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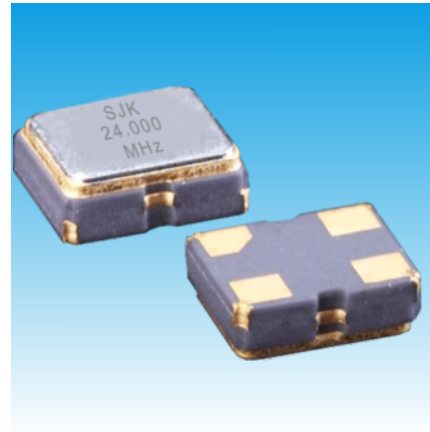
Crystal Oscillator

CMOS Output

1N Series SMD 2016 Crystal Oscillator	2
2N Series SMD 2520 Crystal Oscillator	3
3N Series SMD 3225 Crystal Oscillator	4
7N Series SMD 5032 Crystal Oscillator	5
6N Series SMD 7050 Crystal Oscillator	6
9N Series SMD Crystal Oscillator	7
6MF Series Full-size Crystal Oscillator	8
6MH Series Half-size Crystal Oscillator	9

Features

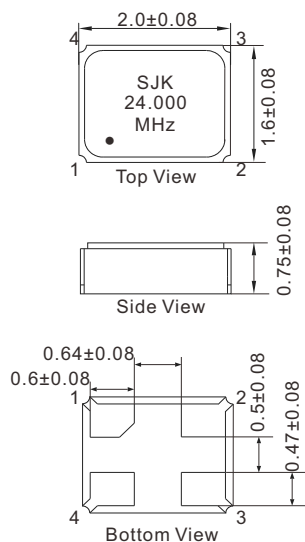
- 2016 size, low profile of 0.75mm
- Frequency range from 4MHz to 54MHz
- Low voltage operation
- Low current consumption
- 3-state function
- Automatic mounting and reflow soldering
- Application for telecommunications, GPS, Smart phone, Cellular, NFC, etc.
- RoHS Compliant /Pb Free



Standard Specification

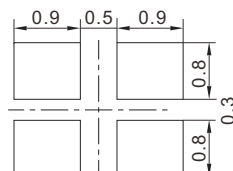
Item /Type	1N (SMD 2016 Crystal Oscillators)
Output Type	CMOS
Output Load	15pF, or specify
Oscillator Mode	Fundamental
Supply Voltage	3.3V (1.8V, 2.5V available)
Frequency Range	4~54 MHz
Frequency Stability	±25ppm, ±50ppm
Operating Temperature	-40~+85°C, or specify
Storage Temperature	-55~+125°C
Voltage Vol (Max.) /Voh (Min.)	0.1 VDD /0.9 VDD
Rise (Tr) /Fall (Tf) Time	5ns Max.
Supply Current	5mA Max.
Symmetry	45~55%
Start-up Time	5ms Max.
Phase Jitter (12KHz~20MHz)	1ps Max.
Aging (at 25°C)	±3ppm /Year Max.
Packing Units	3000pcs. /Reel

Dimensions [mm]



Pin Connections

Pin No.	Connection
1	OE (Output Enable)
2	GND
3	Output
4	Vcc



Features

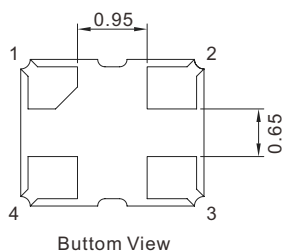
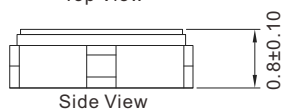
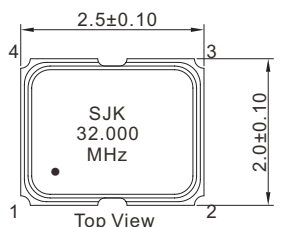
- 2520 size, low profile of 0.8mm
- Frequency range from 4MHz to 75MHz
- Low voltage operation
- Low current consumption
- 3-state function
- Automatic mounting and reflow soldering
- Application for WLAN, GPS, Bluetooth, Smart phone, Cellular, DVC, etc.
- RoHS Compliant /Pb Free



