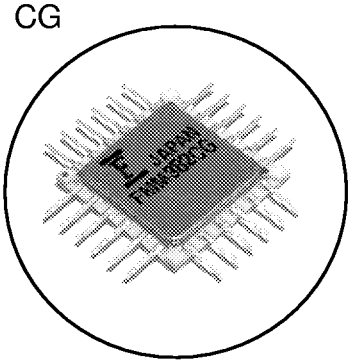
2.5Gb/s GaAs 1:4 Demultiplexer IC

FMM382CG/DG

FEATURES

- High speed operation up to 2.7 GHz from DC
- Internal phase shifter
- ECL compatible input and output
- Single -5.2 V power supply
- Stable operation at wide temperature range between 0 and 85°C
- High reliable metal/ceramic 24-pin hermetic flat package (CG)/ gullwing package (DG)

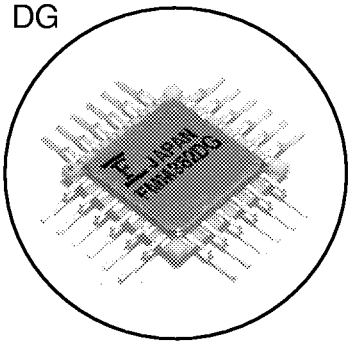
CG



DESCRIPTION

The FMM382CG and FMM382DG are high speed GaAs 1:4 demultiplexer ICs for multi-gigabit optical communication systems and digital test instruments. The device is designed for converting serial signal to 4-bit parallel signals at up to 2.7 GHz. An internal phase shifter is provided for arranging the 4-bit output parallel signals. The GaAs die is attched into advanced 24-pin metal/ceramic flat package designed for high speed applicaton.

DG



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ABSOLUTE MAXIMUM RATINGS

Rating	Symbol	Values	Unit
Storage Voltage	V_{SS}	-7.0	V
Input Voltage	V_{TI}	V_{SS} to 0	V
Reference Voltage	V_{TO}	-2.0 to 0	V
Power Dissipation	P_D	2.0	W
Storage Temperature	T_{stg}	-55 ~ +125	°C

ELECTRICAL CHARACTERISTICS (Tc = 25°C, V_{SS} = -5.2V)

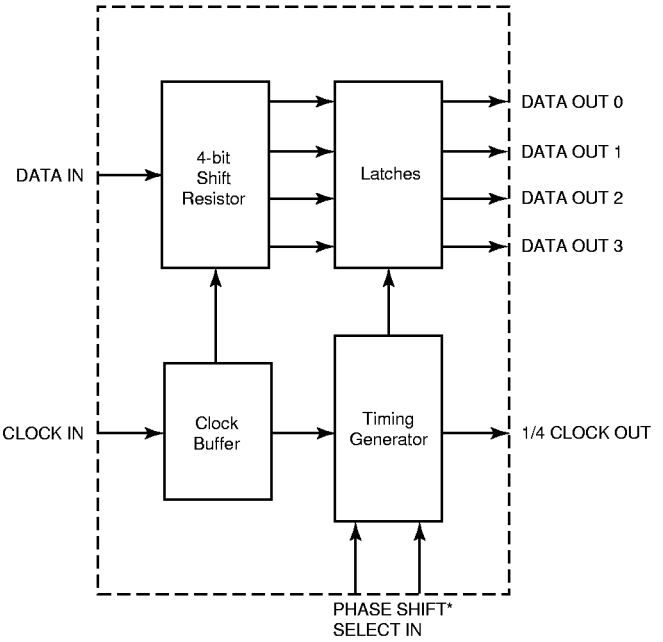
Parameter	Symbol	Conditions	Limit			Unit
			Min.	Typ.	Max.	
Supply Current	I_{SS}		-	200	-	mA
High Level Input Voltage	V_{IH}		-1.0	-0.9	-	V
Low Level Input Voltage	V_{IL}		-	-1.7	-1.6	V
High Level Output Voltage	V_{OH}	V_{TT}=2V 50Ω Termination *20%~80%	-0.95	-	-	V
Low Level Output Voltage	V_{OL}		-	-	-1.65	V
Output Rise Time	t_r*		-	175	-	ps
Output Fall Time	t_f*		-	175	-	ps
Maximum Clock Frequency	f_{max}		2.7	-	-	GHz

RECOMMENDED OPERATING CONDITIONS (V_{DD} = 0V)

Parameter	Symbol	Value			Unit
		Min.	Typ.	Max.	
Supply Voltage	V_{SS}	-5.46	-5.2	-4.94	V
Reference Voltage	V_{REF}*	-1.4	-1.3	-1.2	V
Operating Case Temperature	T_C	0	-	+65	°C

