



A Product Line of
Diodes Incorporated



SPECIFICATION FOR APPROVAL

CUSTOMER _____

NOMINAL FREQUENCY 38.880000 MHz

PRODUCT TYPE TYPE JT 2.5X2.0 TEMPERATURE
COMPENSATED CRYSTAL OSCILLATOR

SPEC. NO. (P/N) JT2538801P

CUSTOMER P/N _____

ISSUE DATE May 31, 2018

VERSION A

APPROVED	PREPARED	QA

Diodes Incorporated

No.2, Ziqiang 5th Rd., Zhongli Industrial Park,
Zhongli Dist., Taoyuan City 32063, Taiwan (R.O.C.)
TEL: 886-3-451-8888
FAX: 886-3-461-3865
<https://www.diodes.com>

- *Pb-free
- *RoHS Compliant
- *HF-Halogen Free
- *REACH Compliant

VERSION HISTORY

Version No.	Version Date	Description	Notes
01	Feb.5,2014	Initial Release	
A	May.31,2018	Updated logo	



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JT2538801P

VER. A 31-May-18

ELECTRICAL SPECIFICATIONS

SRe Part Number : JT2538801P

Item	Symbol	Specifications	Units	Notes
Nominal Frequency	F _o	38.880000	MHz	
Operating Temperature Range	TR	-40 to +85	°C	
Storage Temperature Range		-40 to +85	°C	
Supply Voltage	V _{DD}	+3.3 ± 5.0%	V	
Frequency Stability	FT	± 2.5	ppm	vs. Temperature (Refer to the mid-point between minimum and maximum frequency values over the specified temperature range)
Frequency Stability		± 0.2	ppm	vs. Load varied 10pF//10kΩ±10%
Frequency Stability		± 0.1	ppm	vs. Supply Voltage varied V _{dd} ±5% at 25°C
Frequency Tolerance		± 2.0	ppm	Max. After 2 times reflow (Refer to nominal frequency)
Static Temperature Hysteresis		± 0.6	ppm	Max.
Aging		±5	ppm	10 years at 25°C
Logic Type	LT	Clipped Sinewave		
Supply Current	I _{DD}	2	mA	Max.
Start Up Time v.s Output Level		2.0	msec	Max, 90% of specified output level
Output Voltage		0.8 to 1.4	Vp-p	
Output Load Resistance		10	KΩ	9KΩ Min / 11KΩ Max
Output Load Capacitance		10	pF	9pF Min / 11pF Max
Harmonics		-8	dBc	Max.
Phase Noise		-140 / -135	dBc/Hz	Typ./Max, at 1kHz offset

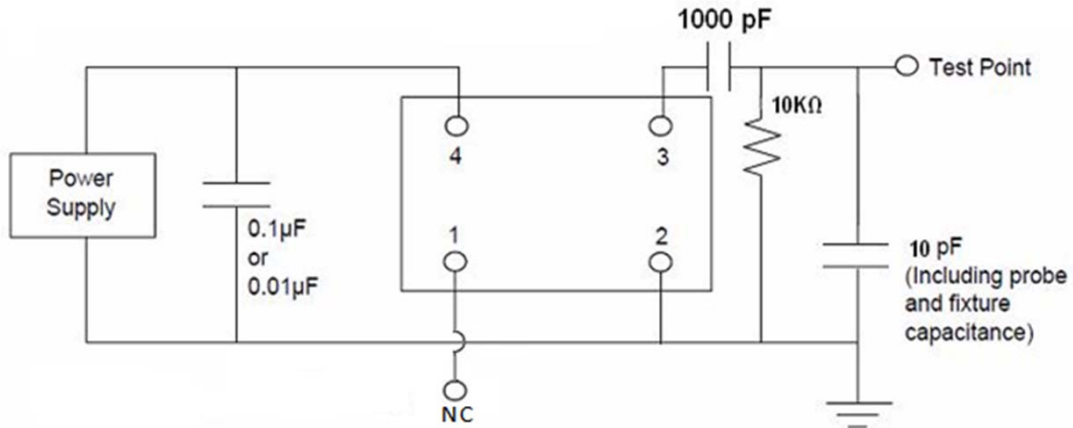
※ This product doesn't include harmful substance that stipulated by SONY SS-00259 Level 1 and S-AT2-001 Level 1 standard. RoHS Compliant (Pb - Free).