Standard Specification

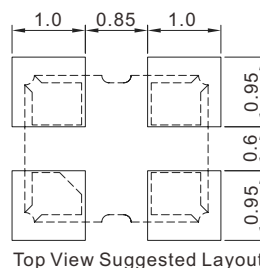
Item /Type	2N (SMD 2520 Crystal Oscillators)
Output Type	CMOS
Output Load	15pF, or specify
Oscillator Mode	Fundamental
Supply Voltage	3.3V (1.8V, 2.5V available)
Frequency Range	4~75 MHz
Frequency Stability	±25ppm, ±50ppm
Operating Temperature	-40~+85°C, or specify
Storage Temperature	-55~+125°C
Voltage Vol (Max.) /Voh (Min.)	0.1 VDD /0.9 VDD
Rise (Tr) /Fall (Tf) Time	5ns Max.
Supply Current	5mA Max.
Symmetry	45~55%
Start-up Time	5ms Max.
Phase Jitter (12KHz~20MHz)	1ps Max.
Aging (at 25°C)	±3ppm /Year Max.
Packing Units	3000pcs. /Reel

Dimensions [mm]



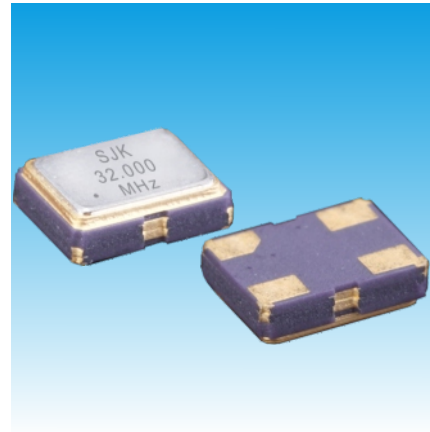
Pin Connections

Pin No.	Connection
1	OE (Output Enable)
2	GND
3	Output
4	Vcc



Features

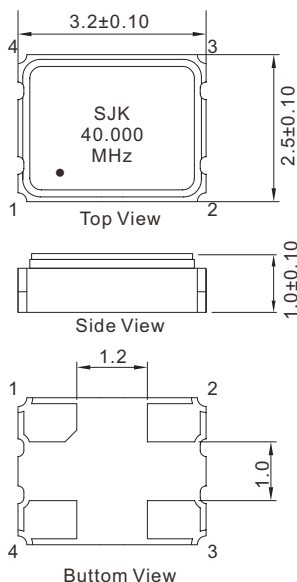
- 3225 size, low profile of 1.0mm
- Frequency range from 1MHz to 125MHz
- Low voltage operation
- Low current consumption
- 3-state function
- Automatic mounting and reflow soldering
- Application for car, GPS, Bluetooth, PC IoT, PDA, Peripherals, DVC, etc.
- RoHS Compliant /Pb Free



Standard Specification

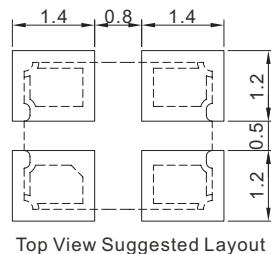
Item /Type	3N (SMD 3225 Crystal Oscillators)
Output Type	CMOS
Output Load	15pF, or specify
Supply Voltage	3.3V (1.8V, 2.5V available)
Frequency Range	1~125 MHz
Supply Current	15mA Max.
Frequency Stability	±25ppm, ±50ppm
Operating Temperature	-40~+85°C, or specify
Storage Temperature	-55~+125°C
Voltage Vol (Max.) /Voh (Min.)	0.1 VDD /0.9 VDD
Rise (Tr) /Fall (Tf) Time	5ns Max.
Period Jitter	40 pSec Max.
Duty Cycle	45~55%
Start-up Time	5ms Max.
Phase Jitter (12KHz~20MHz)	1ps Max.
Aging (at 25°C)	±3ppm /Year Max.
Packing Units	3000pcs. /Reel

Dimensions [mm]



