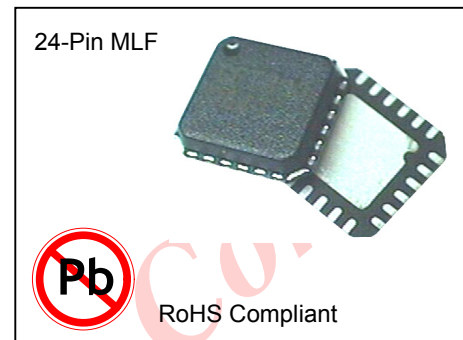


DESCRIPTION

The GFT809 is a high performance FM transmitter designed for portable multimedia systems. It includes stereo modulator and FM transmitter incorporated with oscillator circuits. This device employs sophisticated stereo modulation circuitry to ensure quality audio characteristics. The GFT809 is fabricated using advanced CMOS process and available as 24-pin MLF package.

FEATURES

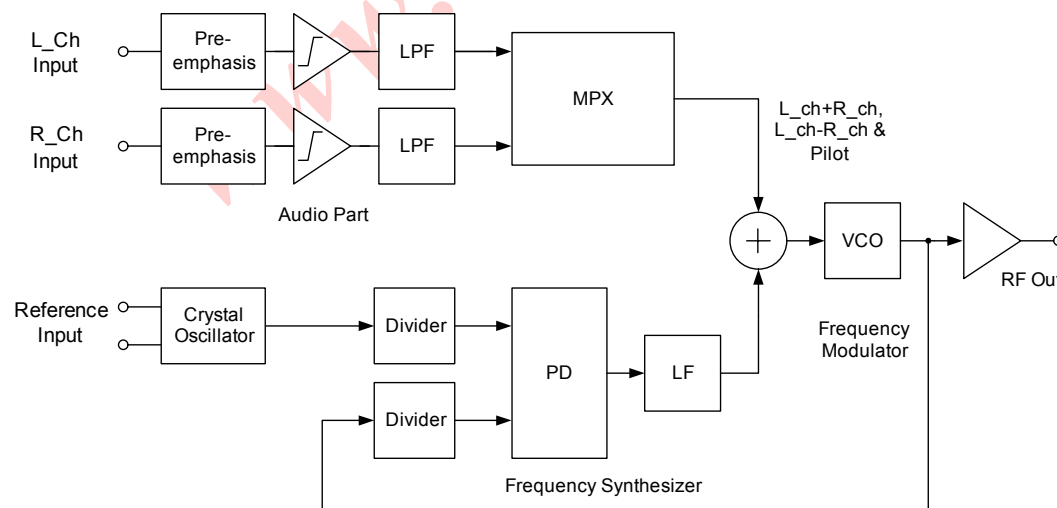
- 2.7 to 3.7V operation
- Low current consumption
10mA @ 3.0V (Typical)
- 4 bit switch control
- Selectable frequency band (US/JPN)
- Chip scale package (body size, 4mm x 4mm)



APPLICATIONS

- MP3P, MP3 phone, CD changer, notebook PC, car TV, electronic dictionary, portable DVD, portable multimedia players(PMP), Navigator/DMB and portable game devices

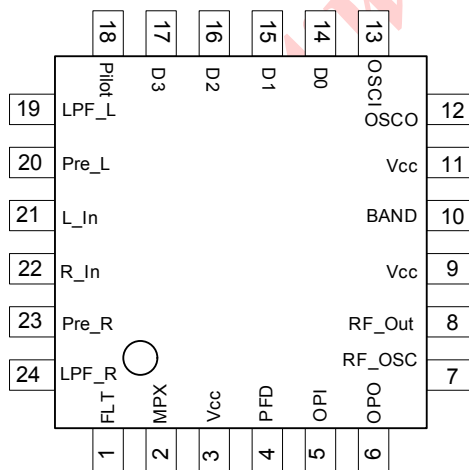
BLOCK DIAGRAM



PIN DESCRIPTIONS

Pin No.	Symbol	Description	Pin No.	Symbol	Description
1	FLT	Filter	13	OSCI	Crystal oscillator in
2	MPX	MPX signal out	14	D ₀	Data 0
3	Vcc	Vcc, RF	15	D ₁	Data 1
4	PFD	Phase frequency detector	16	D ₂	Data 2
5	OPI	OP amp in	17	D ₃	Data 3
6	OPO	OP amp out	18	Pilot	Pilot tone adjustment
7	RF_OSC	RF Oscillator	19	LPF_L	Low pass filter, left
8	RF_Out	RF signal out	20	Pre_L	Pre-emphasis, left
9	Vcc	Vcc, analog	21	L_In	Audio input, left channel
10	Band	Frequency band selection	22	R_In	Audio input, right channel
11	Vcc	Vcc, crystal	23	Pre_R	Pre-emphasis, right
12	OSCO	Crystal oscillator out	24	LPF_R	Low pass filter, right

CONNECTION DIAGRAM



- Note
- The exposed pad on the bottom side must be connected to the ground.
 - Frequency band can be selected via connecting pin #10 to ground or Vcc.

