

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>O. Ohtsuka</i>	<i>Y. Hinata</i>	<i>Y. Emagawa</i>	TOKYO DENPA CO., LTD.		120-12416	1 7

SPECIFICATION FOR CRYSTAL UNIT

REV.	DATE	PAGE	ITEM No.	CONTENTS OF CHANGE
	Jan. 05, 2004			First

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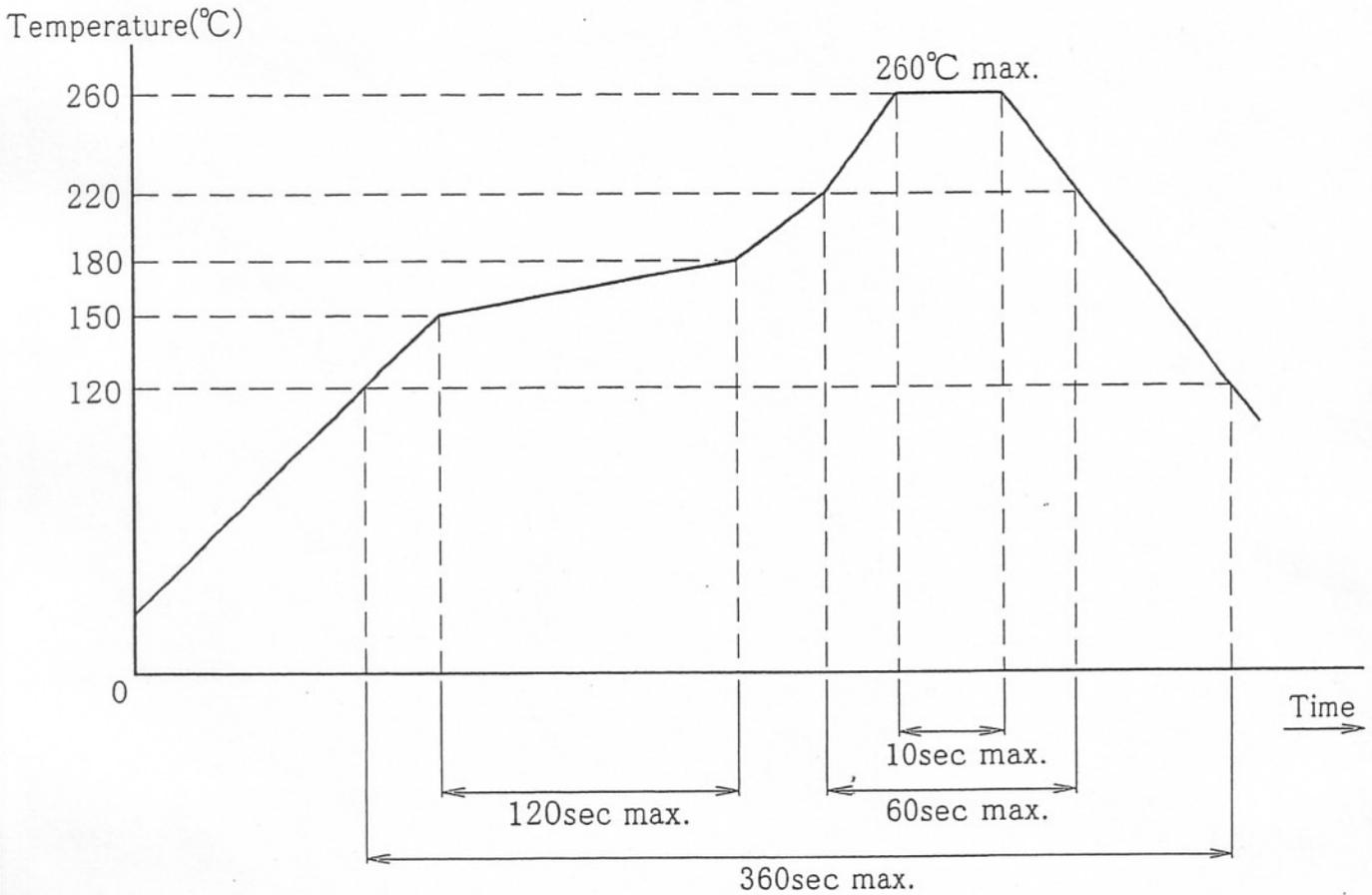
1. General Specification

