



CITIZEN FINETECH MIYOTA CO., LTD.

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Nagano-pref. 389-0295 Japan

Aug 2014

To All Valued Customers

Re: Announcement of discontinuance crystal CM309S series

Thank you very much for your continual support for CITIZEN crystal devices.

For SMD Plastic Mold AT crystal units CM309S we, CITIZEN FINTECH MIYOTA inform you that we have decided EOL due to aging production equipments.

We introduce you CM309E as a replacement for CM309S.

Your understanding and cooperation would be greatly appreciated on this matter.

【Current model】	CM309S	Citizen P/N : CM309S*****
【Replacement model】	CM309E	

***Some frequency ranges are not available in CM309E as attached documents.**

【Changing period】	January 2015 onward (Subject to change)
【Last time purchase of CM309S】	30-Sep-14
【Last time delivery of CM309S】	31-Mar-15

For more details of comparison between CM309S and CM309E, please refer to attached documents.

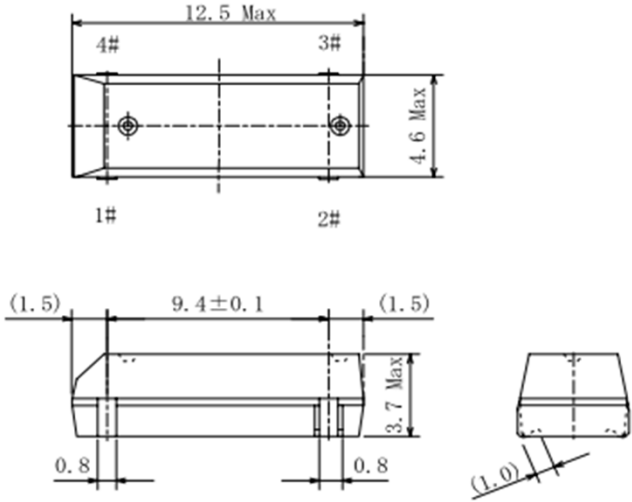
Yours faithfully,

CM309SとCM309Eの比較

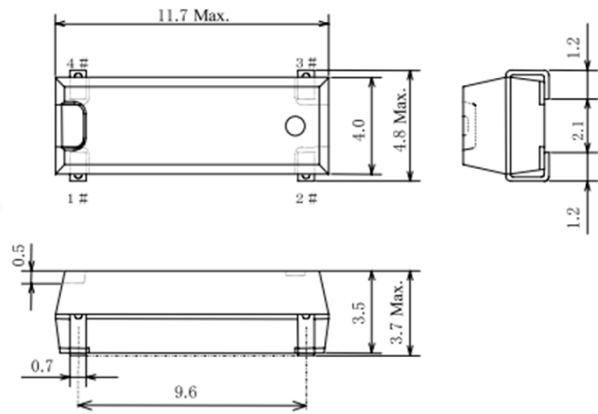
Comparison of CM309S and CM309E

1. 外形寸法 External dimensions

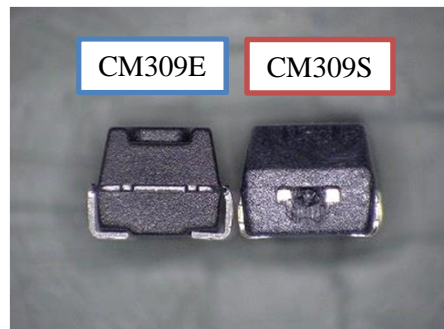
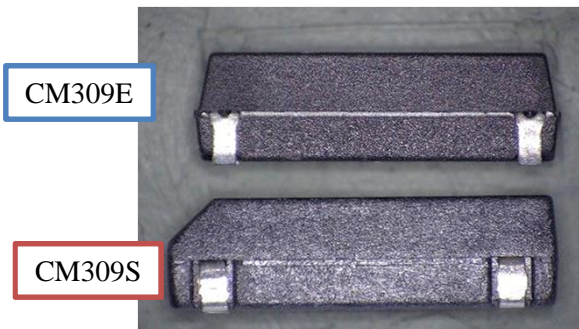
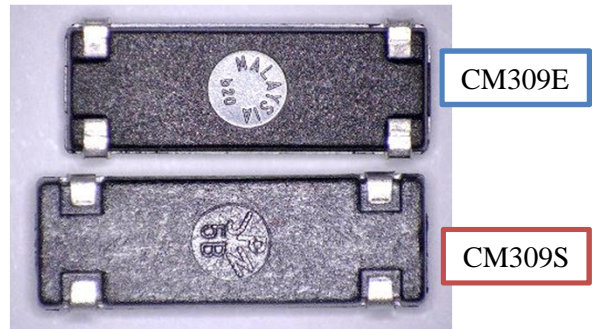
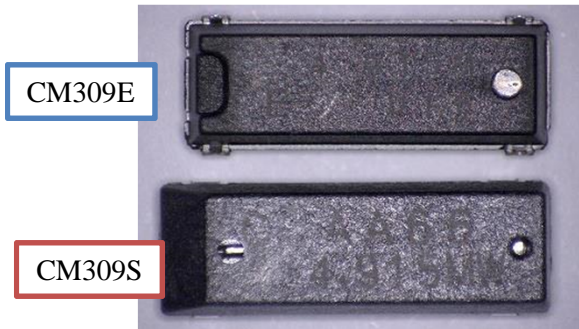
CM309S