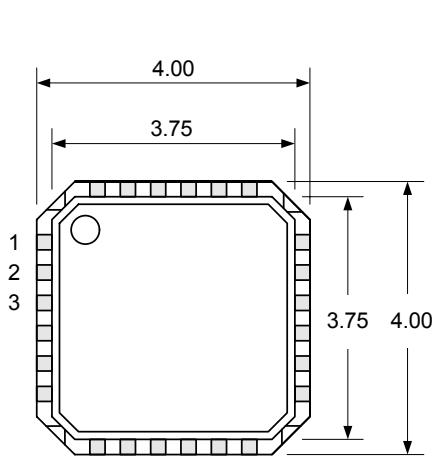
ABSOLUTE MAXIMUM RATINGS

Parameters	Symbol	Value	Units
Power supply voltage	V _{CC}	5.0	V
Operating temperature	T _{OPR}	-30 to +85	°C
Transmission frequency	F _{TX}	76.8~78.0/88.0~89.2 87.7~88.9/106.7~107.9	MHz
Storage temperature	T _{STG}	-35 to +150	°C
ESD (human body model)		2000	V

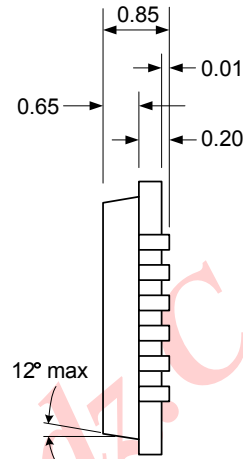
ELECTRICAL CHARACTERISTICS

Parameter	Symbol	Test condition	Min.	Typ.	Max.	Units
Power supply voltage	V _{CC}		2.7	3.0	3.7	V
Operating current	I _{CC}	V _{CC} =3.0V	8	10	12	mA
Total harmonic distortion	THD	V _{in} =-20dBV	-	0.1	0.3	%
Audio input level	Lin-A		-	-	-10	dBV
Pre-emphasis time constant	T _{PRE}	V _{in} =-20dBV, L+R	40	50	60	µsec
Limiter input level	Lin-LIM	Output level at 1dB compression	-14	-12	-10	dBV
LPF cut off frequency	F _{cut}	V _O =-3dB	14	15	16	kHz
Pilot modulation rate	MP	V _{in} =-20dBV, L+R	10	13	16	%
Input output gain	GN	V _{in} =-20dBV, L+R	-1	0	1	dB
Sub-carrier rejection ratio	SCR	V _{in} =-20dBV, L+R	25	40	-	dB
Channel balance	BAL	V _{in} =-20dBV, L+R	-1	0	1	dB
Channel separation	SEP	V _{in} =-20dBV	30	40	-	dB
RF power	PRF	F _{TX} =89.2MHz & 107.9MHz	100	102	104	dBµV

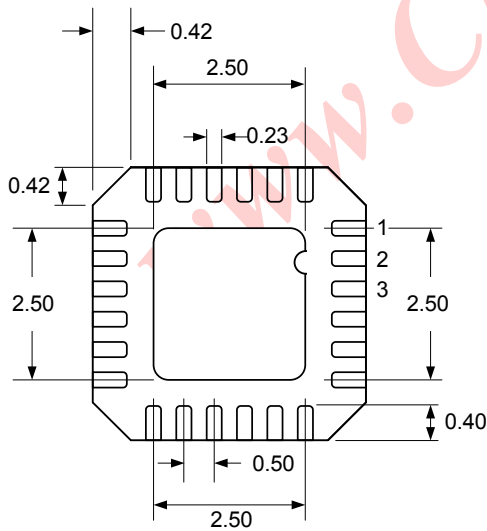
24-PIN MLF Package (4mm x 4mm)



