

TOSHIBA RF POWER AMPLIFIER MODULE

S-AV35

OFM RF POWER AMPLIFIER MODULE for VHF MARINE BAND

- Output Power :32W (Min.)
- Power Gain :35.0dB (Min.)
- Total Efficiency:50% (Min.)

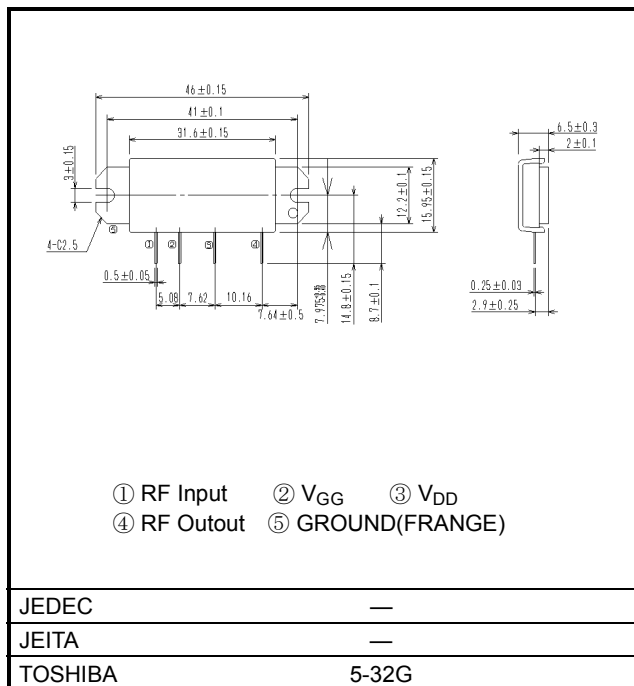
MAXIMUM RATINGS ($T_c = 25^\circ\text{C}$, $Z_G = Z_L = 50\ \Omega$)

CHARACTERISTIC	SYMBOL	TEST CONDITION	RATING	UNIT
DC Supply Voltage	V_{DD}	$V_{GG} = 0\text{V}$, $P_i = 0\text{mW}$	16.5	V
DC Supply Voltage	V_{DD}	$V_{GG} \leq 5\text{V}$, $P_i = 50\text{mW}$, $P_o \leq 45\text{W}$	16.5	V
DC Supply Voltage	V_{GG}	$V_{DD} \leq 12.5\text{V}$, $P_i = 50\text{mW}$	5.5	V
Total Current	I_T	$V_{DD} \leq 12.5\text{V}$, $P_i = 50\text{mW}$	8	A
Input Power	P_i	$V_{DD} \leq 12.5\text{V}$, $V_{GG} \leq 5\text{V}$	20	mW
Output Power	P_o	$12.5\text{V} < V_{DD} \leq 16.5\text{V}$, $V_{GG} \leq 5\text{V}$, $P_i = 50\text{mW}$	45	W
Operating Case Temperature Range	$T_c (\text{opr})$	$V_{GG} \leq 5\text{V}$	-30~100	$^\circ\text{C}$
Storage Temperature Range	T_{stg}		-40~110	$^\circ\text{C}$

