

## TOSHIBA RF POWER AMPLIFIER MODULE

**S-AV10L, S-AV10H**

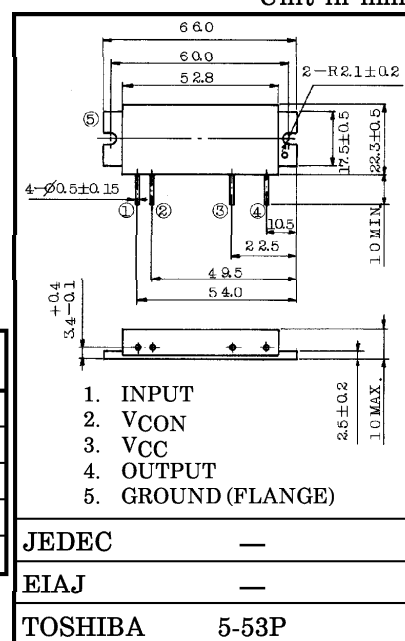
VHF RF POWER AMPLIFIER MODULE

Unit in mm

- High Gain :  $P_o \geq 14\text{W}$ ,  $G_p \geq 18.5\text{dB}$ ,  $\eta_T \geq 40\%$
- S-AV10L 135~155MHz
- S-AV10H 150~175MHz

MAXIMUM RATINGS ( $T_c = 25^\circ\text{C}$ )

| CHARACTERISTIC                   | SYMBOL       | RATING  | UNIT             |
|----------------------------------|--------------|---------|------------------|
| DC Supply Voltage                | $V_{CC}$     | 16      | V                |
| DC Supply Voltage                | $V_{CON}$    | 16      | V                |
| Input Power                      | $P_i$        | 300     | mW               |
| Operating Case Temperature Range | $T_{c(opr)}$ | -30~100 | $^\circ\text{C}$ |
| Storage Temperature Range        | $T_{stg}$    | -40~110 | $^\circ\text{C}$ |

ELECTRICAL CHARACTERISTICS ( $T_c = 25^\circ\text{C}$ )

Weight : 35g

| CHARACTERISTIC   | SYMBOL      | TEST CONDITION                                                                                                                          | MIN.                                                     | TYP. | MAX. | UNIT |
|------------------|-------------|-----------------------------------------------------------------------------------------------------------------------------------------|----------------------------------------------------------|------|------|------|
| Frequency Range  | $f_{range}$ | —                                                                                                                                       | 135                                                      | —    | 175  | MHz  |
| Output Power     | $P_o$       | $P_i = 200\text{mW}$<br>$V_{CC} = 12.5\text{V}$ , $V_{CON} = 12.5\text{V}$<br>$Z_G = Z_L = 50\Omega$                                    | 14                                                       | —    | —    | W    |
| Power Gain       | $G_p$       |                                                                                                                                         | 18.5                                                     | —    | —    | dB   |
| Total Efficiency | $\eta_T$    |                                                                                                                                         | 40                                                       | —    | —    | %    |
| Input VSWR       | $VSWR_{in}$ |                                                                                                                                         | —                                                        | —    | 2    | —    |
| Harmonics        | HRM         |                                                                                                                                         | —                                                        | —    | -25  | dB   |
| Load Mismatch    | —           | $V_{CC} = 15\text{V}$ , $V_{CON} = 12.5\text{V}$<br>$P_o = 15\text{W}$ ( $P_i = \text{adjust}$ )<br>VSWR load 20 : 1 all phase          | No Degradation                                           |      |      | —    |
| Power Slump      | —           | $T_c = -30 \sim 80^\circ\text{C}$<br>$V_{CC} = 12.5\text{V}$ , $P_i = 200\text{mW}$<br>$P_o = 14\text{W}$ ( $@T_c = 25^\circ\text{C}$ ) | —                                                        | 0.8  | —    | dB   |
| Stability        | —           | $V_{CC} = 12.5\text{V}$ , $P_i = 200\text{mW}$<br>$V_{CON} = 0 \sim 12.5\text{V}$<br>VSWR Load 3 : 1 all phase                          | All spurious output<br>than 60dB below<br>desired signal |      |      | —    |