TOP VIEW



SIDE VIEW



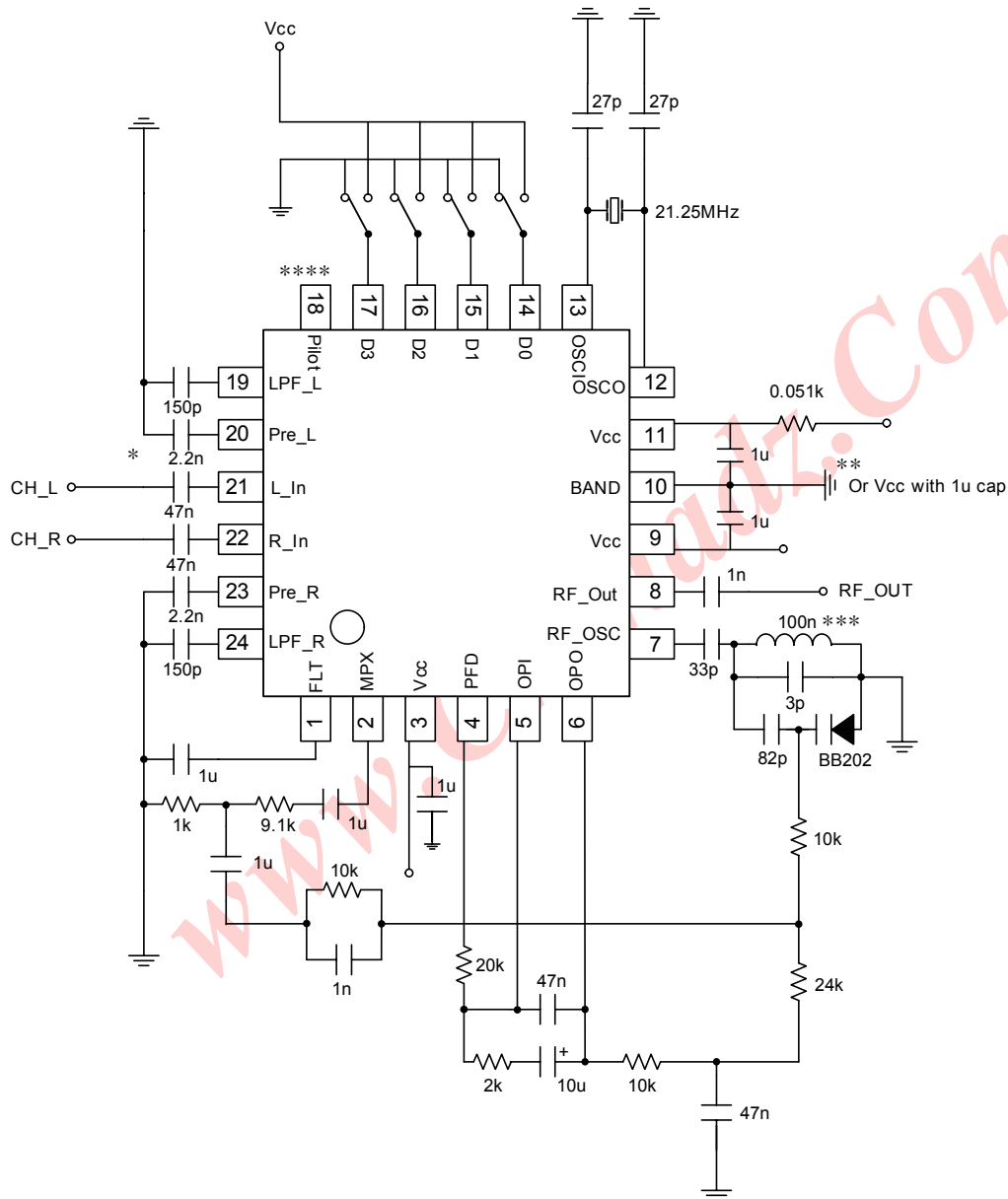
BOTTOM VIEW

(Unit: mm)

CARRIER FREQUENCY SELECTION

Data				Frequency (MHz)	
D ₃	D ₂	D ₁	D ₀	Pin #10 to Vcc	Pin #10 to GND
0	0	0	0	87.7	76.8
0	0	0	1	87.9	77.0
0	0	1	0	88.1	77.2
0	0	1	1	88.3	77.4
0	1	0	0	88.5	77.6
0	1	0	1	88.7	77.8
0	1	1	0	88.9	78.0
0	1	1	1	PLL Off	
1	0	0	0	106.7	88.0
1	0	0	1	106.9	88.2
1	0	1	0	107.1	88.4
1	0	1	1	107.3	88.6
1	1	0	0	107.5	88.8
1	1	0	1	107.7	89.0
1	1	1	0	107.9	89.2
1	1	1	1	PLL Off	

APPLICATION CIRCUIT



* Note: Capacitors of 2.2nF and 3.3nF are used for the pre-emphasis time constant of 50μsec and 75μsec, respectively.

** Frequency band can be selected by the connection of pin # 10 to Vcc or ground.

*** The oscillation depends on the Q value of the inductor.

**** Pin #18, pilot level control, can be normally open.