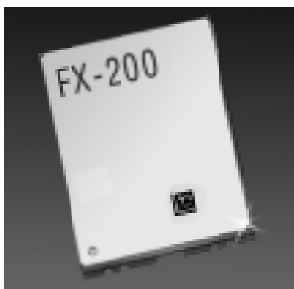


Frequency Translation Products

FX-200



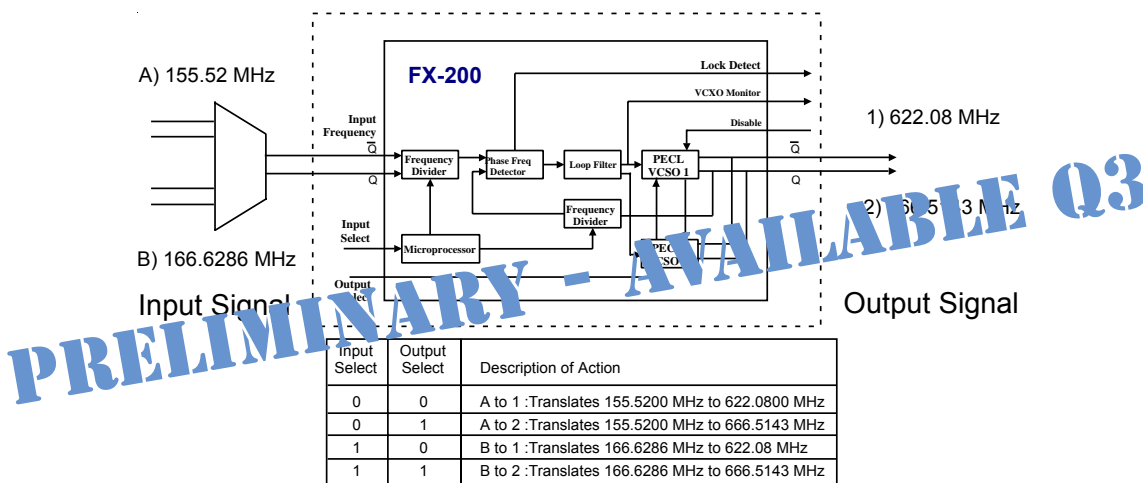
Description:

The FX-200 is a dual output frequency translator which is used to translate one of two different input frequencies greater than 1 MHz to one of two different output frequencies between 77.76 MHz and 777.6 MHz. All the major FEC rates are supported such as 15/14ths and 255/237. This unit can also support switching from 10.0 G to 10.3125 G, or even OC-n to 10 GigE.

Applications:

- SONET/SDH
- DWDM
- FEC (Forward Error Correction)

Typical Application



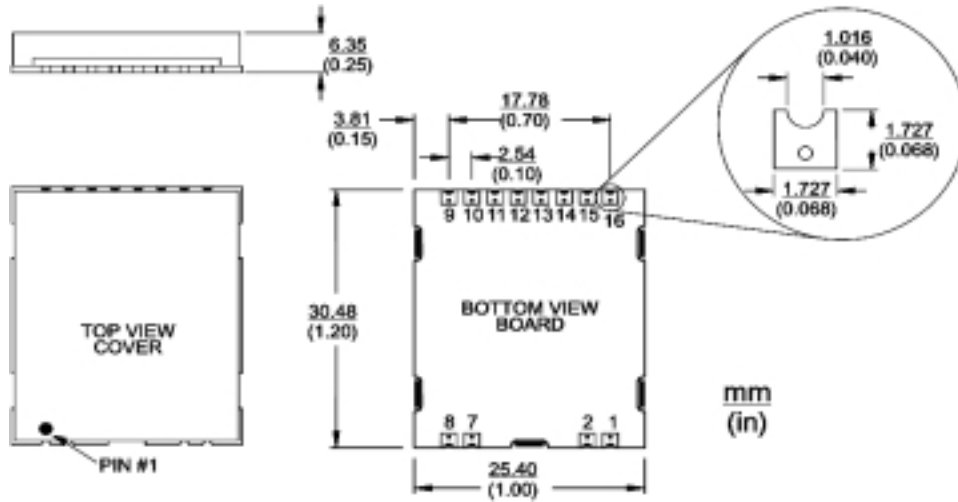
All components outside the dotted line box are user supplied components. This is just one possible configuration of the FX-200. For additional information about your specific needs, please contact our factory.