Caution: This 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



Weight: 11.8g

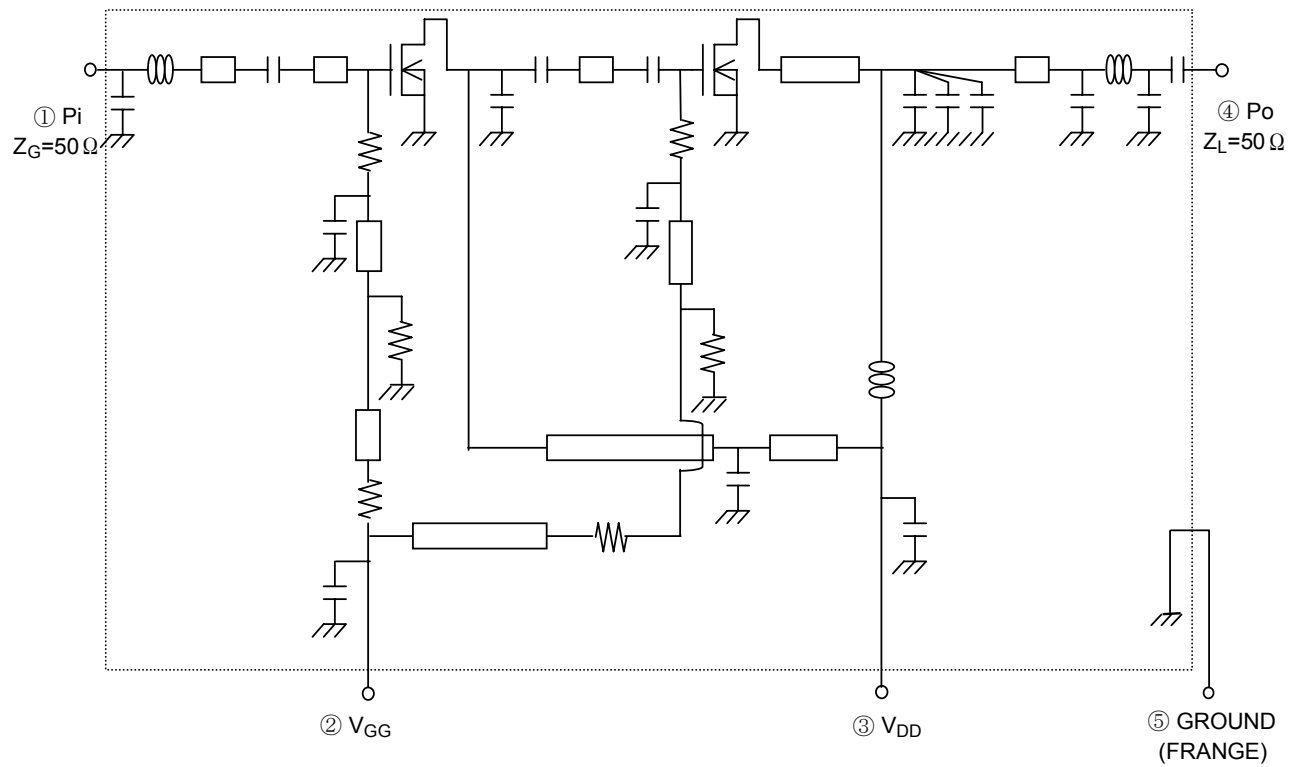
ELECTRICAL CHARACTERISTICS ($T_c = 25^\circ\text{C}$, $Z_G = 50\ \Omega$)

CHARACTERISTIC	SYMBOL	TEST CONDITION	MIN.	TYP.	MAX.	UNIT
Frequency Range	f_{range}	—	154	—	162	MHz
Output Power 1	P_{o1}	$V_{DD} = 12.5\text{V}$ $V_{GG} = 5\text{V}$ $P_i = 10\text{mW}$ $Z_L = 50\ \Omega$	32	—	—	W
Power Gain 1	G_{p1}		35.0	—	—	dB
Total Efficiency	η_T		50	—	—	%
Input VSWR	VSWRin		—	—	3.0	—
Second Harmonic	2nd HRM		—	—	-30	dB
Third Harmonic	3rd HRM		—	—	-30	dB
Output Power 2	P_{o2}	$V_{DD} = 10.5\text{V}$, $V_{GG} = 5\text{V}$ $P_i = 10\text{mW}$, $Z_L = 50\ \Omega$	20	—	—	W
Power Gain 2	G_{p2}		33.0	—	—	dB
Load Mismatch	—	$V_{DD} = 15\text{V}$, $P_i = 10\text{mW}$ $P_o = 32\text{W}$ ($V_{GG} = \text{adjust. @ } Z_L = 50\ \Omega$) VSWR LOAD 10: 1 ALL PHASE	No Degradation			—
Stability	—	$V_{DD} = 10.5$ to 16.5V , $V_{GG} = 0$ to 5V $P_i = 10\text{mW}$ $P_o \leq 32\text{W}$ ($V_{GG} = \text{adjust. @ } Z_L = 50\ \Omega$) VSWR LOAD 3: 1 ALL PHASE	All spurious output than 60dB below desired signal			—

