

SPECIFICATION FOR CRYSTAL UNIT

National Semiconductor

© Parts Number :  
© Model Name : TSS-6035B (TSS-3B(1.0))  
© Frequency : 13000.000kHz  
© Application : B.T.  
© Package : Tape and Reel  
© Others : No attached test data  
It is possible to endure for lead-free  
Reflow-soldering.

CUSTOMER SIGNATURE

DATE

- (1) Tokyo Denpa Co., Ltd. requires one copy returned with signature and title of authorized individual that signifies acceptance of the attached specifications.
- (2) Any orders received and accepted by Tokyo Denpa Co., Ltd. prior to return of signed copy of specification will be produced per these specifications.
- (3) Any changes to these specifications must be agreed upon in writing prior to acceptance by Tokyo Denpa Co., Ltd. for any orders.

WRITER	DESIGNER	Q. A	DATE	Jan. 05, 2004	SPECIFICATION No.	PAGE
<i>E. Ohtsuka</i>	<i>Y. Hinata</i>	<i>Y. Enagawa</i>	TOKYO DENPA CO., LTD.		120-12416	1 / 7

## SPECIFICATION FOR CRYSTAL UNIT

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	Jan. 05, 2004			First

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# SPECIFICATION FOR CRYSTAL UNIT

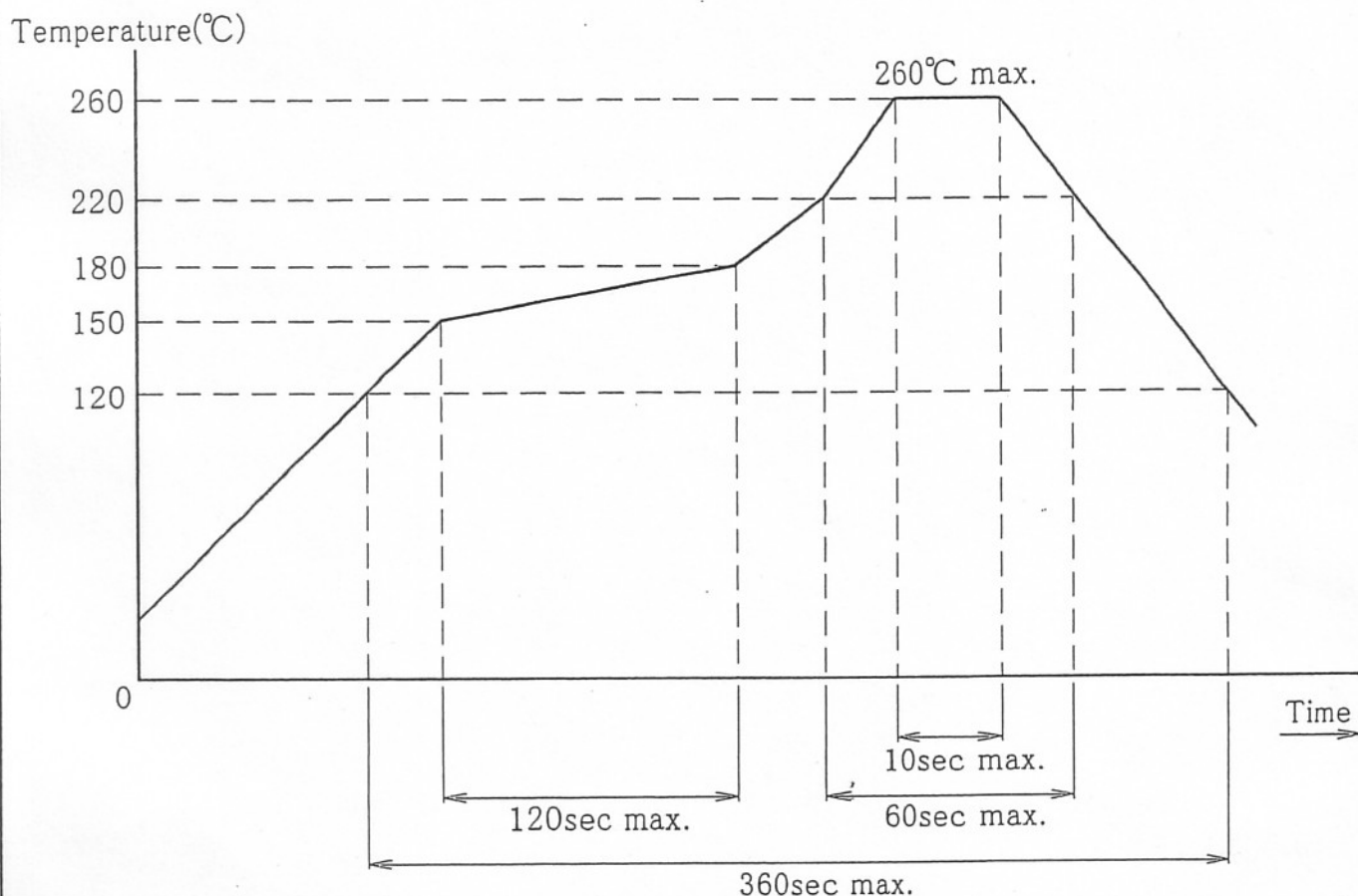
## 1. General Specification

- |   |                          |
|---|--------------------------|
| 1. 1 Holder   | TSS-6035B (TSS-3B(1.0))  |
| 1. 2 Frequency  | 13000.000kHz             |
| 1. 3 Mode of Oscillation  | Fundamental              |
| 1. 4 Operating Temp. Range  | -20°C ~ +70°C            |