- | | |
|--|--------------------------|
| 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 | $\pm 10 \times 10^{-6}$
(referred to the value at 25°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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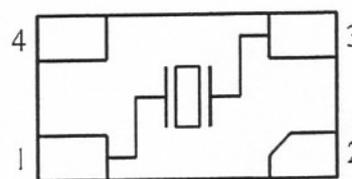
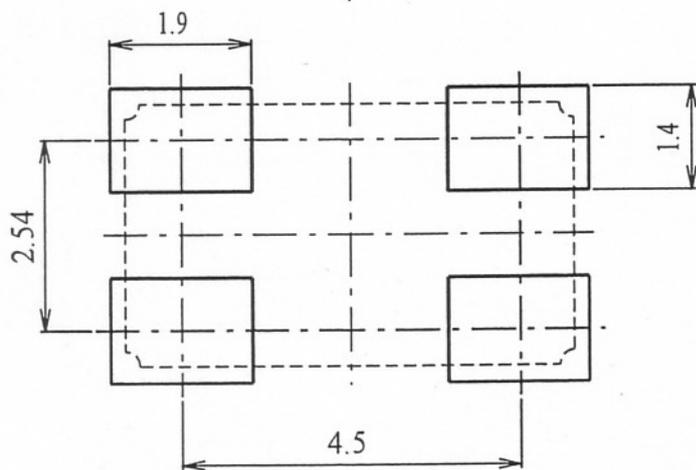
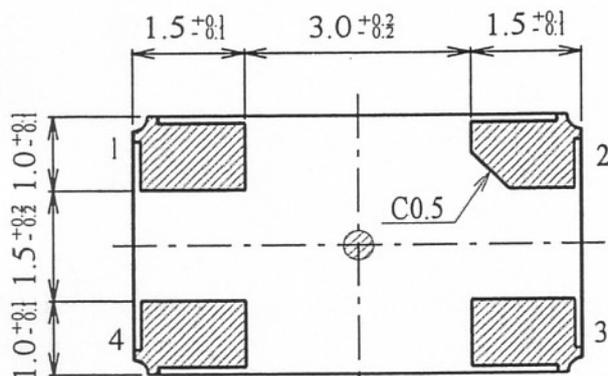
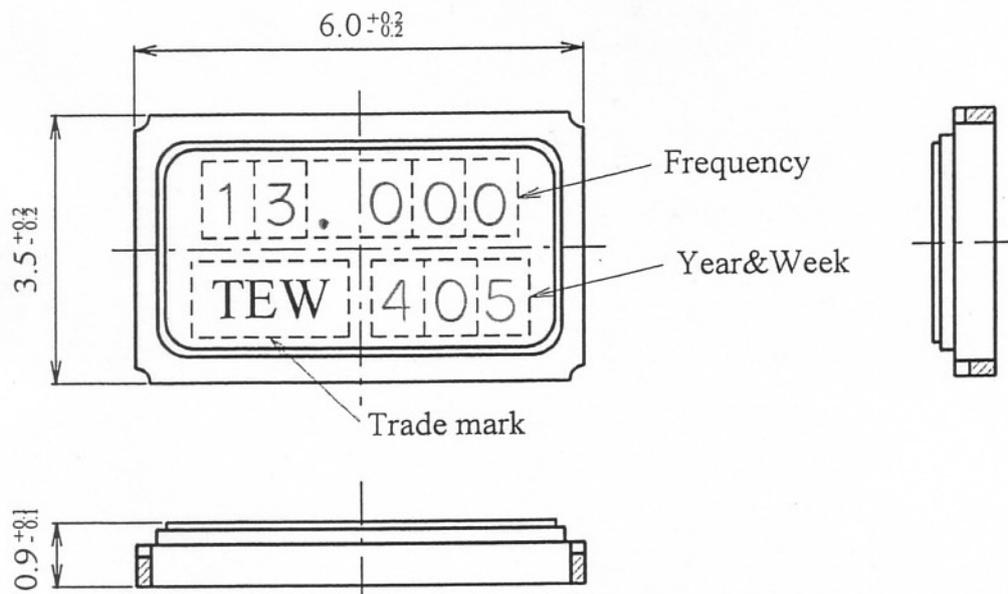


1) Reflow soldering : three times max.

