

TOSHIBA RF POWER AMPLIFIER MODULE

S-AV38

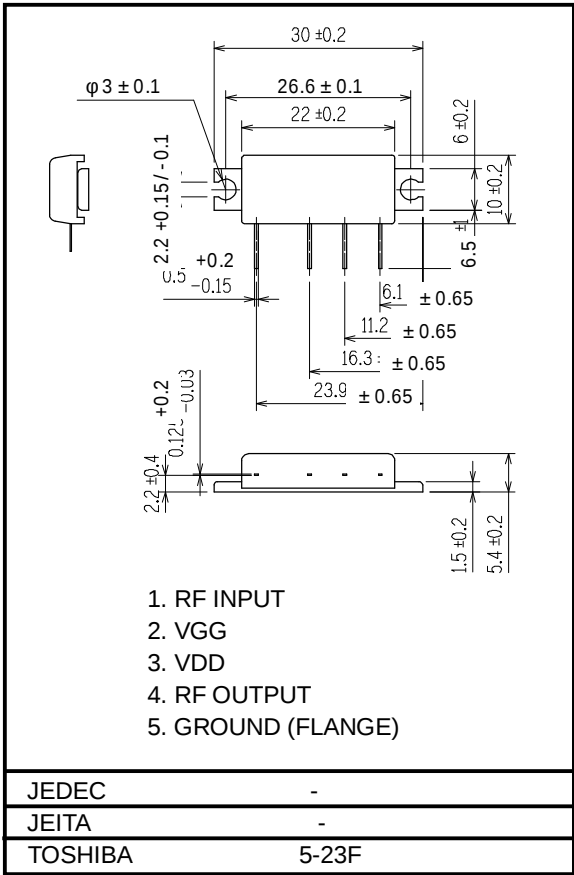
- RF POWER AMPLIFIER MODULE for VHF BAND
- for digital use

MAXIMUM RATINGS (Tc = 25 )

| CHARACTERISTIC                   | SYMBOL               | RATING  | UNIT |
|----------------------------------|----------------------|---------|------|
| DC Supply Voltage                | V <sub>DD</sub>      | 17      | V    |
| DC Supply Voltage                | V <sub>GG</sub>      | 7       | V    |
| Input Power                      | P <sub>i</sub>       | 17      | dBmW |
| Operating Case Temperature Range | T <sub>c (opr)</sub> | -30~100 |      |
| Storage Temperature Range        | T <sub>stg</sub>     | -40~110 |      |

PACKAGE OUTLINE

Unit in mm



Weight:3.5g

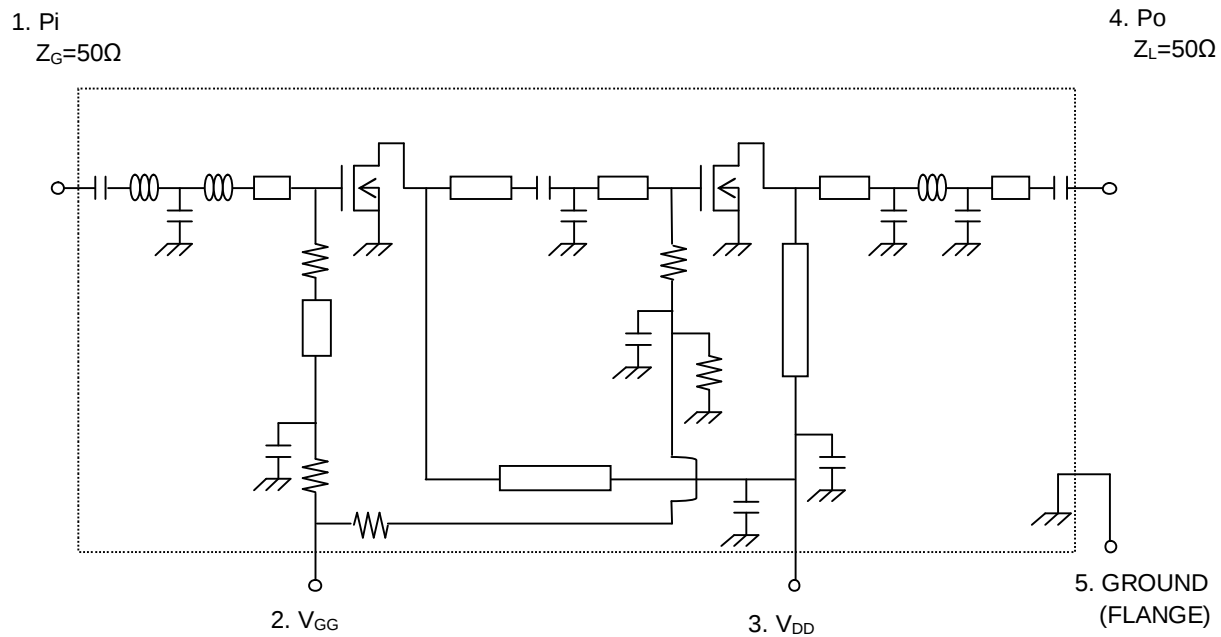
ELECTRICAL CHARACTERISTICS ( $T_c = 25$  ,  $Z_G = 50\Omega$ )

