

TOSHIBA GaAs LINEAR INTEGRATED CIRCUIT GaAs MONOLITHIC

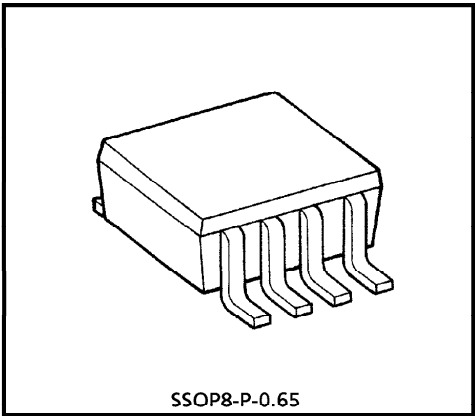
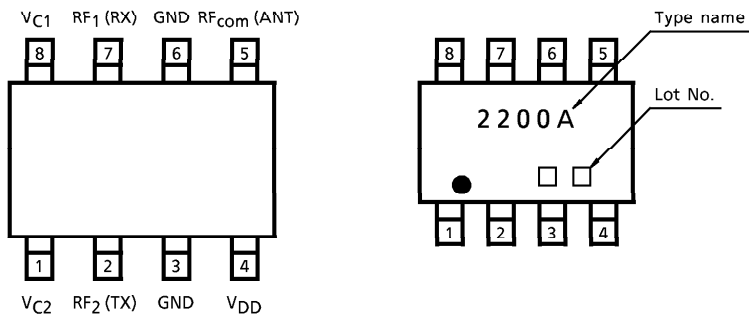
TG2200AF

1.9GHz BAND ANTENNA SWITCH
(PHS DIGITAL CORDLESS TELEPHONE)

FEATURES

- LOW INSERTION LOSS : $L_{OSS} = 0.5\text{dB}$ (Typ.)
- HIGH ISOLATION : $ISL = 25\text{dB}$ (Typ.)
- CONTROL VOLTAGE : $0\text{V} / 3\text{V}$

PIN CONNECTION (TOP VIEW) MARKING



Weight : 0.02g (Typ.)

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

CHARACTERISTIC	SYMBOL	RATING	UNIT
Supply Voltage	V_{DD}	5	V
Control Voltage	V_{C1}	5	V
	V_{C2}	5	V
Input Power	P_i	1	W
Operating Temperature Range	T_{opr}	- 40~85	$^\circ\text{C}$
Storage Temperature Range	T_{stg}	- 55~125	$^\circ\text{C}$

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ELECTRICAL CHARACTERISTICS ($V_{DD} = 3V$, $T_a = 25^\circ C$, $Z_G = Z_I = 50\Omega$)