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JT2538801P

VER. A 31-May-18

TEST CIRCUIT



RELIABILITY SPECIFICATIONS

1. Initial

- 1.1 Physical Dimensions: Mil Std 883 M2016
- 1.2 Gross/Fine Leak: JESD22-A109, Mil Std 883 M1014
- 1.3 Electrical Characterization: Per Specification/Datasheet
- 1.4 Electrical Test: Per Specification/Datasheet

2. Mechanical

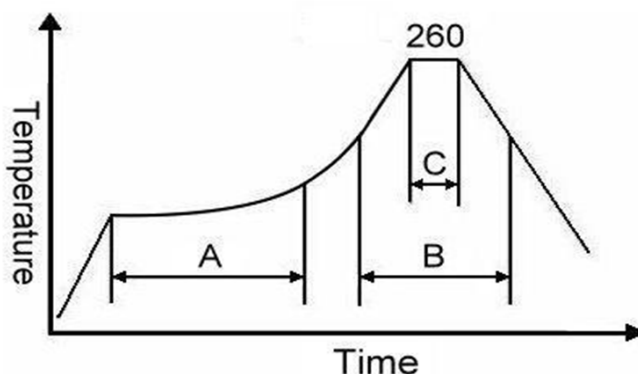
- 2.1 Mechanical Shock: JESD22-B104
- 2.2 Vibration Variable Frequency: JESD22-B103
- 2.3 Solderability: JESD22-B102-D

3. Environmental

- 3.1 Highly Accelerated Stress Testing: JESD22-A110/A118
- 3.2 Temp Cycle: JESD22-A104
- 3.3 Resistance to Solder Heat: J-STD-020C
- 3.4 Low Temperature Storage: JESD22-A108
- 3.5 High Temperature Storage Life / Bake: JESD22-A103
- 3.6 Temperature Bias and Operating Life: JESD22-A108
- 3.7 ESD Testing: JESD22-A114/A115/C101
- 3.8 Latch Up test: JESD78

SUGGESTED IR REFLOW PROFILE

*As per IPC-JEDEC J-STD-020D



Note:

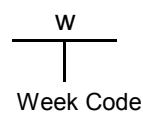
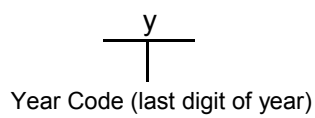
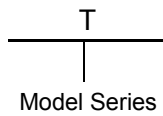
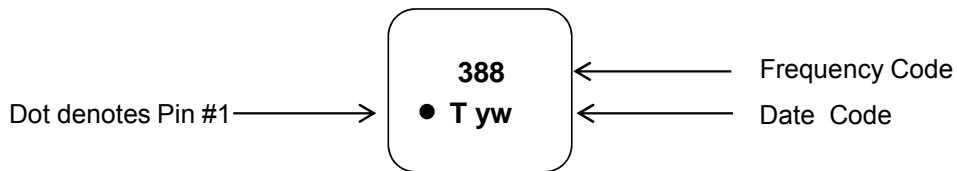
	Stage	Temperature	Time
A	Preheat	150~200°C	60~120 Sec
B	Primary Heat	217°C	60~150 Sec
C	Peak	260°C	10 Sec

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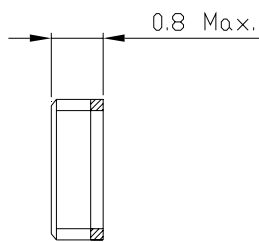
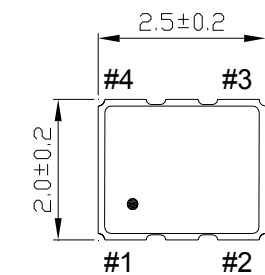
JT2538801P

VER. A 31-May-18

MARKING

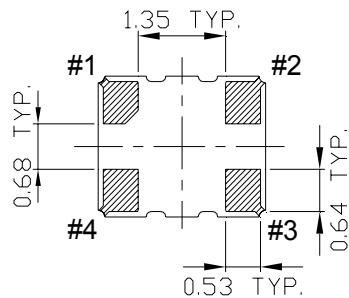
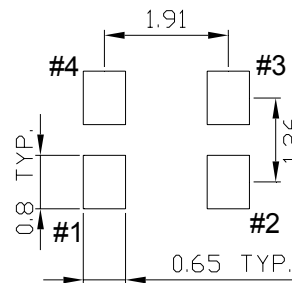


MECHANICAL DRAWINGS (Scale: None. Dimensions are in mm.)