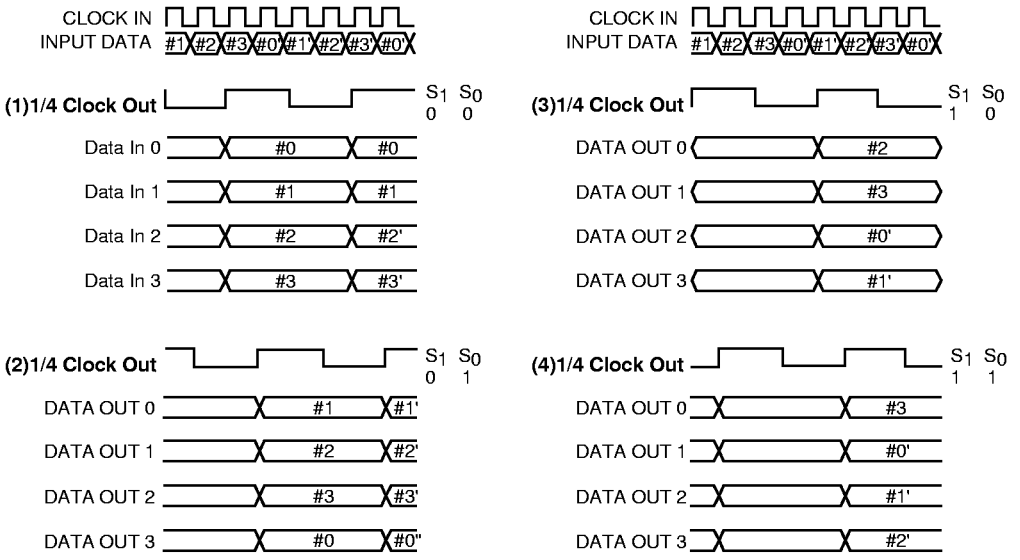
* Note: V_{REF} which is normally open, can be used as a bias adjusting terminal to optimize the operation frequency or output wavefoem.

BLOCK DIAGRAM

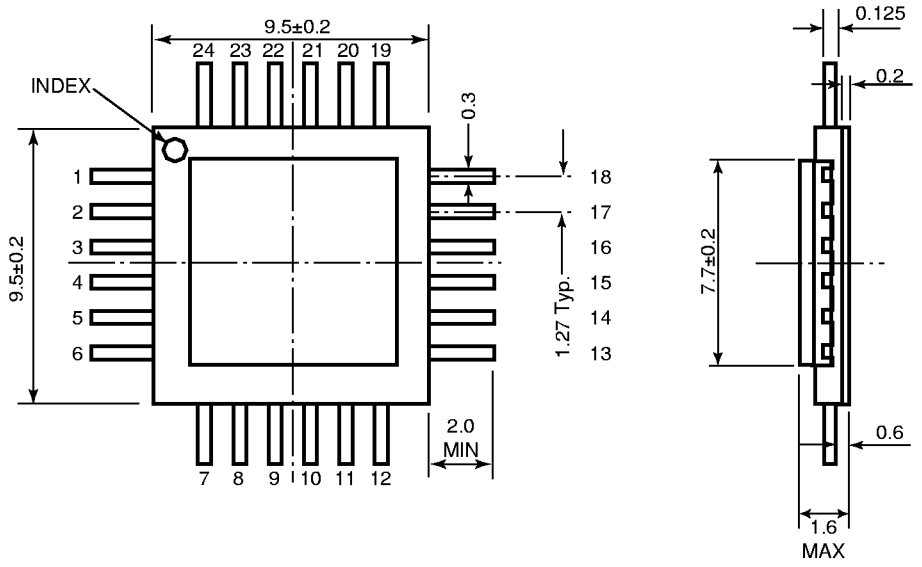


* These two input pins are used to select one of 4 phases of the internally generated 1/4 CLOCK. Each phase differs by one high speed CLOCK period in time. PHASE SHIFT (DATA ROTATION) is accomplished by providing a 2-bit static code to the pins.

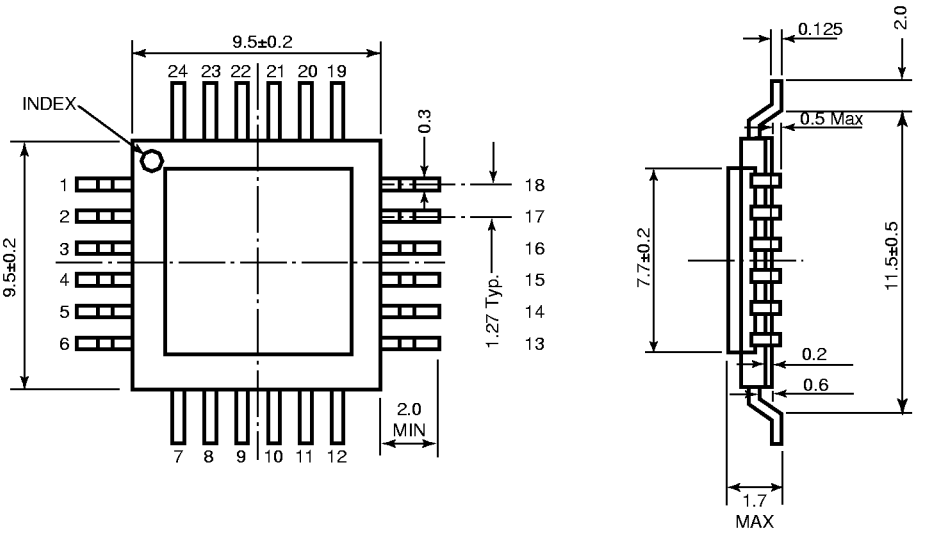
TIMING DIAGRAM



"CG" PACKAGE **UNIT: mm**



"DG" PACKAGE **UNIT: mm**



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CAUTION

Fujitsu Compound Semiconductor Products contain **gallium arsenide (GaAs)** which can be hazardous to the human body and the environment. For safety, observe the following procedures:

- **Do not put this product into the mouth.**
- **Do not alter the form of this product into a gas, powder, or liquid through burning, crushing, or chemical processing as these by-products are dangerous to the human body if inhaled, ingested, or swallowed.**
- **Observe government laws and company regulations when discarding this product. This product must be discarded in accordance with methods specified by applicable hazardous waste procedures.**

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