Performance Characteristics

Parameter	Symbol	Min.	Typical	Max	Unit
Output Frequencies		77.76		777.6	MHz
Supply Voltage, C = 5.0 Vdc	V_{CC}	4.75	5.00	5.25	Vdc
D = 3.3 Vdc	V_{CC}	3.15	3.30	3.45	Vdc
Supply Current 5.0 Vdc	I_{CC}		80	125	mA
3.3 Vdc	I_{CC}		75	120	mA
Input Signal, Comp PECL	CLKIN		PECL		---
OUTPUT, F = Comp PECL	---	---	PECL	---	---
V_{OH} (Temp Range C = 0°C to +70°C)	V_{OH}	$V_{CC}-1.025$		$V_{CC}-0.880$	V
V_{OL} (Temp Range C = 0°C to +70°C)	V_{OL}	$V_{CC}-1.810$		$V_{CC}-1.620$	V
V_{OH} (Temp Range F = -40°C to +85°C)	V_{OH}	$V_{CC}-1.085$		$V_{CC}-0.880$	V
V_{OL} (Temp Range F = -40°C to +85°C)	V_{OL}	$V_{CC}-1.830$		$V_{CC}-1.555$	V
Rise/Fall Time (20% to 80% @ 622.08 MHz)	t^R/t^F		250	400	ps
Output Symmetry (Duty Cycle)	Sym	45	49/51	55	%
Jitter Generation, rms (12kHz to 20 MHz)			0.23	1	ps
Jitter Generation, rms (cycle to cycle method)			3	5	ps
Jitter Transfer, GR-253-CORE sec 5.6.2.1.2				0.1	dB
Input Frequency Tracking Capability (Can translate Stratum 1,2,3,3E,4 or SONET Min. source)	APR	±40			ppm
Operating Temperature		Temp Range C = 0°C to +70°C Temp Range F = -40°C to +85°C			
Package Size		30.48 x 25.4 x 6.35 mm (1.2" x 1.0 x 0.25")			

FX-200

Outline Drawing



Pin Out Information

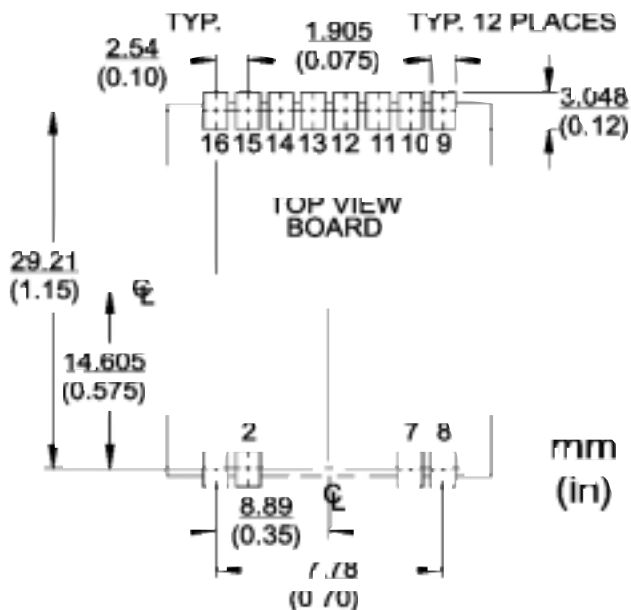
Pin	Symbol	Function
1	In	Input Frequency
2	CIn	Complementary Input Frequency (\bar{Q})
3	---	Missing
4	---	Missing
5	---	Missing
6	---	Missing
7	In Sel	Input Select - "0" = A, "1" = B
8	Out Sel	Output Select - "0" = 1, "1" = 2
9	Vcc	Supply Voltage
10	LD (output)	Lock Detect Logic "1" indicates a locked condition Logic "0" indicates that no input signal is presented
11	Monitor (output)	PLL / VCISO control Voltage. Under locked conditions, should be >0.3V and <3.0V for the 3.3 volt option or >0.5V and <4.5V for the 5 volt option. Input frequency may be out of range if voltage exceeds these limits.
12	Out	Output Signal - Q
13	GND	Ground
14	COut	Complementary Output Signal - \bar{Q}
15	GND	Ground
16	Disable (input)	Disables Output Floating and logic "0" = Output Enabled Logic "1" = Output Disabled