CM309E



		CM309S	CM309E
外形 External	長辺 Length	12.5mm	11.7mm
	短辺 Width	4.6mm	4.8mm
	高さ Height	3.7mm	
リード Lead	間隔 Pitch	9.4mm	9.6mm
	幅 Width	0.8mm	0.7mm
	長さ Length	1.0mm	1.2mm



2. 公称周波数 Nominal Frequency

CM309S	CM309E
3.500~34.000MHz: Fundamental	4.000~29.999MHz: Fundamental
27.000~70.000MHz: 3rd Overtone	30.000~64.000MHz: 3rd Overtone

非対応周波数 Non-supported Frequency

* Up to but not including 4.000MHz

* 5.000MHz

* 30.000MHz (Fundamental)

事前にサンプル品にて回路調査と実装性の確認をお願いいたします。

Please check your mounting condition and suitability for your board in advance.

3. 機械的試験及び耐環境試験 Mechanical and Environmental Tests

項目 Test Name	CM309S		CM309E	
	試験内容 Test Conditions	規格 Criteria	試験内容 Test Conditions	規格 Criteria
耐衝撃性 Shock	硬木板上(自由落下) Free fall onto hard wooden board ①F<14MHz 50cm×3times ②F≥14MHz 75cm×3times	$\Delta F: \pm 5\text{ppm}$ $R \leq R1 \text{ ※1}$	硬木板上(自由落下) Free fall onto hard wooden board 75cm×3times	$\Delta F: \pm 10\text{ppm}$ $\Delta R: \text{Less than the value of}$ whichever is greater of 20% or $\Delta R1 \text{ ※2}$
耐振動性 Vibration	10~55Hz・1.5mm 1.5minutes/cycle X,Y,Zdirection×2hours	$\Delta F: \pm 5\text{ppm}$ $R \leq R1 \text{ ※1}$	10~55Hz・0.75mm 55~500Hz・98m/s ² 10→500→10Hz 15minutes/cycle X,Y,Zdirection×2hours	$\Delta F: \pm 10\text{ppm}$ $\Delta R: \text{Less than the value of}$ whichever is greater of 20% or $\Delta R1 \text{ ※2}$
端子引張り 強度 Lead Pull	1.0kg×30seconds	$\Delta F: \pm 5\text{ppm}$ $R \leq R1 \text{ ※1}$ 目に見える破損がないこと No visible damage	10N×10seconds	はんだ付け部の剥離の ないこと No separation of the soldered portion
リフロー耐熱性 Reflow Soldering Heat Resistance	260°C MAX See reflow profile ※3	$\Delta F: \pm 10\text{ppm}$ $R \leq R1 \text{ ※1}$	260°C MAX See reflow profile ※4	$\Delta F: \pm 8\text{ppm}$ $\Delta R: \text{Less than the value of}$ whichever is greater of 20% or $\Delta R1 \text{ ※2}$
耐寒性 Storage In Low Temperature	-40°C×500hours	$\Delta F: \pm 5\text{ppm}$ $R \leq R1 \text{ ※1}$	-55°C×1000hours	$\Delta F: \pm 10\text{ppm}$ $\Delta R: \text{Less than the value of}$ whichever is greater of 20% or $\Delta R1 \text{ ※2}$
耐熱性 Storage In High Temperature	85°C×500hours	$\Delta F: \pm 10\text{ppm}$ $R \leq R1 \text{ ※1}$	a) 125°C×1000hours b) 85°C×1000hours	a) $\Delta F: \pm 50\text{ppm}$ b) $\Delta F: \pm 10\text{ppm}$ $\Delta R: \text{Less than the value of}$ whichever is greater of 20% or $\Delta R1 \text{ ※2}$
耐湿性 Humidity	65°C・95%RH ×500hours	$\Delta F: \pm 10\text{ppm}$ $R \leq R1 \text{ ※1}$	85°C・85%RH ×1000hours	$\Delta F: \pm 20\text{ppm}$ $\Delta R: \text{Less than the value of}$ whichever is greater of 20% or $\Delta R1 \text{ ※2}$
熱衝撃性 Thermal Shock	-40~100°C 30minutes×5cycle	$\Delta F: \pm 5\text{ppm}$ $R \leq R1 \text{ ※1}$	-55~125°C 30minutes×100cycle	$\Delta F: \pm 10\text{ppm}$ $\Delta R: \text{Less than the value of}$ whichever is greater of 20% or $\Delta R1 \text{ ※2}$