| 1. 5 Storage Temp. Range  | -40°C ~ +105°C           |
| 1. 6 Load Capacitance   | 16.0pF                   |
| (The tolerance on the load capacitance shall be within $\pm 1\%$ from the nominal value or shall not exceed $\pm 10\%$ from frequency tolerance at the reference temperature ( $25 \pm 3^\circ\text{C}$ ), which ever value is smaller, however, in case of problem, standard test fixture shall be exchanged.) |                          |
| 1. 7 Drive Level  | $100 \pm 20 \mu\text{W}$ |
| 1. 8 Outer Appearance, Dimension & Marking  | As per attached.         |

## 2. Electrical Specification

- |                                     |   |
|-------------------------------------|---|
| 2. 1 Frequency Tolerance            | $\pm 10 \times 10^{-6}$ ( $25 \pm 3^\circ\text{C}$ )                      |
| 2. 2 Equivalent Series Resistance   | 40Ω Max.  |
| 2. 3 Temp. VS Freq. Characteristics | $\pm 10 \times 10^{-6}$<br>(referred to the value at $25^\circ\text{C}$ ) |
| 2. 4 Shunt Capacitance (C0)         | 1.7pF $\pm 20\%$  |
| 2. 5 Motional Capacitance (C1)      | 6.7fF $\pm 20\%$  |
| 2. 6 Insulation Resistance          | 500MΩ Min. (DC100V $\pm 15\text{V}$ )                                     |
| 2. 7 Aging                          | $\pm 1.0 \times 10^{-6}$ Max. / year                                      |
| 2. 8 Spurious                       | No spurious within $3f_0 \pm 3\text{kHz}$ and $5f_0 \pm 3\text{kHz}$ .    |