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.	
<i>Y. Hino</i>	<i>K. Minura</i>	<i>K. Minura</i>	4/7	

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



Connections
(Top view)

Reference land pattern

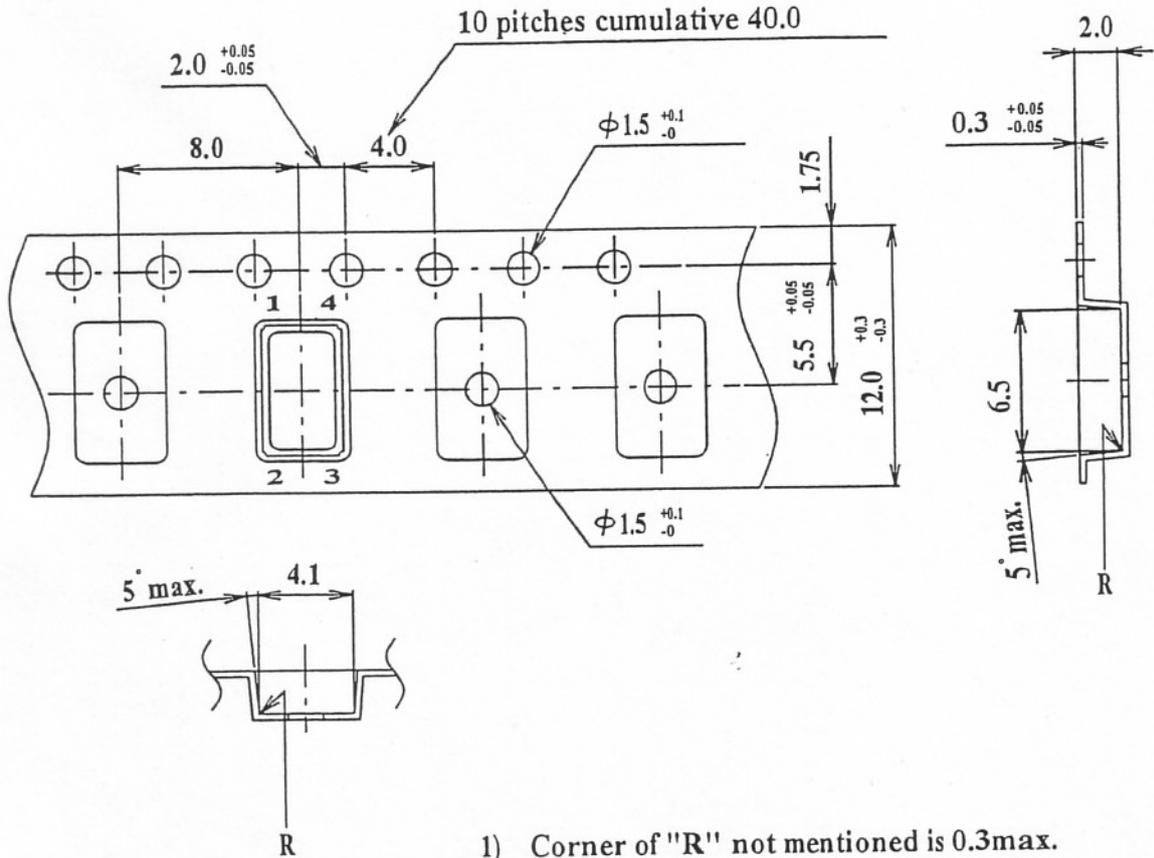
DATE	JAN.12.1999		
	JUN.04.1999		
△	OCT.03.2001		

NAME OF UNIT	△TSS-6035B (TSS-3B(1.0))	TITLE	Outline drawing (12-F0120D)
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NOTE	UNIT	PROJECTION	SCALE	D.W.G. NO.
	mm	3rd angle	10/1	120-12416

APPROVE	DESIGN	DRAWING	TOKYO DENPA CO.,LTD.	5 / 7
<i>[Signature]</i>	<i>[Signature]</i>	<i>[Signature]</i>		