FX

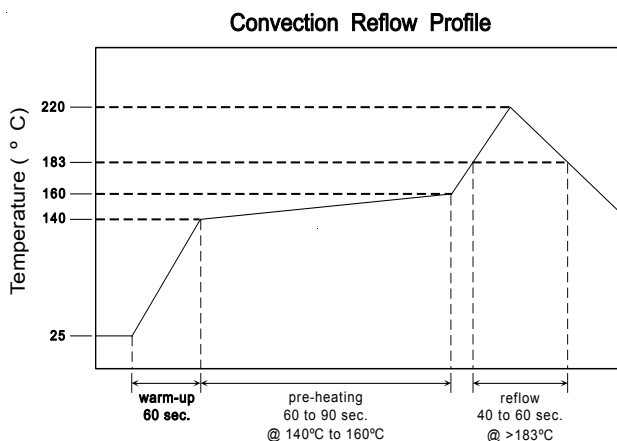
Frequency Translation Products

FX-200

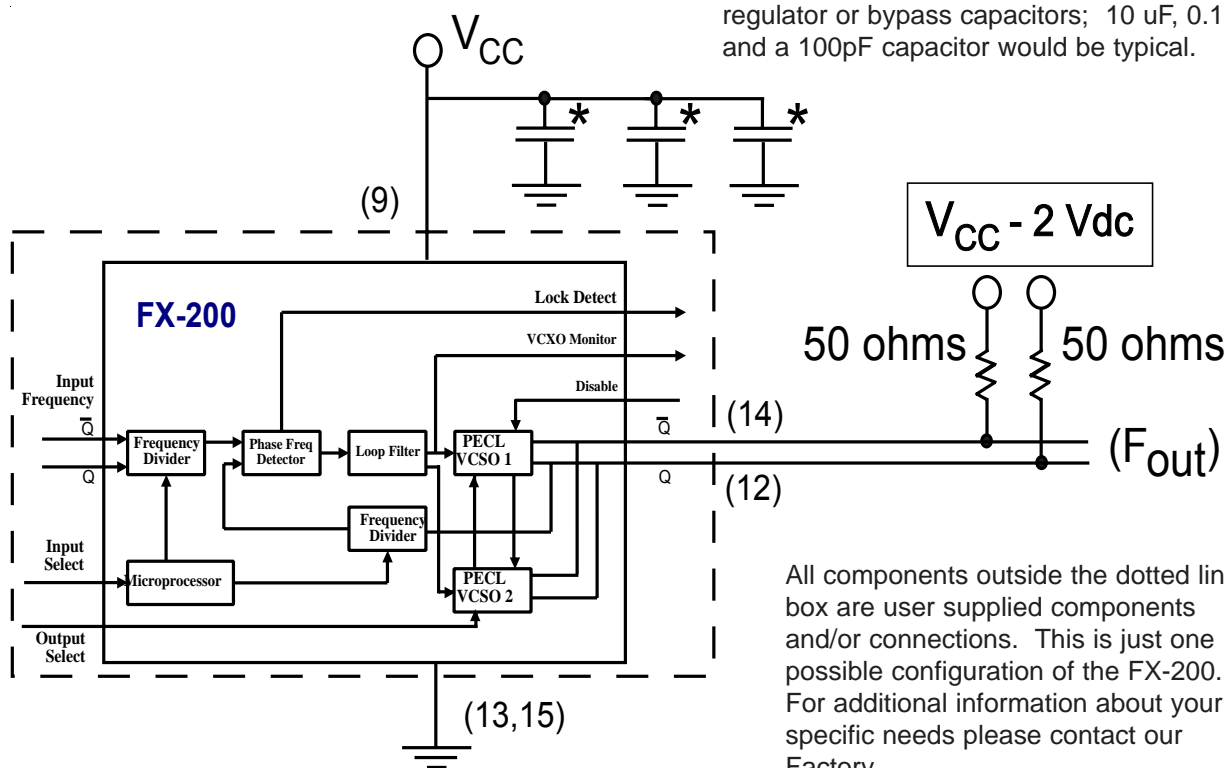
Recommended Pad Layout



Recommended Reflow Profile



Output Load Configuration



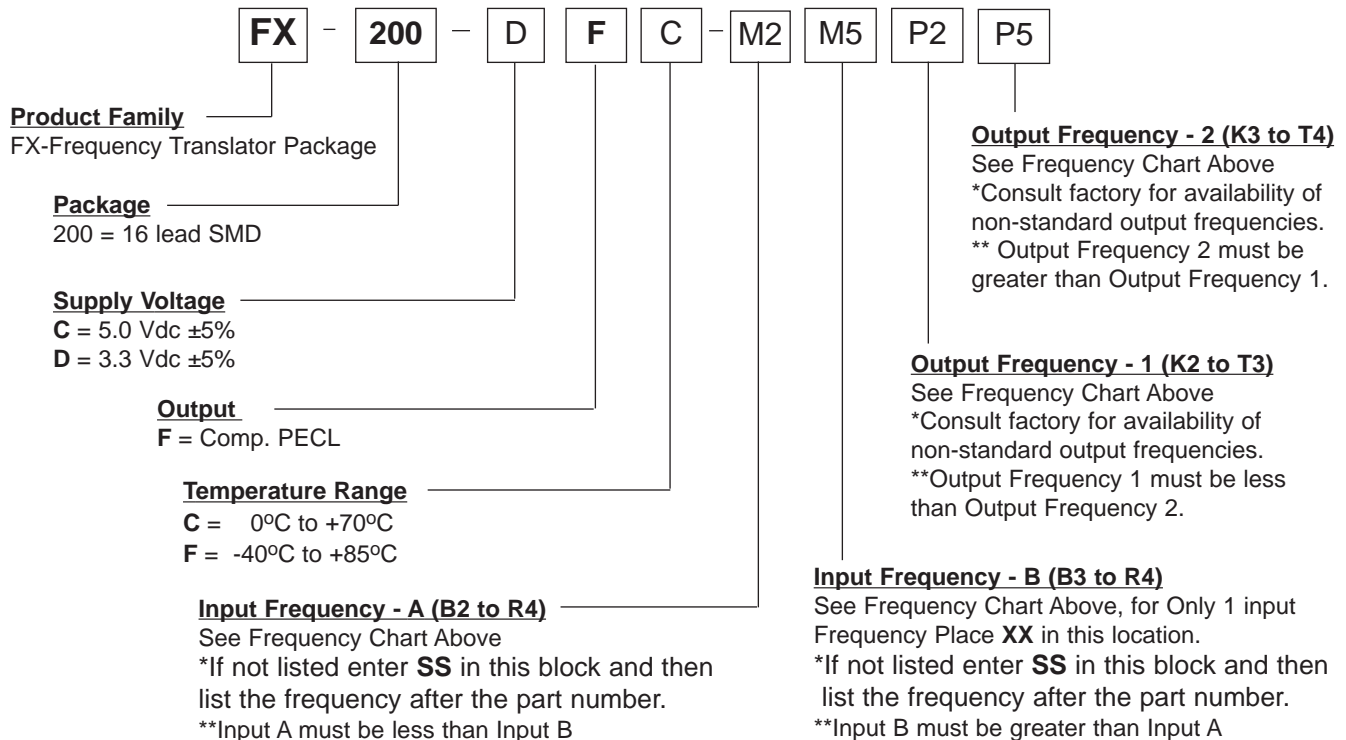
Frequency Translation Products

FX-200

Standard Frequencies

1.024 MHz	B2	20.4800 MHz	E4	78.1250 MHz	K3	624.7048 MHz	P6
1.544 MHz	B3	22.2171 MHz	E5	78.6432 MHz	K5	625.0000 MHz	P3
2.048 MHz	B4	26.0000 MHz	F3	82.9440 MHz	K6	627.3296 MHz	P7
4.096 MHz	B5	27.0000 MHz	F4	112.000 MHz	L2	644.5312 MHz	P4
6.480 MHz	C2	29.4912 MHz	F5	114.000 MHz	L3	666.5143 MHz	P5
8.192 MHz	C3	32.7680 MHz	H3	125.000 MHz	L4	669.1281 MHz	R2
10.000 MHz	C4	37.0560 MHz	H4	139.264 MHz	L5	669.3266 MHz	R3
12.800 MHz	D2	38.8800 MHz	H5	155.520 MHz	M2	690.5692 MHz	R4
13.000 MHz	D3	44.4343 MHz	J2	156.250 MHz	M3	710.9486 MHz	T2
15.000 MHz	D4	44.7360 MHz	J3	161.1328 MHz	M4	719.7344 MHz	T3
16.384 MHz	D5	51.8400 MHz	J4	166.6286 MHz	M5	777.6000 MHz	T4
19.440 MHz	D6	61.4400 MHz	J5	167.3316 MHz	N2	No Second Input Freq	XX
20.0000 MHz	E2	65.5360 MHz	J6	168.0407 MHz	N3	Input Freq not listed	SS
20.1416 MHz	E3	77.7600 MHz	K2	622.0800 MHz	P2	Output Freq not listed	SS

Ordering Information



*A special part number will be assigned for these cases.

**Input A must be less than Input B. Output 1 must be less than Output 2.

Not all frequency combinations are possible. Please consult factory.