CARDINAL COMPONENTS

COSF4 Series
Ovenized Oscillator

COSF4 Series
20.3 x 12.7 x 11.0 mm
DIL Metal Package

Features

- Ovenized Quartz Crystal High Precision Square Wave Generator
- 5.0V nominal Supply Voltage
- 5.0MHz - 40MHz Frequency Range
- Voltage control option available

Applications

SONET / SDH / DWDM
Test & Measurement
Telecom Transmission & Switching Equipment
Base Stations / Picocell
Wireless Communication Equipment

Electrical Characteristics

Parameter	Min	Typ	Max	Unit	Condition
Frequency	5	-	40	MHz	
Frequency Stability vs Temperature	±100	-	±200	ppb	±50ppb available over temp range 0 to 70°C
Frequency Stability vs Supply	-	-	±50	ppb	±5% voltage change
Warm-up	-	-	±0.1	ppm	In 2 minutes @ +25°C, referenced to 1 hour
Aging	-	-	±5	ppb	per day at time of shipment
	-	-	±0.6	ppm	per year
	-	-	±3.0	ppm	10 years
Operating Temperature Range	-40	-	+85	°C	
Supply Voltage [1] V_{CC}	4.75	5.0	5.25	V	3.3V input voltage available
Current	-	-	400	mA	@turn on
Steady State	-	-	0.8	W	@ 25°C
Spurious	-	-	-60	dBc	
Phase Noise 10 Hz 100 Hz 1 kHz 10 kHz	-	-105 -130 -140 -150	-	dBc/Hz	
Storage Temperature Range	-55	-	+125	°C	
Vcontrol Range	0	2.5	5.0	V	
Pullability	±5	-	-	ppm	Slope positive
Input Impedance	100	-	-	kΩ	

HCMOS

Parameter	Min	Typ	Max	Unit	Condition
Output Waveform		Rectangular			Sinewave output is available
"1" Level	2.4	-	-	V	
"0" Level	-	-	0.5	V	
Load	-	15	-	pF	
Duty Cycle	45	50	55	%	@2.0V

Note: [1] Place a 10nF power supply bypass capacitor next to device for correct operation

Device Marking

COSF4*xxx*
*xx.xx*M
YMDz
- S/N: *xxx*

COSF4*xxx*	=	Model number/Part number*
*xx.xx*M	=	Frequency (M = MHz)
YMD	=	Date code (Year-Month-Day: See Table below)
z	=	Internal Code
S/N: *xxx*	=	Serial number

* A unique number is assigned for your exact specifications.
Specifications such as frequency stability, supply voltage and operating temperature range, etc. are not identified from marking.
External packaging labels and packing list will correctly identify the ordered Cardinal part number.

Codes for Date Code YMD (Year Month Day)

Code	3	4	5	6	7	Code	A	B	C	D	E	F	G	H	J	K	L	M
Year	2023	2024	2025	2026	2027	Month	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC

Code	1	2	3	4	5	6	7	8	9	A	B	C	D	E	F	G	H	J	K	L	M	N	P	R	T	U	V	W	X	Y	Z
Day	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31

Environmental / ESD Ratings

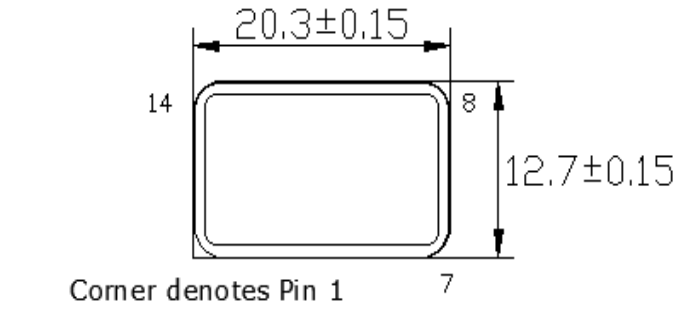
Reliability: Environmental

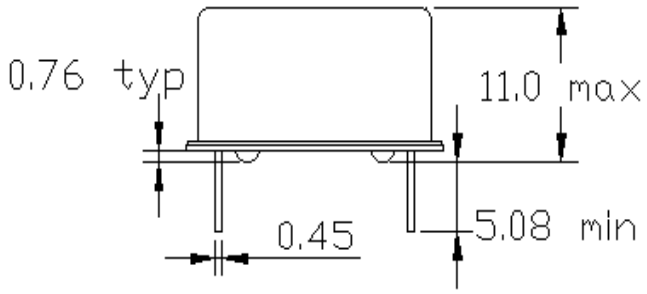
Parameter	Ref Standard	Condition
Solderability	MIL-STD-202, Method 208	
Mechanical Shock	MIL-STD-202, Method 213 Test Cond J	30g, 11ms, half-sine
Vibration	MIL-STD-202, Method 201	1.52mm p-p Total, 10 to 55 Hz
Thermal Shock	MIL-STD-202, Method 107 Test Cond B	5 cycles -65 to +125°C

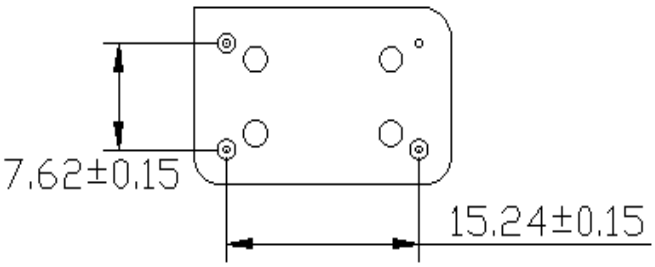
Model	Min Voltage
Human Body Model	2000V
Machine Model	200V

Cardinal Components Inc. certifies this device is in accordance with the RoHS (exemption 7c-1) and REACH directives.
Cardinal guarantees the device does not contain the following: Cadmium, Hexavalent Chromium, Mercury, PBB's, PBDE's
Moisture Sensitivity Level: 1 As defined in J-STD-020D
Second Level Interconnect code: e3

Mechanical Dimensions







PIN CONNECTIONS	
Pin	Function
1*	Vc In or N.C.
7	Ground/Case
8	Output
14	Vcc

*No internal connection if Vc option not selected

Termination Coating: Matte Sn (5µm typ)

For Optimum Jitter Performance, Cardinal recommends:

- A ground plane under the device
- Do not route large transient signals (both current and voltage) under the device
- Do not place near a large magnetic field such as a high frequency switching power supply
- Do not place near piezoelectric buzzers or mechanical fans
- Minimize air flow across the device

Important Notice

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