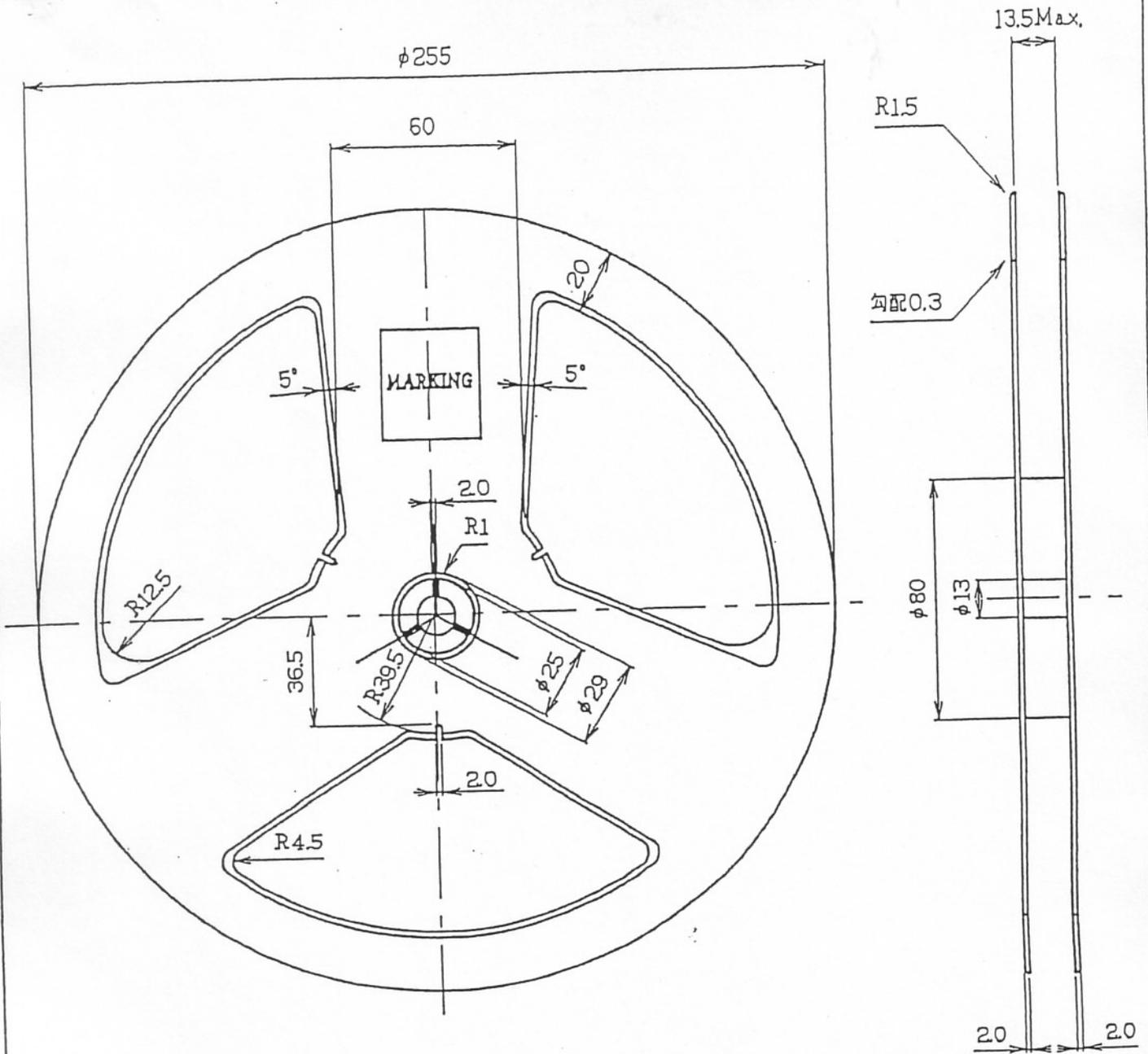
DRAWING OUT DIRECTION →



- 1) Corner of "R" not mentioned is 0.3max.
- 2) The tolerance not mentioned is $\begin{matrix} +0.1 \\ -0.1 \end{matrix}$

DATE	JUL.27.1999		
△	OCT.05.2001		

NAME OF UNIT		TITLE		
TAPE		(12-F0211A)		
NOTE	UNIT	PROJECTION	SCALE	D.W.G. NO.
△ TSS-6035B (TSS-3B(1.0)) 12mm (Standard)	mm	3rd angle	3/1	120-12416
APPROVE	DESIGN	DRAWING	TOKYO DENPA CO.,LTD.	
<i>[Signature]</i>	<i>[Signature]</i>	<i>[Signature]</i>		



CONTENTS

1. CUSTOMER
2. P/No. ; PARTS NUMBER
3. TYPE
4. FREQ. (MHz/KHz)
5. Q'TY ; QUANTITY
6. LOT No.
7. CONTROL No.
8. TEW MADE IN JAPAN

1
2
3
4
5
6
7
8

MARKING

DATE	FEB.12.1997		
DATE	AUG.26.1998		
DATE	JUL.16.1999		

NAME OF UNIT: Reel&Marking TITLE: OUTLINE DRAWING (12-F0083B)

NOTE	12mm φ250	UNIT	PROJECTION	SCALE	D.W.G. NO.
		mm	3rd angle	1/2	120-12416

APPROVE: *[Signature]* DESIGN: *[Signature]* DRAWING: *[Signature]* TOKYO DENPA CO.,LTD. 7/7