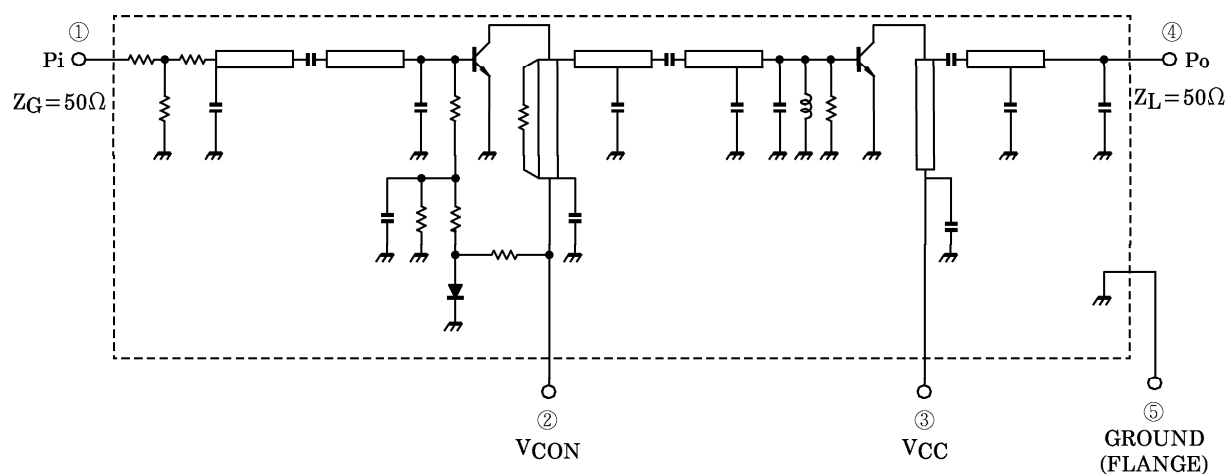
## CAUTION

- This product has intersetting cap. Please pay attention for exceeding stress and foreign matter in your application. And not to take away the cap.
- Beryllia Ceramics is used in this product. The dust or vapor can be dangerous to humans. Do not break, cut, crush or dissolve chemically. Dispose of this product properly according to law. Do not intermingle with normal industrial or domestic waste.

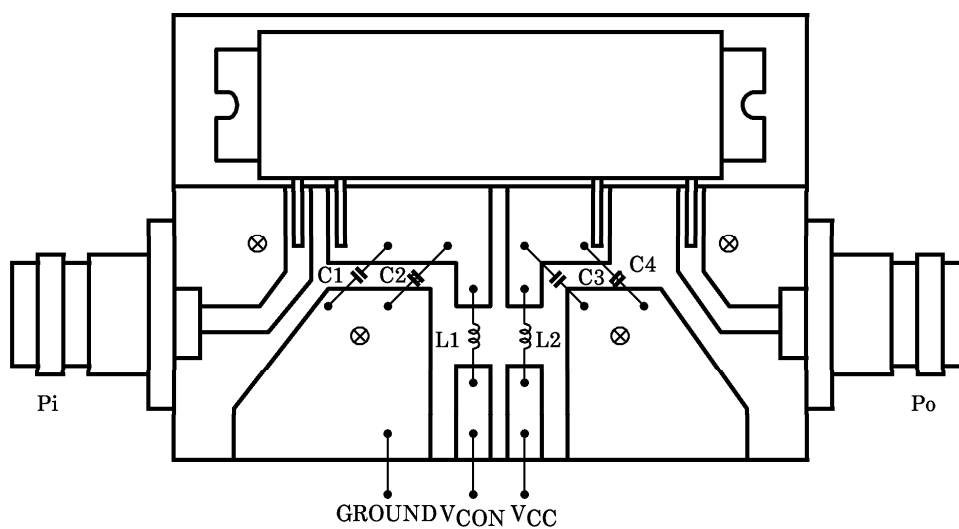
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● TOSHIBA is continually working to improve the quality and the reliability of its products. Nevertheless, semiconductor devices in general can malfunction or fail due to their inherent electrical sensitivity and vulnerability to physical stress. It is the responsibility of the buyer, when utilizing TOSHIBA products, to observe standards of safety, and to avoid situations in which a malfunction or failure of a TOSHIBA product could cause loss of human life, bodily injury or damage to property. In developing your designs, please ensure that TOSHIBA products are used within specified operating ranges as set forth in the most recent products specifications. Also, please keep in mind the precautions and conditions set forth in the TOSHIBA Semiconductor Reliability Handbook.

