# **IXA16 Series**

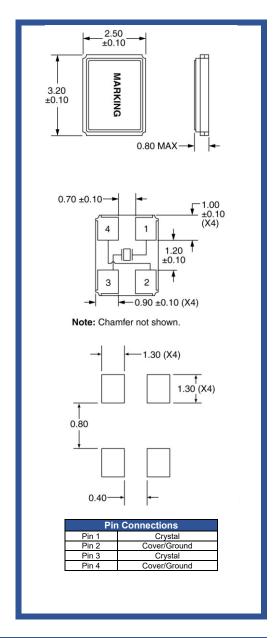


#### **Product Feature:**

AEC-Q200 Qualified IATF 16949 certified production RoHS and REACH compliant Suitable for use in harsh environment

**Applications:** Navigation, GPS Infotainment System
Instrument Panel, Ethernet ADAS Radar, Camera, **Engine Control Units** Lidar Systems TPMS

Equivalent Series Resistance         800 Ohms Maximum           8MHz – 9.999999MHz         800 Ohms Maximum           10MHz – 10.999999MHz         250 Ohms Maximum           11MHz – 11.999999MHz         150 Ohms Maximum           13MHz – 15.999999MHz         80 Ohms Maximum           13MHz – 20.999999MHz         80 Ohms Maximum           16MHz – 20.999999MHz         70 Ohms Maximum           21MHz – 29.999999MHz         60 Ohms Maximum           30MHz – 66MHz         50 Ohms Maximum           Shunt Capacitance (C0)         3pF Maximum           Frequency Tolerance (at 25°C)         ±50ppm, ±30ppm, ±25ppm, ±20ppm           Frequency Stability (over Temperature)         ±100ppm, ±50ppm, ±30ppm, or ±20ppm           Mode of Operation         Fundamental           Crystal Cut         AT Cut           Load Capacitance         8pF to 32pF or Specify
8MHz - 9.999999MHz       800 Ohms Maximum         10MHz - 10.999999MHz       250 Ohms Maximum         11MHz - 11.999999MHz       150 Ohms Maximum         12MHz - 12.999999MHz       100 Ohms Maximum         13MHz - 15.999999MHz       80 Ohms Maximum         16MHz - 20.999999MHz       70 Ohms Maximum         21MHz - 29.999999MHz       60 Ohms Maximum         30MHz - 66MHz       50 Ohms Maximum         Shunt Capacitance (C0)       3pF Maximum         Frequency Tolerance (at 25°C)         ±50ppm, ±30ppm, ±25ppm, ±20ppm, ±15ppm, or ±10ppm         Frequency Stability (over Temperature)       ±100ppm, ±50ppm, ±30ppm, or ±20ppm         Mode of Operation       Fundamental         Crystal Cut       AT Cut
8MHz - 9.999999MHz       800 Ohms Maximum         10MHz - 10.999999MHz       250 Ohms Maximum         11MHz - 11.999999MHz       150 Ohms Maximum         12MHz - 12.999999MHz       100 Ohms Maximum         13MHz - 15.999999MHz       80 Ohms Maximum         16MHz - 20.999999MHz       70 Ohms Maximum         21MHz - 29.999999MHz       60 Ohms Maximum         30MHz - 66MHz       50 Ohms Maximum         Shunt Capacitance (C0)       3pF Maximum         Frequency Tolerance (at 25°C)         ±50ppm, ±30ppm, ±25ppm, ±20ppm, ±15ppm, or ±10ppm         Frequency Stability (over Temperature)       ±100ppm, ±50ppm, ±30ppm, or ±20ppm         Mode of Operation       Fundamental         Crystal Cut       AT Cut
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10MHz – 10.999999MHz       250 Ohms Maximum         11MHz – 11.999999MHz       150 Ohms Maximum         12MHz – 12.999999MHz       100 Ohms Maximum         13MHz – 15.999999MHz       80 Ohms Maximum         16MHz – 20.999999MHz       70 Ohms Maximum         21MHz – 29.999999MHz       60 Ohms Maximum         30MHz – 66MHz       50 Ohms Maximum         Shunt Capacitance (C0)       3pF Maximum         Frequency Tolerance (at 25°C)         ±50ppm, ±30ppm, ±25ppm, ±20ppm, ±15ppm, or ±10ppm         Frequency Stability (over Temperature)       ±100ppm, ±50ppm, ±30ppm, or ±20ppm         Mode of Operation       Fundamental         Crystal Cut       AT Cut