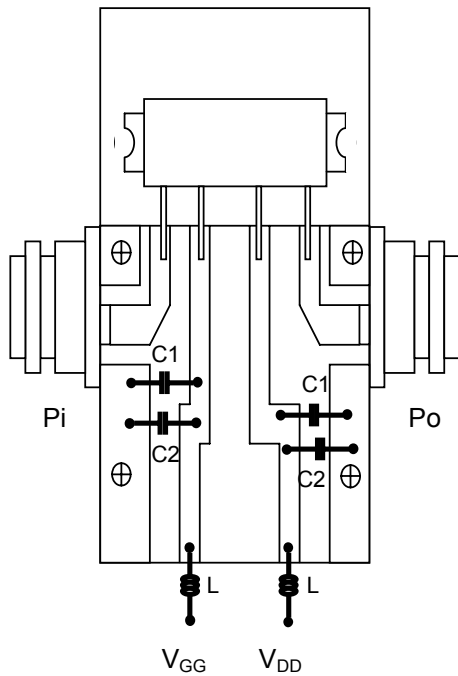
Caution

- 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.
- This product is flowed high current for a VDD terminal at both RF ON and RF OFF. And it has large calorific value for high output poer. So please use it within the limit of the maximum rating.
The view of the maximum rating of our company,
"The absolute maximum ratings are rated values which must not be exceeded during operatin,
even for an instant. And it 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. "

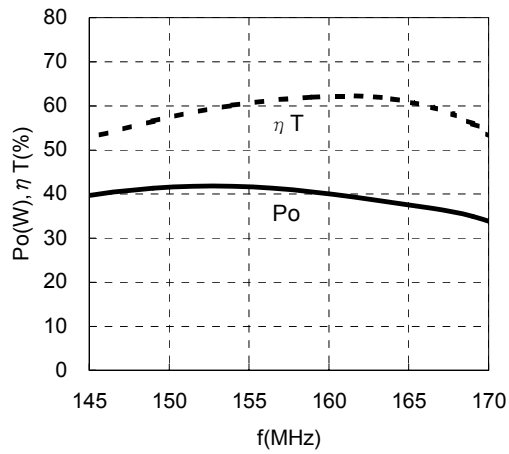
SCHEMATIC



TEST FIXTURE

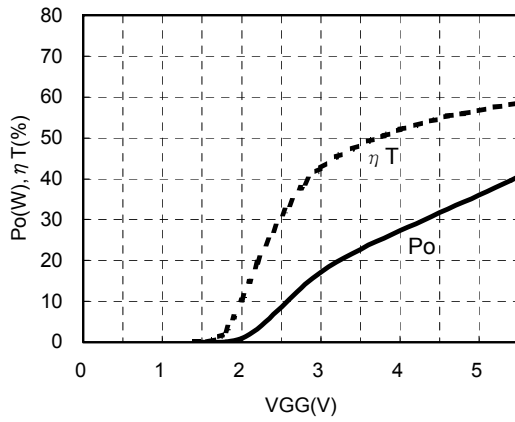


f-Po, ηT



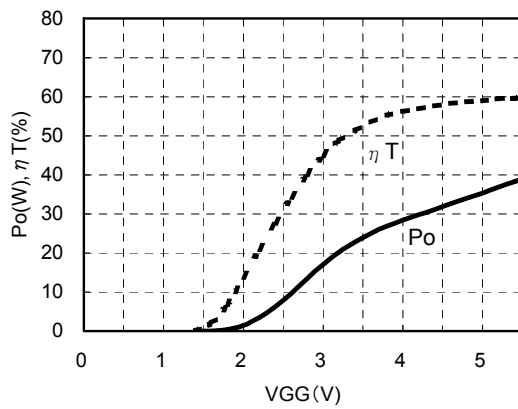
$V_{DD} = 12.5V$, $P_i = 10mW$
 $Z_G = Z_L = 50\Omega$

VGG - Po, ηT



$f = 154MHz$
 $V_{DD} = 12.5V$, $P_i = 10mW$
 $Z_G = Z_L = 50\Omega$

VGG - Po, ηT



$f = 162MHz$
 $V_{DD} = 12.5V$, $P_i = 10mW$
 $Z_G = Z_L = 50\Omega$

CAUTION

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

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