**SCHEMATIC**



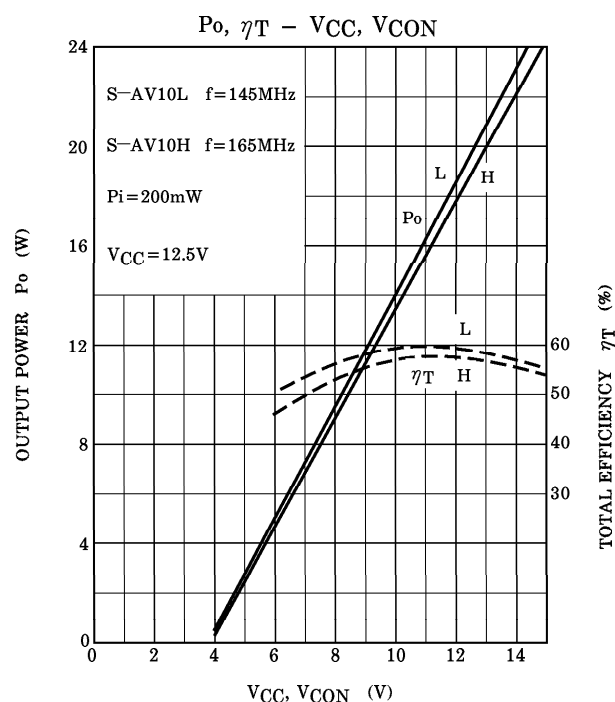
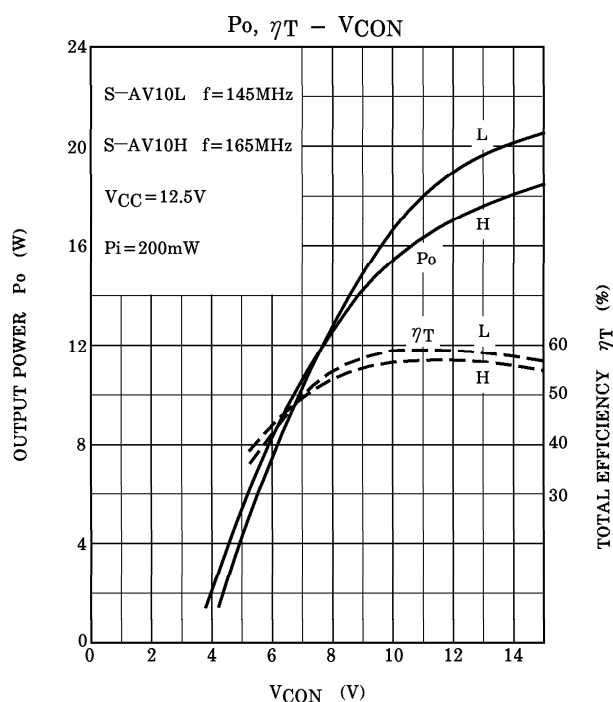
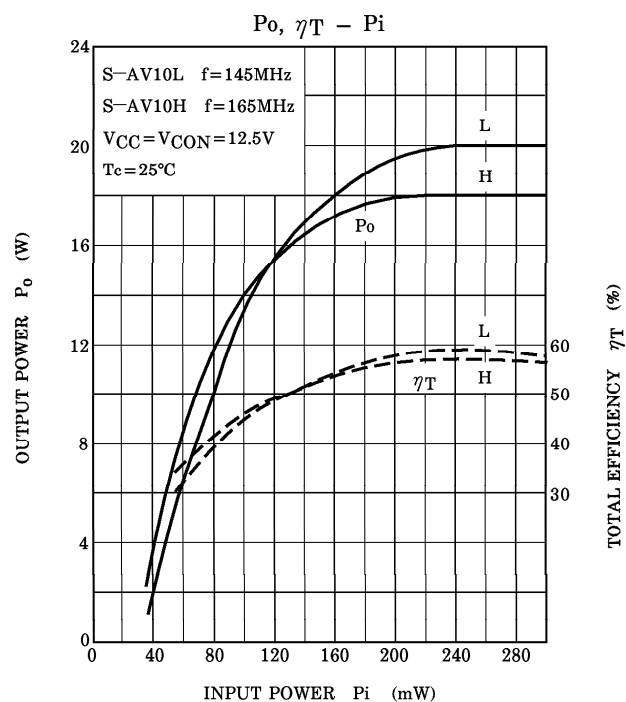
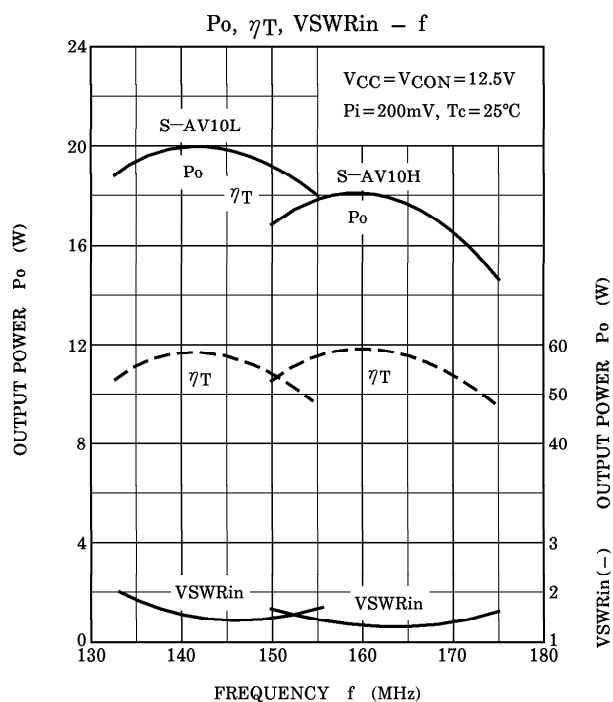
**TEST FIXTURE**



C1, C3 : 15000pF  
 C2, C4 : 10μF  
 L1, L2 : φ0.8 ENAMEL WIRE, 8T, 5ID

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**CAUTION**

These are only typical curves and devices are not necessarily guaranteed at these curves.