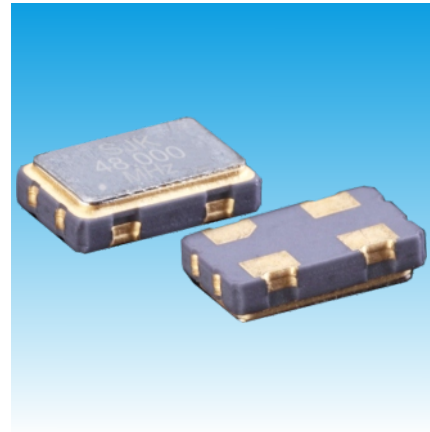
Pin Connections

Pin No.	Connection
1	OE (Output Enable)
2	GND
3	Output
4	Vcc



Features

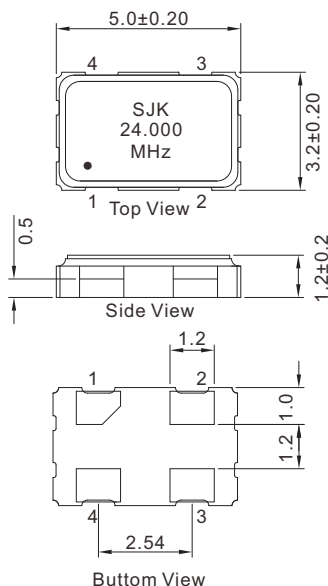
- Package size with 5.0×3.2×1.2mm
- Frequency range from 1MHz to 150MHz
- Low voltage operation: 1.8V~3.3V
- Low current consumption
- 3-state function
- Automatic mounting and reflow soldering
- Application for PC, Peripherals, Visual, Car, FA equipment applications, Sever, etc.
- RoHS Compliant /Pb Free



Standard Specification

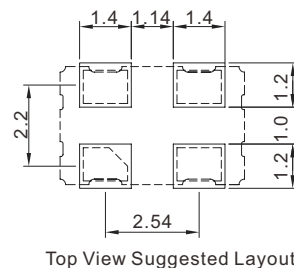
Item /Type	7N (SMD 5032 Crystal Oscillators)
Output Type	CMOS
Output Load	15pF, or specify
Supply Voltage	3.3V (1.8V, 2.5V available)
Frequency Range	1~150 MHz
Supply Current	20mA Max.
Frequency Stability	±25ppm, ±50ppm, or specify
Operating Temperature	-40~+85°C, or specify
Storage Temperature	-55~+125°C
Voltage Vol (Max.) /Voh (Min.)	0.1 VDD /0.9 VDD
Rise (Tr) /Fall (Tf) Time	8ns Max.
Period Jitter	40 pSec Max.
Duty Cycle	40~60%
Start-up Time	5ms Max.
Phase Jitter (12KHz~20MHz)	1ps Max.
Aging (at 25°C)	±3ppm /Year Max.
Packing Units	1000pcs. /Reel

Dimensions [mm]



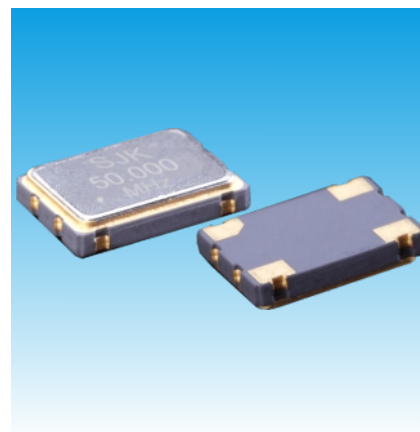
Pin Connections

Pin No.	Connection
1	OE (Output Enable)
2	GND
3	Output
4	Vcc



Features

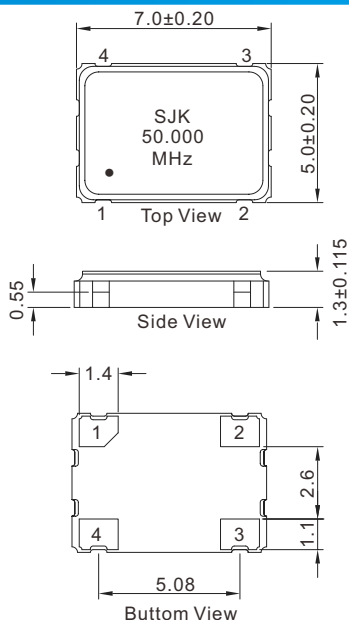
- Package size with 7.0×5.0×1.3mm
- Frequency range from 1MHz to 170MHz
- Low voltage operation: 1.8V~5.0V
- Low current consumption
- 3-state function
- Automatic mounting and reflow soldering
- Application for FC-HBA, LCDM, SONET, FA equipment applications, Sever, etc.
- RoHS Compliant /Pb Free



