TOSHIBA RF Power Amplifier Module

S-AV34

○RF Power Amplifier Module for VHF Band

· For Digital Use

Absolute Maximum Ratings (Tc = 25°C, Z_G = Z_L = 50Ω)

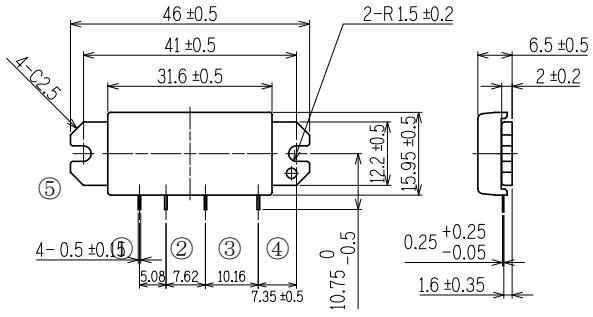
CHARACTERISTIC	SYMBOL	TEST CONDITION	RATING	UNIT
DC Supply Voltage	V_{DD}	V_{GG} = 0 V, Pi = 0mW	20	V
DC Supply Voltage	V_{GG}	$V_{DD} \leq$ 10.8 V, Pi = 0mW	8	V
Input Power	P_i	$V_{DD} \leq$ 10.8 V	20	dBmW
Junction Temperature	$T_{j\ MAX}$		150	°C
Storage Temperature Range	T_{stg}		-40 to 110	°C

Note: Using continuously under heavy loads (e.g. the application of high temperature/current/voltage and the significant change in temperature, etc.) may cause this product to decrease in the reliability significantly even if the operating conditions (i.e. operating temperature/current/voltage, etc.) are within the absolute maximum ratings and the operating ranges.
Please design the appropriate reliability upon reviewing the Toshiba Semiconductor Reliability Handbook (“Handling Precautions”/“Derating Concept and Methods”) and individual reliability data (i.e. reliability test report and estimated failure rate, etc).

Caution: This absolute maximum rating given in a sheet guarantees each item independently. When two items or more of maximum rated items joins a device at once. It becomes the outside of a guarantee.
Please design in circuit to make it always operate within this regulation also on the worst condition.

Package Outline

Unit in mm



① RF Input ② V_{GG} ③ V_{DD}
④ RF Output ⑤ GROUND(FRANGE)

JEDEC	—
JEITA	—
TOSHIBA	5-32F

Weight: 11.8g (type.)

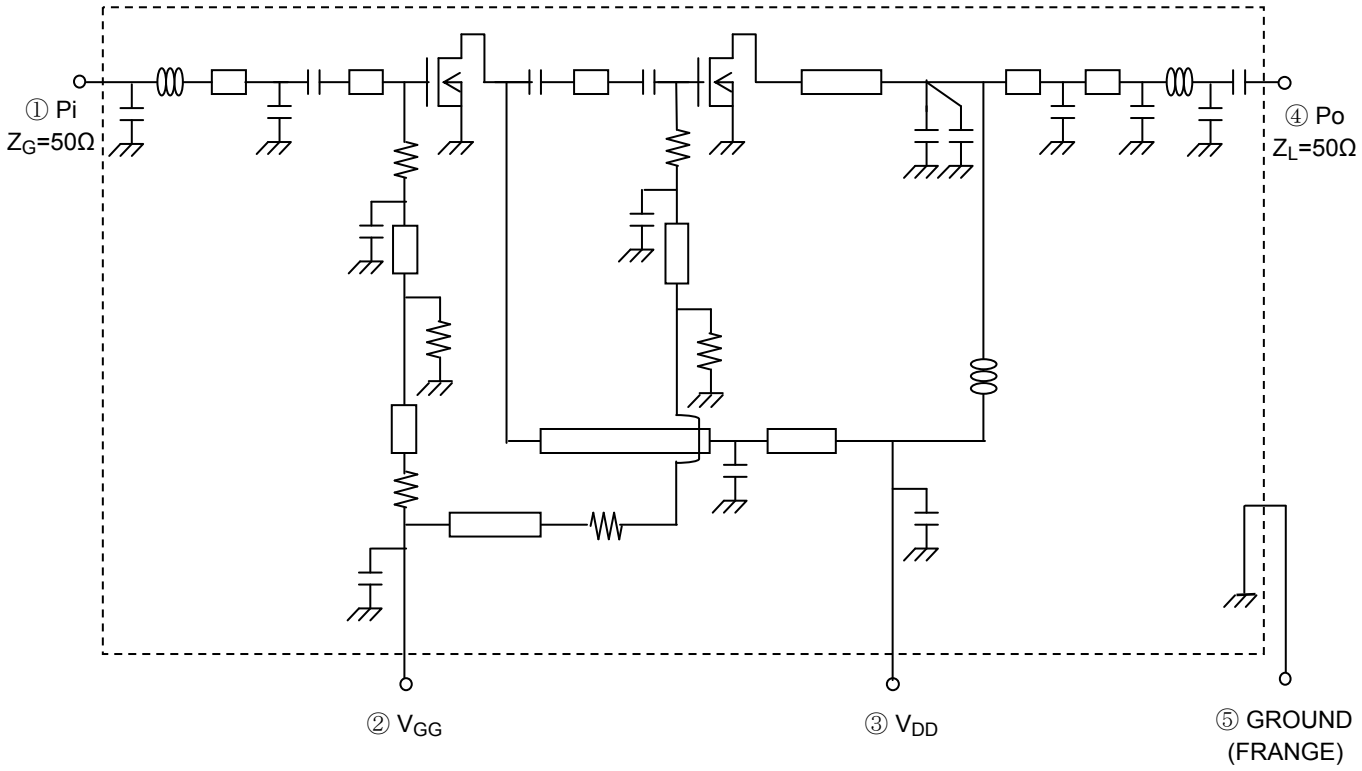
Electrical Characteristics (T_C = 25°C, Z_G = 50Ω)

