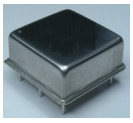
CARDINAL COMPONENTS

COSA5 Series
25x25mm HCMOS OCXO



COSA5 Series
25.4 x 25.4 x 12.7 mm
5 Pin Metal Package

Features

- Ovenized Quartz Crystal High Precision Square Wave Generator
- HCMOS Output
- 3.3V nominal Supply Voltage
- 5.0MHz - 40MHz Frequency Range
- Voltage control option available
- SC Cut crystal

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	Standard frequencies are 10, 12.8, 13, 15.36, 19.2, 20, 25, 38.88MHz
Frequency Stability vs Temperature	±5	-	±10	ppb	±3ppb available over temp range 0 to 70°C
Frequency Stability vs Supply	-	-	±0.5	ppb	±5% voltage change
Warm-up	-	-	±10	ppb	In 10 minutes @ +25°C, referenced to 1 hour
Aging	-	-	±0.5	ppb	per day at time of shipment
	-	-	±50	ppb	per year
	-	-	±0.3	ppm	10 years
Operating Temperature Range	-40	-	+85	°C	
Supply Voltage [1] V_{CC}	3.135	3.3	3.465	V	5.0V input voltage available
Current	-	-	1000	mA	@turn on
Steady State	-	-	1.3	W	@ 25°C
Spurious	-	-	-60	dBc	
Phase Noise 10 Hz 100 Hz 1 kHz 10 kHz	-	-120 -135 -145 -150	-	dBc/Hz	
Vcontrol Range (with Vc option)	0	1.65	3.3	V	
Pullability (with Vc option)	±0.5	-	-	ppm	Slope positive
Vcontrol Input Impedance	100	-	-	kΩ	
Reference Voltage (Optional)	+2.7	+2.8	+2.9	V	
Reference Voltage Load	9	-	-	kΩ	
Storage Temperature Range	-55	-	+125	°C	

HCMOS

Parameter	Min	Typ	Max	Unit	Condition
Output Waveform		Squarewave			Sinewave output is available
"1" Level	2.4	-	-	V	
"0" Level	-	-	0.4	V	
Load	-	15	-	pF	
Duty Cycle	45	50	55	%	@+1.65V

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

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Device Marking

COSA5*xxx*
*xx.xx*M
YMDz
S/N: *xxx*

OSA5*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 part number, 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	6	7	8	9	0	Code	A	B	C	D	E	F	G	H	J	K	L	M
Year	2026	2027	2028	2029	2030	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

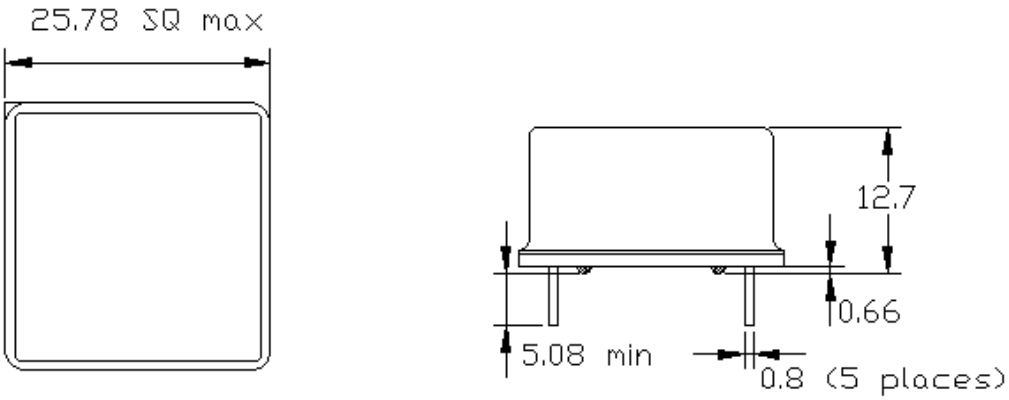
Parameter	Ref Standard	Condition
Solderability	MIL-STD-202, Method 208	
Mechanical Shock	MIL-STD-202, Method 213 Test Cond J	30g, 11ms, half-sine
Vibration	MIL-STD-202, Method 201	1.52mm p-p Total, 10 to 55 Hz
Thermal Shock	MIL-STD-202, Method 107 Test Cond B	5 cycles -65 to +125°C

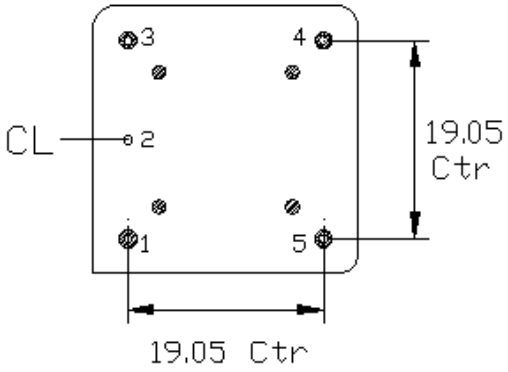
Model	Min Voltage
Human Body Model	2000V
Machine Model	200V

Cardinal Components Inc. certifies this device is in accordance with the RoHS (exemption 7a, 7c-i) and REACH directives.
Cardinal Components Inc. 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
Product Weight: 12g

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Mechanical Dimensions





Pin#'s for refreference only, not stamped on part

Dimensions in mm

PIN CONNECTIONS	
PIN	FUNCTION
1	Output
2	Ground/Case
3	Vc Input
4	Not Connected
5	Vcc

Termination coating: Sn plated

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

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