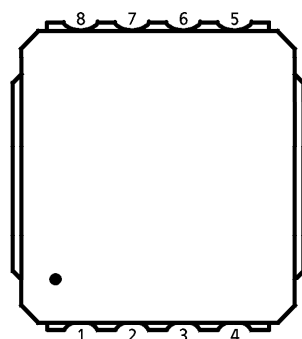


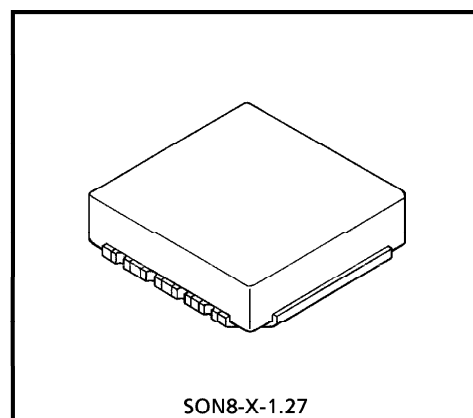
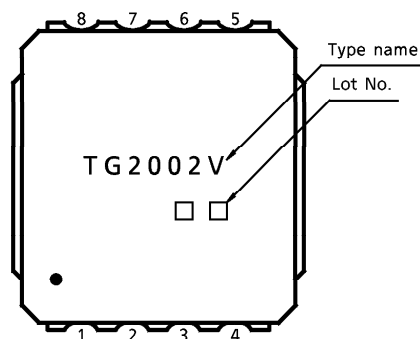
TOSHIBA HIGH FREQUENCY POWER AMPLIFIER MODULE

TG2002V**1.9GHz BAND POWER AMPLIFIER MODULE
(PHS DIGITAL CORDLESS TELEPHONE)****FEATURES**

- $V_{DD} = 3V$, $I_{DD} = 250mA$ (MAX.)
- $P_O = 22dBmW$ (MIN.), $G_p = 30dB$ (MIN.)
- GaAs MMIC MODULE
- Leadless Surface Mount Package (SON8)

PIN CONNECTION
(Top view)

- | | |
|--------------|--------------|
| 1. V_{DD1} | 5. V_{GC} |
| 2. GND | 6. Output |
| 3. Input | 7. GND |
| 4. V_{GG} | 8. V_{DD2} |

MARKING

SON8-X-1.27

Weight : 0.17g (Typ.)

961001EBC1

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

CHARACTERISTIC	SYMBOL	RATING	UNIT
Supply Voltage	V_{DD}	5	V
	V_{GG}	-4	V
Control Voltage	V_{GC}	5	V
Input Power	P_i	2	mW
Operating Temperature Range	T_{opr}	-10~60	$^\circ\text{C}$
Storage Temperature Range	T_{stg}	-40~110	$^\circ\text{C}$

(Note) $V_{DD} = V_{DD1} = V_{DD2}$

CAUTION

This device is electrostatic sensitivity. Please handle with caution.

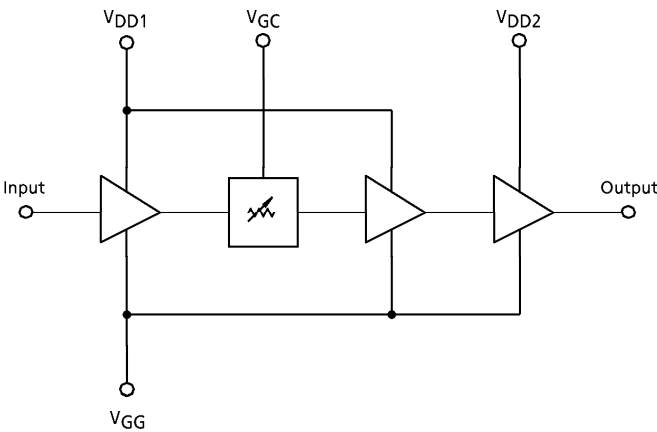
Do not use the chemical for removing flux. Please mount with no clean solder.

ELECTRICAL CHARACTERISTICS (Ta = 25°C)

CHARACTERISTIC	SYMBOL	TEST CIRCUIT	TEST CONDITION		MIN.	TYP.	MAX.	UNIT
Frequency Range	f _{range}	—	—		1895	—	1918	MHz
Output Power	P _O	1	V _{DD} = 3V, V _{GG} = − 2V, V _{GC} = 0.5V P _i = − 8dBmW, Z _g = Z _l = 50Ω		22	24	—	dBmW
Power Gain	G _p				30	32	—	dB
Gain Control Ratio	G _c	1	P _i = − 8dBmW, V _{DD} = 3V, V _{GG} = − 2V V _{GC} = 2.5V, Z _g = Z _l = 50Ω		− 17	− 20	− 23	dB
Input VSWR	VSWR _{in}	1	V _{DD} = 3V, V _{GG} = − 2V, V _{GC} = 0.5V P _O = 22dBmW, P _i = Adjustment		—	—	2.5	—
Gate Current	IGG	—			—	—	− 5	mA
Gain Control Current	IGC				—	—	0.1	mA
Total Current	I _T				—	225	250	mA
Harmonics	2f ₀				—	—	− 30	dB
	3f ₀				—	—	− 30	dB
Adjacent Channel Leakage Power Ratio	Padj (1)	1	V _{DD} = 3V, V _{GG} = − 2V, V _{GC} = 0.5V, Z _g = Z _l = 50Ω P _O = 22dBmW, P _i = Adjustment (Note 2)	Δf = 600kHz	—	—	− 58	dB
	Padj (2)		Δf = 900kHz	—	—	− 63	dB	
Load Mismatch	—	—	V _{DD} = 4.5V, V _{GG} = − 2V, V _{GC} = 0.5V P _O = 22dBmW, P _i = Adjustment, Z _g = 50Ω VSWR Load = 20 : 1 all phase		No Degradation			—
Stability	—	—	V _{DD} = 2.5~4.5V, V _{GG} = − 2V, V _{GC} = 0.5V P _i = 0mW~ − 6dBmW, Z _g = 50Ω VSWR Load = 6 : 1 all phase		All spurious output than 60dB below desired signal			—

(Note 1) $V_{DD} = V_{DD1} = V_{DD2}$ (Note 2) Input signal is modulated to $\pi/4QPSK$ ($\alpha = 0.5$). Bit rate is 384kbps.

EQUIVALENT CIRCUIT



TEST CIRCUIT 1 (RF TEST CIRCUIT)