| CHARACTERISTIC                     | SYMBOL       | TEST CONDITION                                                                                                                                                                                                                                | MIN.                                               | TYP. | MAX.     | UNIT     |
|------------------------------------|--------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------------------------------------------------|------|----------|----------|
| Frequency Range                    | $f_{range}$  | —                                                                                                                                                                                                                                             | 260                                                | —    | 266      | MHz      |
| Output Power                       | $P_o$        | $V_{DD} = 7.2V$ , $P_o = 35dBmW$ ( $P_i = \text{adjust}$ )<br>$I_{DD} = 1.7A$ ( $V_{GG} = \text{adjust}$ ), $Z_L = 50\Omega$<br>After that $P_i = 15dBmW$                                                                                     | 38.8                                               | —    | —        | dBmW     |
| Input Power                        | $P_i$        | $V_{DD} = 7.2V$ , $I_{DD} = 1.7A$ ( $V_{GG} = \text{adjust}$ )<br>$P_o = 35dBmW$ ( $P_i = \text{adjust}$ ), $Z_L = 50\Omega$                                                                                                                  | —                                                  | —    | 5        | dBmW     |
| Gate Bias Voltage                  | $V_{GG}$     | $V_{DD} = 7.2V$ , $I_{DD} = 1.7A$ ( $V_{GG} = \text{adjust}$ )<br>$P_o = 35dBmW$ ( $P_i = \text{adjust}$ ), $Z_L = 50\Omega$                                                                                                                  | 2.5                                                | —    | 3.5      | V        |
| Gate Bias Current                  | $I_{GGBias}$ | $V_{DD} = 7.2V$ , $I_{DD} = 1.7A$ ( $V_{GG} = \text{adjust}$ )<br>$P_o = 35dBmW$ ( $P_i = \text{adjust}$ ), $Z_L = 50\Omega$<br>After that $P_i$ OFF                                                                                          | —                                                  | —    | 1        | mA       |
| Adjacent-Channel Power Ratio       | ACP          | $V_{DD} = 7.2V$ , $I_{DD} = 1.7A$ ( $V_{GG} = \text{adjust}$ )<br>$P_o = 35dBmW$ ( $P_i = \text{adjust}$ ), $Z_L = 50\Omega$<br>Modulated Wave : $\pi/4$ -DQPSK<br>( $\alpha=0.5$ , 32kbps)<br>Band Width : 16kHz<br>Frequency Offset : 25kHz | —                                                  | —    | -35      | dB       |
| Second Harmonic                    | 2nd HRM      | $V_{DD} = 7.2V$ , $I_{DD} = 1.7A$ ( $V_{GG} = \text{adjust}$ )<br>$P_o = 35dBmW$ ( $P_i = \text{adjust}$ ), $Z_L = 50\Omega$                                                                                                                  | —                                                  | —    | -27      | dB       |
| Third Harmonic                     | 3rd HRM      |                                                                                                                                                                                                                                               | —                                                  | —    | -30      | dB       |
| Harmonic                           | HRM          |                                                                                                                                                                                                                                               | —                                                  | —    | -35      | dB       |
| Rate of Adjustment for Input Load  | VSWRin       | Input VSWR ( When RF output pin connects $50\Omega$ Load )                                                                                                                                                                                    | —                                                  | —    | 3        | —        |
| Rate of Adjustment for Output Load | VSWRout      | Input VSWR ( When RF input pin connects $50\Omega$ Load )                                                                                                                                                                                     | —                                                  | —    | 2.5      | —        |
| Relative Phase Variation           | —            | $V_{DD} = 7.2V$ , $I_{DD} = 1.7A$ ( $V_{GG} = \text{adjust}$ )<br>$P_o = 5$ to $35dBmW$ ( $P_i = \text{adjust}$ )<br>$Z_L = 50\Omega$ (@ $P_o = 35dBmW$ )                                                                                     | —                                                  | —    | $\pm 12$ | $^\circ$ |
| Load Mismatch                      | —            | $V_{DD} = 7.2V$ , $I_{DD} = 1.7A$ ( $V_{GG} = \text{adjust}$ )<br>$P_o = 35dBmW$ ( $P_i = \text{adjust}$ ), $Z_L = 50\Omega$ )<br>VSWR LOAD 20: 1 ALL PHASE                                                                                   | No Degradation                                     |      |          | —        |
| Stability                          | —            | $V_{DD} = 6.0$ to $9.0V$ , $V_{GG} = 1$ to $5V$<br>$P_i = -40$ to $13$ dBmW<br>VSWR LOAD 3: 1 ALL PHASE                                                                                                                                       | All spurious output than 60dB below desired signal |      |          | —        |