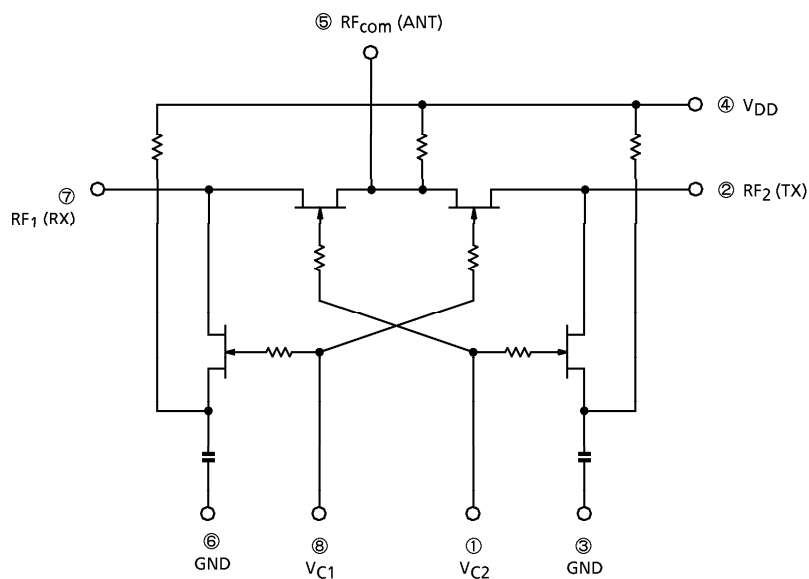
CHARACTERISTIC	SYMBOL	TEST CIR-CUIT	TEST CONDITION	MIN.	TYP.	MAX.	UNIT
Frequency Range	f_{range}	—	—	1895	—	1918	MHz
Insertion Loss	$L_{OSS} (1)$	1	$V_{C1} = 3V$, $V_{C2} = 0V$, $P_i = 22dBmW$	—	0.5	1.0	dB
	$L_{OSS} (2)$	1	$V_{C1} = 0V$, $V_{C2} = 3V$, $P_i = 0dBmW$	—	0.5	1.0	dB
Isolation	$ISL (1)$	1	$V_{C1} = 3V$, $V_{C2} = 0V$, $P_i = 22dBmW$	20	25	—	dB
	$ISL (2)$	1	$V_{C1} = 0V$, $V_{C2} = 3V$, $P_i = 0dBmW$	20	25	—	dB
Switching Time	t_{sw}	—	$V_{C1} = 3V$, $V_{C2} = 0V$ or $V_{C1} = 0V$, $V_{C2} = 3V$	—	0.01	—	μs
Supply Current	I_{DD}			—	—	0.1	mA
Control Current	I_{C1}			—	—	0.1	mA
	I_{C2}			—	—	0.1	mA
Output Power at 1dB Gain Compression	P_{o1dB}	1	$V_{C1} = 3V$, $V_{C2} = 0V$	—	24	—	dBm W
Adjacent Channel Leakage Power Ratio	P_{adj}	1	$V_{C1} = 3V$, $V_{C2} = 0V$, $P_i = 22dBmW$ (Note), $\Delta f = 600kHz$	—	—	-60	dB

(Note) Input signal is modulated to $\pi / 4QPSK$ ($\alpha = 0.5$). Bit rate is 384kbps.

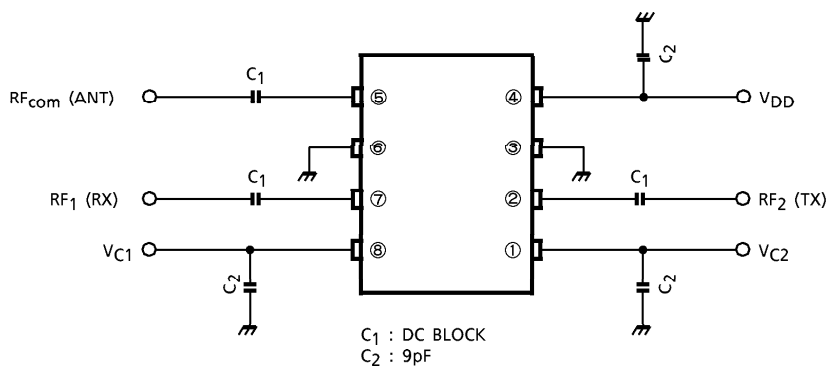
TRUTH TABLE

CONTROL VOLTAGE		SWITCH CONDITION	
V_{C1}	V_{C2}	$RF_{com} (ANT)-RF_1 (RX)$	$RF_{com} (ANT)-RF_2 (TX)$
3V	0V	OFF	ON
0V	3V	ON	OFF

TEST CIRCUIT 1



TEST CIRCUIT 1



RF TEST CONDITION ($V_{DD} = 3V$, $f = 1.907GHz$, $T_a = 25^{\circ}C$, $Z_g = Z_l = 50\Omega$)

	RF _{com} (ANT)	RF ₁ (RX)	RF ₂ (TX)	INPUT POWER	V _{C1}	V _{C2}
LOSS (1)	P _O	50Ω TERMINATION	P _i	22dBmW	3V	0V
LOSS (2)	P _i	P _O	50Ω TERMINATION	0dBmW	0V	3V
ISL (1)	50Ω TERMINATION	P _O	P _i	22dBmW	3V	0V
ISL (2)	P _i	50Ω TERMINATION	P _O	0dBmW	0V	3V
P _{O1dB}	P _O	50Ω TERMINATION	P _i	—	3V	0V
P _{adj}	P _O	50Ω TERMINATION	P _i	22dBmW	3V	0V

This device is electrostatic sensitivity. Please handle with caution.