12MHz – 12.999999MHz       100 Ohms Maximum         13MHz – 15.999999MHz       80 Ohms Maximum         16MHz – 20.999999MHz       70 Ohms Maximum         21MHz – 29.999999MHz       60 Ohms Maximum         30MHz – 66MHz       50 Ohms Maximum         Shunt Capacitance (CO)       3pF Maximum         Frequency Tolerance (at 25°C)       ±50ppm, ±30ppm, ±25ppm, ±20ppm, ±15ppm, or ±10ppm         Frequency Stability (over Temperature)       ±100ppm, ±50ppm, ±30ppm, or ±20ppm         Mode of Operation       Fundamental         Crystal Cut       AT Cut
13MHz – 15.999999MHz       80 Ohms Maximum         16MHz – 20.999999MHz       70 Ohms Maximum         21MHz – 29.999999MHz       60 Ohms Maximum         30MHz – 66MHz       50 Ohms Maximum         Shunt Capacitance (C0)       3pF Maximum         Frequency Tolerance (at 25°C)         ±50ppm, ±30ppm, ±25ppm, ±20ppm, ±15ppm, or ±10ppm         Frequency Stability (over Temperature)       ±100ppm, ±50ppm, ±30ppm, or ±20ppm         Mode of Operation       Fundamental         Crystal Cut       AT Cut
16MHz – 20.999999MHz         70 Ohms Maximum           21MHz – 29.999999MHz         60 Ohms Maximum           30MHz – 66MHz         50 Ohms Maximum           Shunt Capacitance (C0)         3pF Maximum           Frequency Tolerance (at 25°C)         ±50ppm, ±30ppm, ±25ppm, ±20ppm, ±15ppm, or ±10ppm           Frequency Stability (over Temperature)         ±100ppm, ±50ppm, ±30ppm, or ±20ppm           Mode of Operation         Fundamental           Crystal Cut         AT Cut
21MHz – 29.999999MHz 30MHz – 66MHz  Shunt Capacitance (CO)  Frequency Tolerance (at 25°C)  Frequency Stability (over Temperature)  Mode of Operation  21MHz – 29.999999MHz 50 Ohms Maximum 60 Ohms Maximum 50 Ohms Maximum 60
30MHz – 66MHz  Shunt Capacitance (C0)  Frequency Tolerance (at 25°C)  Frequency Stability (over Temperature)  Mode of Operation  50 Ohms Maximum  ±50ppm, ±30ppm, ±25ppm, ±20ppm, ±15ppm, or ±10ppm  ±100ppm, ±50ppm, ±30ppm, or ±20ppm  Fundamental  Crystal Cut  AT Cut
Shunt Capacitance (C0)  3pF Maximum  Frequency Tolerance (at 25°C)  ±50ppm, ±30ppm, ±25ppm, ±20ppm, ±15ppm, or ±10ppm  Frequency Stability (over temperature)  Mode of Operation  Fundamental  Crystal Cut  AT Cut
Frequency Tolerance (at 25°C)  ±50ppm, ±30ppm, ±25ppm, ±20ppm, ±15ppm, or ±10ppm  Frequency Stability (over Temperature)  Mode of Operation  Fundamental  Crystal Cut  AT Cut
±20ppm, ±15ppm, or ±10ppm  Frequency Stability (over Temperature)  Mode of Operation  Evaluation Fundamental  Crystal Cut  #20ppm, ±15ppm, or ±10ppm  #100ppm, ±50ppm, ±30ppm, or ±20ppm  Fundamental  AT Cut
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Temperature) or ±20ppm  Mode of Operation Fundamental  Crystal Cut AT Cut
Temperature) or ±20ppm  Mode of Operation Fundamental  Crystal Cut AT Cut
Mode of Operation Fundamental  Crystal Cut AT Cut
Crystal Cut AT Cut
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Load Capacitance 8pF to 32pF or Specify
coad Capacitance open to 32pr of Specify
4 I
Drive Level 200µWatts Maximum
Aging ±3ppm/Year Maximum
Operating Temperature Range -40°C to +85°C, -40°C to
+105°C. or -40°C to +125°C
,
Storage Temperature Range -50°C to +150°C