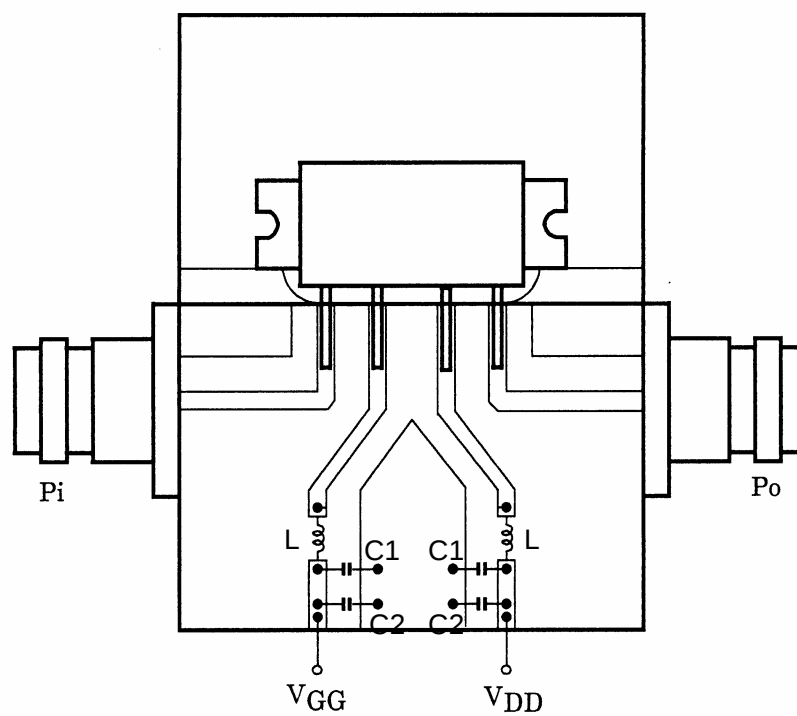
## Caution

- This product has intersetting cap. Please pay attention for exceeding stress and foreign matter in your application. And not to take away the cap.
- 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.
- This product is electrostatic sensitivity, please handle with caution.

## SCHEMATIC



## TEST FIXTURE



C1 : 10000pF  
C2 : 10  $\mu$ F  
L :  $\phi$ 0.8 ENAMEL WIRE 8T 5ID

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