Standard Specification

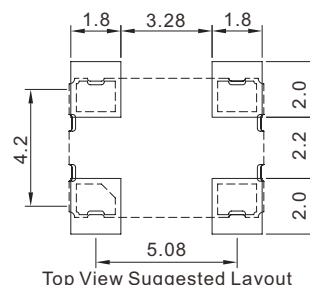
Item /Type	6N (SMD 7050 Crystal Oscillators)
Output Type	CMOS
Output Load	15pF, or specify
Supply Voltage	3.3V (1.8~5.0 V)
Frequency Range	1~170 MHz
Supply Current	20mA Max.
Frequency Stability	±20ppm, ±25ppm, or specify
Operating Temperature	-40~+85°C, or specify
Storage Temperature	-55~+125°C
Voltage Vol (Max.) /Voh (Min.)	0.1 VDD /0.9 VDD
Rise (Tr) /Fall (Tf) Time	8ns Max.
Period Jitter	40 pSec Max.
Duty Cycle	40~60%
Start-up Time	5ms Max.
Phase Jitter (12KHz~20MHz)	1ps Max.
Aging (at 25°C)	±3ppm /Year Max.
Packing Units	1000pcs. /Reel

Dimensions [mm]



Pin Connections

Pin No.	Connection
1	OE (Output Enable)
2	GND
3	Output
4	Vcc



SMD Crystal Oscillators



Size: 14.0×5.0×5.4 mm

9N Series SMD Crystal Oscillators

Features

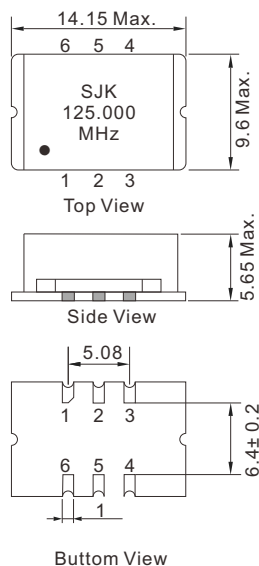
- Package size with 14×9.0×5.4mm
- Frequency range from 1MHz to 170MHz
- Low voltage operation: 1.8V~5.0V
- Either fundamental and 3rd overtone solution
- 3-state function
- Automatic mounting and reflow soldering
- Applications: Fibre channel, Ethernet, SDH, Serial ATA, SCSI, SONET, etc.
- RoHS Compliant /Pb Free



Standard Specification

Item /Type	9N (SMD 1490 Crystal Oscillators)
Output Type	CMOS
Output Load	15pF, or specify
Supply Voltage	3.3V (1.8~5.0 V)
Frequency Range	1~170 MHz
Supply Current	50mA Max.
Frequency Stability	±20ppm, ±25ppm, or specify
Operating Temperature	-40~+85°C, or specify
Storage Temperature	-55~+125°C
Voltage Vol (Max.) /Voh (Min.)	0.1 VDD /0.9 VDD
Rise (Tr) /Fall (Tf) Time	10ns Max.
Period Jitter	40 pSec Max.
Duty Cycle	40~60%
Start-up Time	10ms Max.
Phase Jitter (12KHz~20MHz)	1ps Max.
Aging (at 25°C)	±3ppm /Year Max.
Packing Units	1000pcs. /Reel

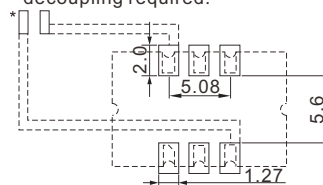
Dimensions [mm]



Pin Connections

Pin No.	Connection
1	OE or NC
2	OE or NC
3	GND
4	Output
5	NC
6	Vdd

* External high frequency power supply decoupling required.



