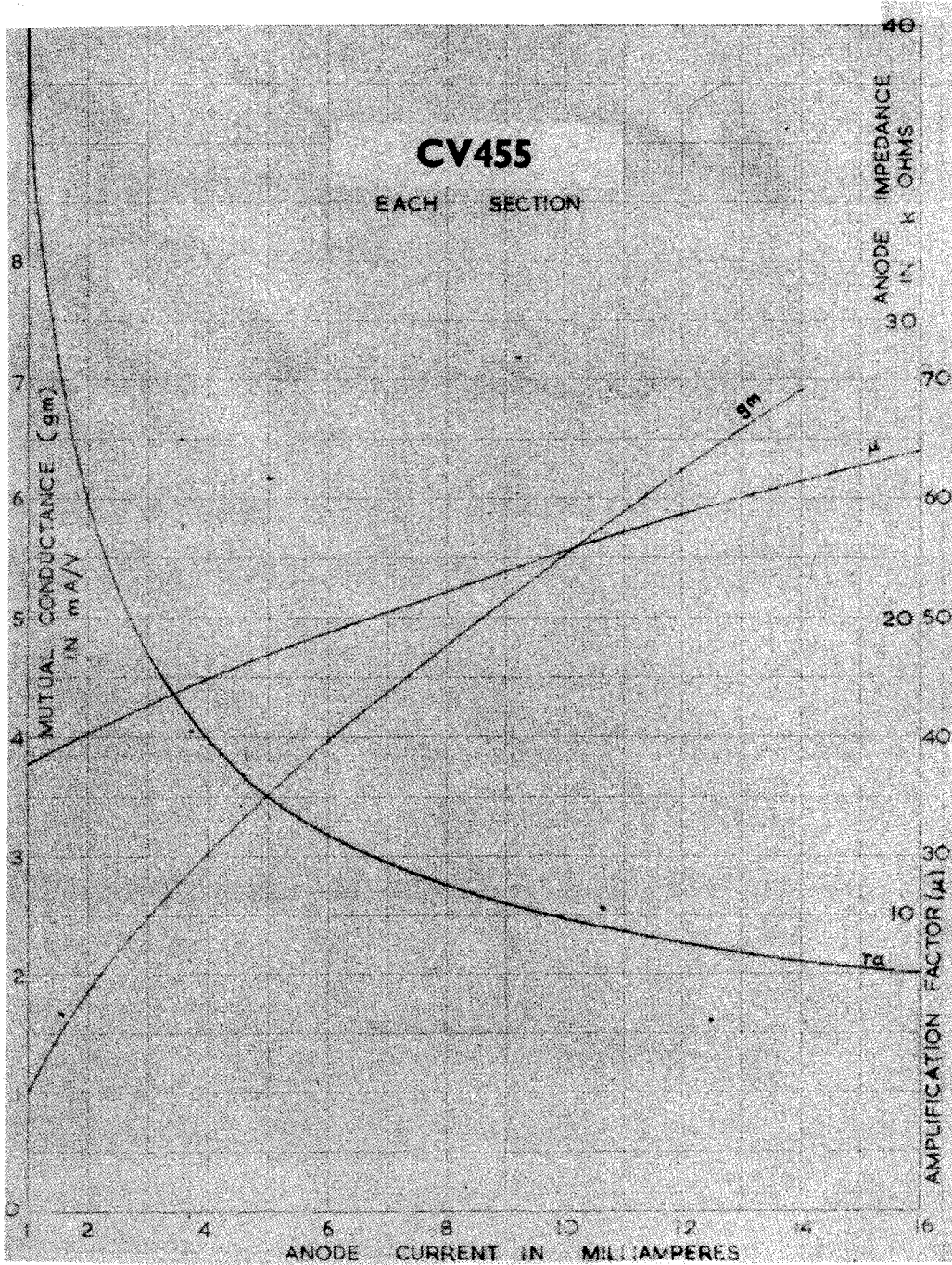
Mixer Section - Typical Values

| | | |
|--------------------------------|-------|-------|
| Anode Supply Voltage | 250 | Volts |
| Anode Decoupling Resistor | 1,000 | Ohms |
| Cathode Bias Resistor | 680 | Ohms |
| Approx. Conversion Conductance | 2.5 | mA/V |