等価直列抵抗 Equivalent Series Resistance

※1

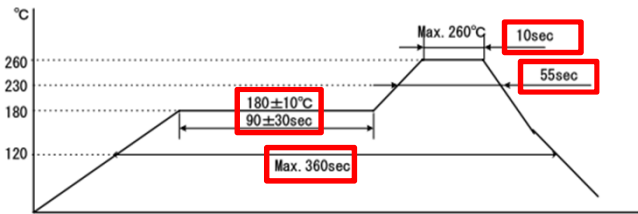
Frequency Range	Equivalent Series Resistance R1	Mode of Vibration
$3.57\text{MHz} \leq F_0 < 4.0\text{MHz}$	200ΩMax	Fundamental
$4.0\text{MHz} \leq F_0 < 6.0\text{MHz}$	150ΩMax	Fundamental
$6.0\text{MHz} \leq F_0 < 10.0\text{MHz}$	100ΩMax	Fundamental
$10.0\text{MHz} \leq F_0 < 27.0\text{MHz}$	50ΩMax	Fundamental
$27.0\text{MHz} \leq F_0 < 36.0\text{MHz}$	50ΩMax	Fundamental
$27.0\text{MHz} \leq F_0 < 36.0\text{MHz}$	100ΩMax	Overtone
$36.0\text{MHz} \leq F_0 < 70.0\text{MHz}$	80ΩMax	Overtone

※2

Frequency Range	Variation of Equivalent Series Resistance ΔR1	Mode of Vibration
$4.0\text{MHz} \leq F_0 < 5.0\text{MHz}$	50Ω	Fundamental
$5.5\text{MHz} \leq F_0 < 12.0\text{MHz}$	10Ω	Fundamental
$12.0\text{MHz} \leq F_0 < 30.0\text{MHz}$	5Ω	Fundamental
$30.0\text{MHz} \leq F_0 < 64.0\text{MHz}$	10Ω	Overtone

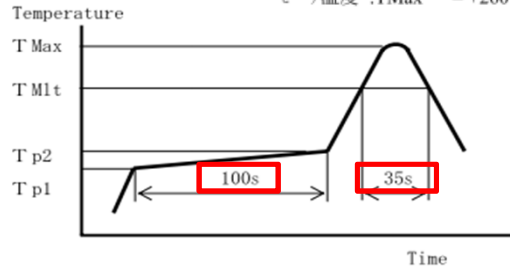
リフロープロファイル Reflow Profile

※3 CM309S



※4 CM309E

予備加熱温度:Tp1~Tp2 = +170 °C
 本加熱温度 :T Mlt = +220 °C
 ピーク温度 :TMax = +260 °C



4. 部材変更箇所 Difference of materials

品名 Component	CM309S		CM309E	
	材質 Materials	表面处理 Finish	材質 Materials	表面处理 Finish
支持部 Support	8Sn-90Pb-2Ag高融点半田 Sn-Pb-Ag Solder	—	10Sn-90Pb高融点半田 Sn-Pb Solder	—
接着剤 Bond	シリコン系導電性接着剤 JCR6146	—	—	—
モールド樹脂 Mold Resin	液晶ポリマー LCP Liquid Crystal Polymer	—	エポキシ樹脂 Epoxy Resin	—
リードフレーム Lead Frame	銅合金 Cu Alloy	Sn-Cuメッキ Sn-Cu Plating	42アロイ 42 Alloy	Sn or Sn-Biメッキ Sn or Sn-Bi Plating