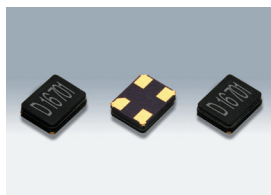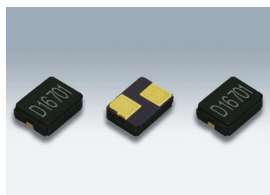# SMD Crystal Resonators / MHz Band Crystal Resonators〈For Automotive〉
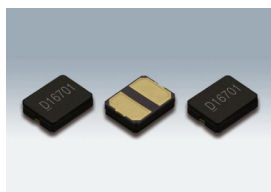
## DSX321G/DSX321GK/DSX320G/DSX320GE



DSX321G/DSX321GK  DSX320G



DSX320GE

Actual size ☐

**RoHS/ELV Compliant**

### ■ Features
● Miniature and lightweight SMD crystal resonator
  height DSX321G (over 12MHz): 0.75mm
                  (under 12MHz): 0.85mm
         DSX321GK: 0.85mm
         DSX320G (over 12MHz): 0.85mm
                  (under 12MHz): 0.95mm
         DSX320GE: 0.95mm
● Excellent heat resistance, High precision and high reliability
● Offers a wide range of frequencies
  DSX321G/DSX320G/DSX320GE: 7.9 to 64MHz
  DSX321GK: 9.8 to 40MHz
● Enhanced durability of solder joint for thermal cycles :
  after 3000 thermal cycle tests "−40, +125℃"(DSX320G/DSX320GE)
● Moisture prevention packing is unnecessary.
● Moisture Sensitivity Level:LEVEL1 (IPC/JEDEC J-STD-033)
  AEC-Q200 Compliant
  Fully lead free option available. (DSX321G)

### ■ Applications
● Multimedia devices such as car navigation systems and car
  audio,safety controls,TPMS,keyless entry(DSX321G/DSX321GK)
● ECU (engine, body work control), safety relations,
  car body controls, ABS,EPS(DSX320G/DSX320GE)

### ■ Standard Specification

| Item \ Type | DSX321G/DSX320G/DSX320GE | | | | | |
|---|---|---|---|---|---|---|
| | DSX321GK | | | | | |
| Frequency Range | 7.9 to 9.8MHz | 9.8 to 11MHz | 11 to 12MHz | 12 to 27MHz | 27 to 40MHz | 40 to 64MHz |
| Overtone Order | Fundamental | | | | | |
| Load Capacitance | 8pF, 10pF, 12pF | | | | | |
| Drive Level | $10\mu W(200\mu W$ max.) | | | | | |
| Frequency Tolerance | $\pm 30\times 10^{-6}$ (at 25℃) | | | | | |
| Series Resistance | 400Ω max. | 200Ω max. | 150Ω max. | 120Ω max. | 100Ω max. | |
| Frequency Characteristics over Temperature | $\pm 100\times 10^{-6}$/−40 to +125℃(Ref. to 25℃) | | | | | |
| Storage Temperature Range | −40 to +150℃ | | | | | |
| Reliability | AEC-Q200 | | | | | |
| Packing Unit | 3000pcs./reel($\phi$180) | | | | | |

Consult our sales representative for other specifications.

### ■ DSX321G/DSX321GK [mm]

■ Dimensions



■ Internal Connections 〈Top View〉
#4  #3
#1  #2
#1 & #3 connected to quartz element
#2 & #4 open (unconnected)

DSX321G
0.75±0.15 : Over 12MHz
0.85±0.15 : Under 12MHz
DSX321GK
0.85±0.15

Over 12MHz
2.1
1.6  #1 #2
     #4 #3
0.9  0.7

Under 12MHz
2.1
1.6  #1 #2
     #4 #3
0.9  0.7

■ Recommended Land Pattern 〈Top View〉
2.2
1.7  1.2
1.4

### ■ DSX320G [mm]

■ Dimensions
3.2±0.1
2.5±0.1
Logo / Frequency / Lot No.

0.85±0.15 : Over 12MHz
0.95±0.15 : Under 12MHz

■ Internal Connections 〈Top View〉
#1  #2

■ Recommended Land Pattern 〈Top View〉
1.8
0.8  0.5  2-1.3  2-1.5
2-1.0
2-1.2

2.0
0.9  2.0
1.6

### ■ DSX320GE [mm]

■ Dimensions
3.2±0.1
2.5±0.1
Logo / Frequency / Lot No.
0.95±0.15

■ Internal Connections 〈Top View〉
#1  #2

■ Recommendaed Land Pattern 〈Top View〉
1.8
4-0.1  0.5  2.1  2.3
2-1.0
2-1.2

1.9
2.7
1.5