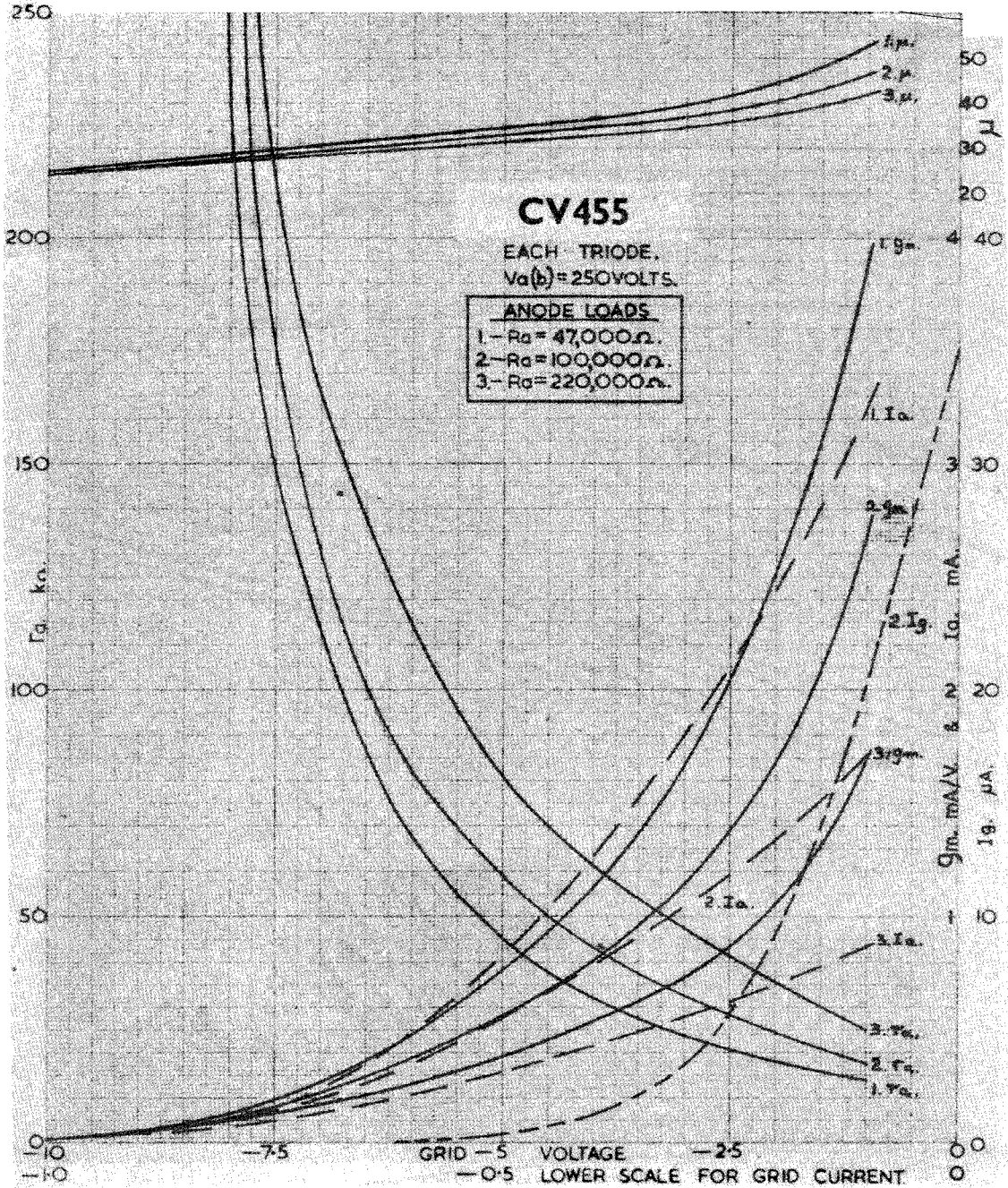
Mounting Position - Any







DATA SHEET



CV455 ONE TRIODE AS A
FREQUENCY CHANGER.

V_g 250 V. R_k 680 Ω . GRID INJECTION OF HET. VOLTS