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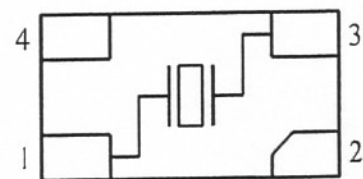
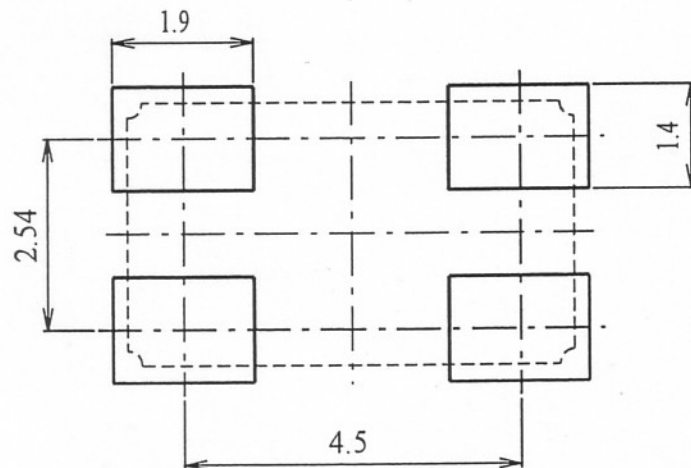
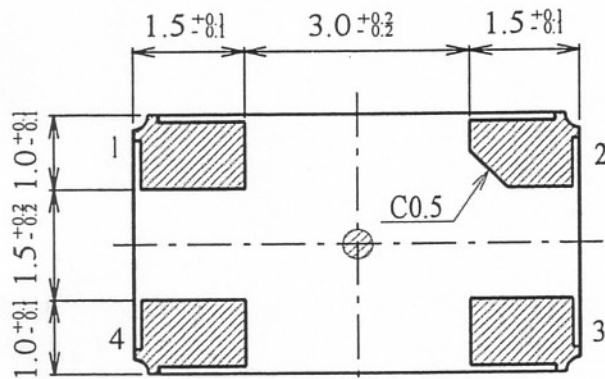
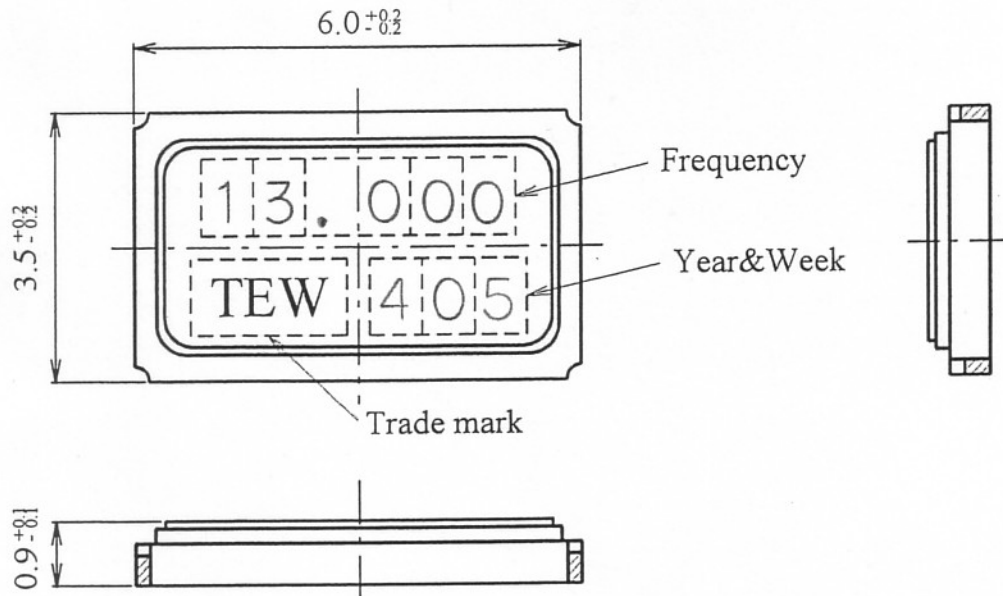


1) Reflow soldering : three times max.

DATE	Mar.14.2001		

NAME OF UNIT			TITLE		
			Reflow Temperature Profile (12-F0260)		
NOTE		UNIT	PROJECTION	SCALE	D.W.G. NO.
Lead free solder					120-12416
APPROVE	DESIGN	DRAWING	TOKYO DENPA CO.,LTD.		4/7
<i>Y. Hino</i>	<i>K. Minami</i>	<i>K. Minami</i>			

Marking on the can is prepared with rubber stamp  
or marked with laser etching



Connections  
(Top view)

Reference land pattern

DATE	JAN.12.1999		
	JUN.04.1999		
△	OCT.03.2001		

NAME OF UNIT △TSS-6035B (TSS-3B(1.0))

TITLE Outline drawing (12-F0120D)

NOTE

UNIT  
mm

PROJECTION  
3rd angle

SCALE  
10/1

D.W.G. NO.

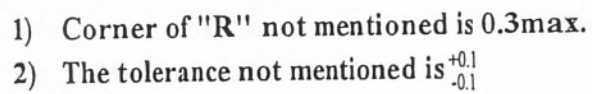
120-12416

APPROVE	DESIGN	DRAWING
<i>Y. Hino</i>	<i>S. Hino</i>	<i>H. Kurohara</i>

TOKYO DENPA CO.,LTD.

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NAME OF UNIT <b>TAPE</b>			TITLE <b>(12-F0211A)</b>		
NOTE		UNIT	PROJECTION	SCALE	D.W.G. NO.
△TSS-6035B (TSS-3B(1.0)) 12mm (Standard)		mm	3rd angle	3/1	<b>120-12416</b>
APPROVE	DESIGN	DRAWING	TOKYO DENPA CO.,LTD.		6/7
<i>Y. Hino</i>	<i>T. Ito</i>	<i>H. Kawanishi</i>			

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