Top View Suggested Layout

14-Pin Thru-Hole Crystal Oscillators



Full-Size Crystal Oscillators 6MF Series Crystal Oscillators

Features

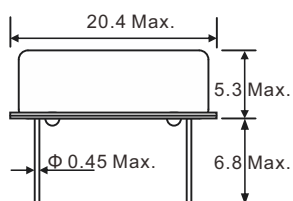
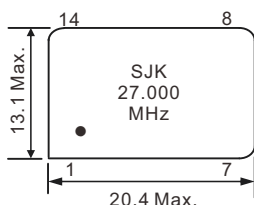
- All metal welded package
- Frequency range from 0.25MHz to 180MHz
- Voltage operation: 3.3V /5.0V
- 14-pin thru-hole package
- 3-state function
- High precision and high stability
- Applications: Test equipment, Avionics, Electronic instruments, Communications, etc.
- RoHS Compliant /Pb Free



Standard Specification

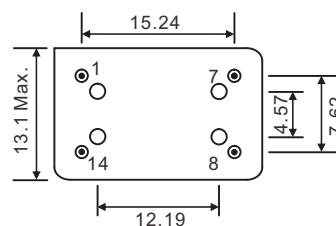
Item /Type	6MF (14 Pin DIP Crystal Oscillators)
Output Type	CMOS
Output Load	15pF, or specify
Supply Voltage	3.3V /5.0V
Frequency Range	0.25~180 MHz
Supply Current	50mA Max.
Frequency Stability	±20ppm, ±25ppm, or specify
Operating Temperature	-40~+85°C, or specify
Storage Temperature	-55~+125°C
Voltage Vol (Max.) /Voh (Min.)	0.1 VDD /0.9 VDD
Rise (Tr) /Fall (Tf) Time	5ns Max.
Period Jitter	40 pSec Max.
Duty Cycle	40~60%
Start-up Time	10ms Max.
Phase Jitter (12KHz~20MHz)	1ps Max.
Aging (at 25°C)	±3ppm /Year Max.
Packing Units	100pcs.

Dimensions [mm]



Pin Connections

Pin No.	Connection
1	OE
7	GND
8	Output
14	Vdd



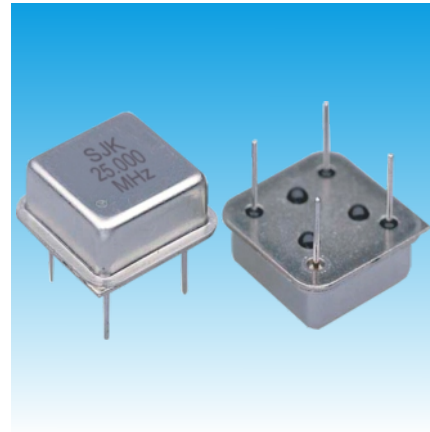
8-Pin Thru-Hole Crystal Oscillators



Half-Size Crystal Oscillators 6MH Series Crystal Oscillators

Features

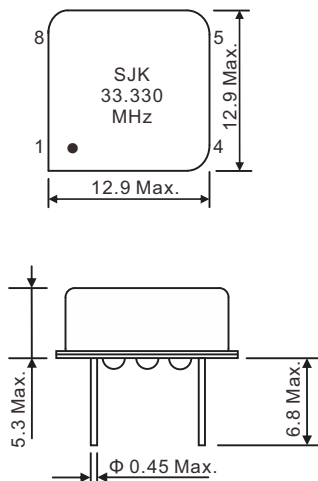
- All metal welded package
- Frequency range from 0.25MHz to 180MHz
- Voltage operation: 3.3V /5.0V
- 8-pin thru-hole package
- 3-state function
- High precision and high stability
- Applications: Test equipment, Avionics, Electronic instruments, Communications, etc.
- RoHS Compliant /Pb Free



Standard Specification

Item /Type	6MH (8 Pin DIP Crystal Oscillators)
Output Type	CMOS
Output Load	15pF, or specify
Supply Voltage	3.3V /5.0V
Frequency Range	0.25~180 MHz
Supply Current	50mA Max.
Frequency Stability	±20ppm, ±25ppm, or specify
Operating Temperature	-40~+85°C, or specify
Storage Temperature	-55~+125°C
Voltage Vol (Max.) /Voh (Min.)	0.1 VDD /0.9 VDD
Rise (Tr) /Fall (Tf) Time	5ns Max.
Period Jitter	40 pSec Max.
Duty Cycle	40~60%
Start-up Time	10ms Max.
Phase Jitter (12KHz~20MHz)	1ps Max.
Aging (at 25°C)	±3ppm /Year Max.
Packing Units	100pcs.

Dimensions [mm]



Pin Connections

Pin No.	Connection
1	OE
4	GND
5	Output
8	Vdd