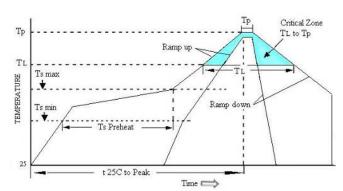
Part Number Guide		Sample Part Number: IXA16 - FBDF18 - 25.000 MHz				
Package	Tolerance (ppm) at Room Temperature	Stability (ppm) over Operating Temperature	Operating Temperature Range	Mode (overtone)	Load Capacitance (pF)	Frequency
IXA16-		•	5 4000 L :0500			
	B = ±50 ppm	A = ±100 ppm	5 = -40°C to +85°C		8pF to 32pF	- 25.000 MHz
	F = ±30 ppm	B = ±50 ppm	D = -40°C to +105°C			
	G = ±25 ppm	F = ±30 ppm*, **	F = -40°C to +125°C	F = Fundamental		
	H = ±20 ppm	H = ±20 ppm*, **		i – i unuamentai	Or Specify	- 23.000 WII IZ
	I = ±15 ppm					
	J = ±10 ppm					

<sup>\*</sup> Not available at all frequencies.

<sup>\*\*</sup> Not available for Operating Temperature Range Option F.
\*\*\* Not available for Operating Temperature Range Option D or F.



#### **Pb Free Solder Reflow Profile:**



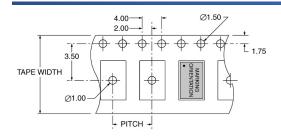
Units are backward compatible with 24	40C reflow processes
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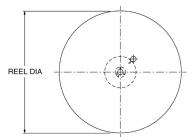
Ts max to T <sub>∟</sub> (Ramp-up Rate)	3°C / second max	
Preheat		
Temperature min (Ts min)	150°C	
Temperature typ (Ts typ)	175°C	
Temperature max (Ts max)	200°C	
Time (Ts)	60 to180 seconds	
Ramp-up Tate (T <sub>∟</sub> to Tp	3°C / second max	
Time Maintained Above		
Temperature (T <sub>L</sub> )	217°C	
Time (T <sub>L)</sub>	60 to 150 seconds	
Peak Temperature (Tp)	260°C max for 10 seconds	
Time within 5°C to Peak	20 to 40 seconds	
Temperature (Tp)	20 to 40 seconds	
Ramp-down Rate	6°C / second max	
Tune 25°C to Peak Temperature	8 minutes max	

## **Package Information:**

MSL = 1 (package does not contain plastic; storage life is unlimited under normal room conditions) Termination = e4 (Au over Ni over W base metal).

#### **Tape and Reel Information:**





Quantity per Reel	3000
Pitch	4.00
Tape Width	8.00
Reel DIA	180

## **Environmental Specifications:**

Mechanical Shock	MIL-STD-202, Method 213
Vibration	MIL-STD-202, Method 204
Resistance to Soldering Heat	MIL-STD-202, Method 210
Solderability	J-STD-002
Gross Leak	MIL-STD-883, Method 1014, Condition C
Fine Leak	MIL-STD-883, Method 1014, Condition A2