CHARACTERISTIC	SYMBOL	TEST CONDITION	MIN	TYP.	MAX	UNIT
Frequency Range	f_{range}	—	150	—	165	MHz
Input Power	Pi	V_{DD} = 10.8V, I_{DD} = 2.8A (V_{GG} = adjust) Po = 39dBmW, Z_L = 50Ω	—	—	6	dBmW
Output Power 1	Po1	V_{DD} = 10.8V, V_{GG} = 5V, Pi = 12dBmW Z_L = 50Ω	43	—	—	dBmW
Total Efficiency	η_T	V_{DD} = 10.8V, Po = 39dBmW (Pi= adjust) Z_L = 50Ω	23	—	—	%
Drain Current	I_{DD}		—	—	3	A
Second Harmonic	2nd HRM	V_{DD} = 10.8V, I_{DD} = 2.8A (V_{GG} = adjust) Po = 39dBmW (Pi= adjust), Z_L = 50Ω	—	—	-30	dB
Harmonic	HRM		—	—	-30	dB
Adjacent-Channel Power Ratio	ACP	V_{DD} = 10.8V, I_{DD} = 2.8A (V_{GG} = adjust) Po = 39dBmW (Pi= adjust), Z_L = 50Ω Modulated Wave :π/4·DQPSK (α=0.5, 32kbps) Band Width : 16kHz Frequency Offset : 25kHz	—	—	-34	dB
Rate of Adjustment for Input Load	VSWRin	Input VSWR (When RF output pin connects 50Ω Load)	—	—	3	—
Gate Bias Current	I_{GGBias}	V_{DD} = 10.8V, I_{DD} = 2.8A (V_{GG} = adjust) Po = 39dBmW (Pi= adjust), Z_L = 50Ω After that Pi OFF	—	—	5	mA
Output Power 2	Po2	V_{DD} = 8.7V, V_{GG} = 5V, Pi = 5dBmW Z_L = 50Ω	36	—	—	dBmW
Ralative Phase Variation	—	V_{DD}= 10.8V, I_{DD} = 2.8A (V_{GG} = adjust) Po = 39dBmW (Pi= adjust), Z_L = 50Ω 0° (@Po = 28dBmW) Po = 28 to 41.5dBmW	—	—	20	°
Load Mismatch	—	V_{DD} = 10.8V, I_{DD} = 2.8A (V_{GG} = adjust) Po = 39dBmW (Pi= adjust, Z_L = 50Ω) VSWR LOAD 20: 1 ALL PHASE	No Degradation			—
Stability	—	V_{DD} = 8.7 to 13.0V, V_{GG} = 0 to 5V Pi = -40 to 39 dBmW VSWR LOAD 2.5: 1 ALL PHASE	All spurious output than 60dB below desired signal			—

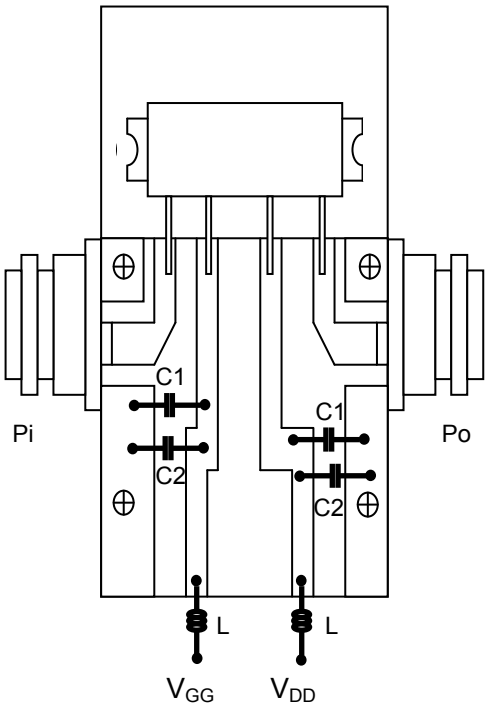
Caution

- 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
C2:10μF
L:φ 0.5 ENAMEL WIRE,4T,3ID

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