Recommended Land Pattern

(TOP VIEW)



Bottom View

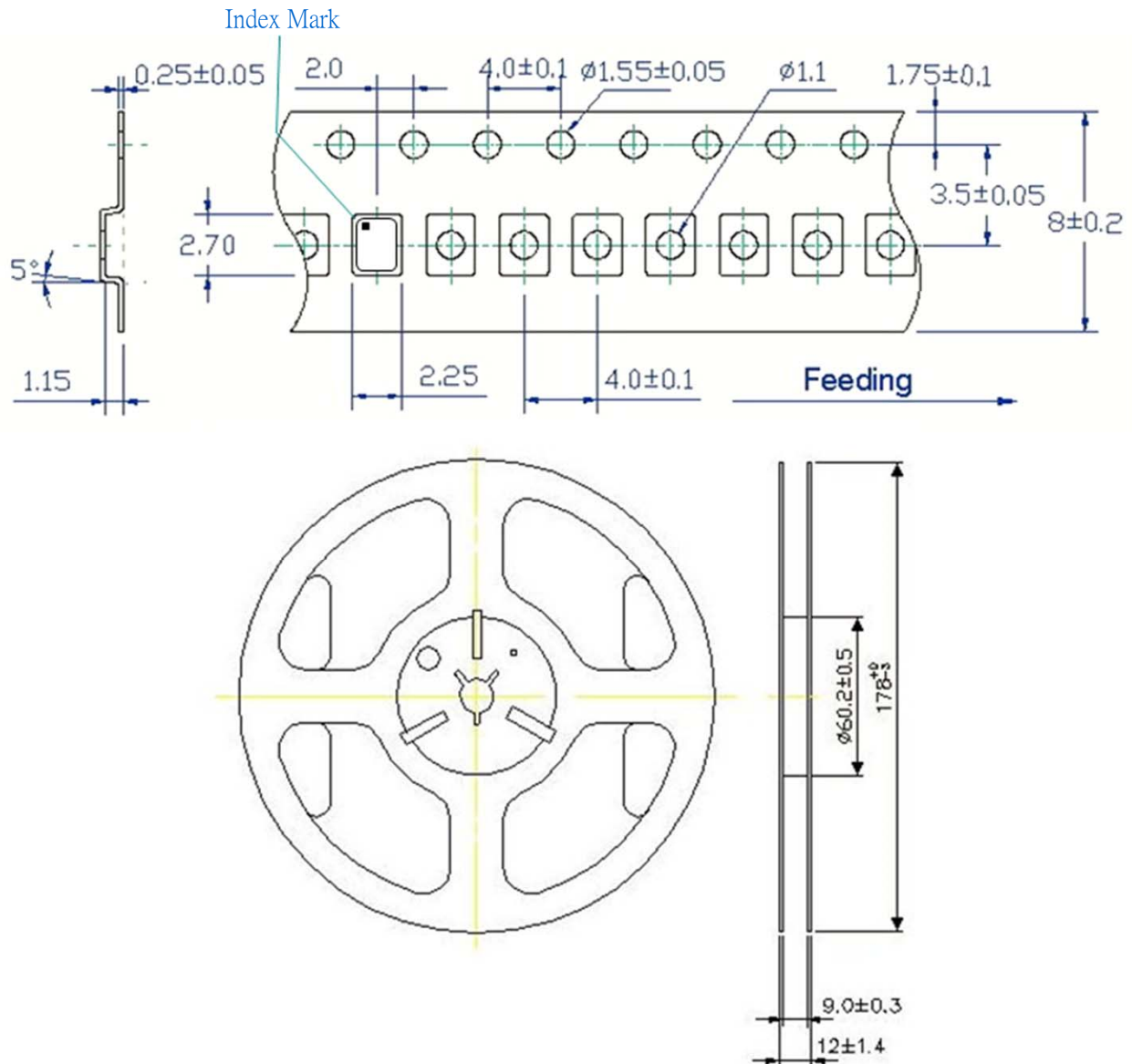
Pin No.	Connections
1	NC
2	GND
3	OUTPUT
4	VDD

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JT2538801P

VER. A 31-May-18

TAPE&REEL



1. 230mm minimum leader which consist of carrier and/or tape followed by a minimum of 160mm of empty carrier tape sealed with cover tape.
2. 160mm minimum trailer of empty carrier tape sealed with cover tape.

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VER. A 31-May-18

PACKING

