



A Product Line of  
Diodes Incorporated



# SPECIFICATION FOR APPROVAL

CUSTOMER

NOMINAL FREQUENCY

**30.000000 MHz**

PRODUCT TYPE

**TYPE GC 49S SMD QUARTZ CRYSTAL**

PART NUMBER

**GC3000021**

CUSTOMER P/N

ISSUE DATE

**May 2, 2018**

VERSION

**C**

APPROVED	PREPARED	QA
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## Diodes Incorporated

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\*RoHS Compliant

\*HF-Halogen Free

\*REACH Compliant

# TYPE GC 49S SMD QUARTZ CRYSTAL

## GC3000021

VER.C 02-MAY-18

### VERSION HISTORY

Version No.	Version Date	Description	Notes
A	May. 4, 2010	Initial Release	
B	May. 26, 2011	Updated Suggested IR Reflow Profile & Format	
C	May. 2, 2018	Updated logo	

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VER.C 02-MAY-18

### ELECTRICAL SPECIFICATIONS

Item	Symbol	Specifications	Units	Notes
Nominal Frequency	Fn	30.000000	MHz	
Mode of Oscillation	MO	AT Cut-Fundamental		
Calibration Load Capacitance	CL	8.5	pF	
Calibration Tolerance	FL	± 25	ppm	at 25°C±3°C
Operating Temperature Range	TR	0 to +85	°C	
Frequency Stability(Frequency Deviation over the Operating Temperature Range)	F/T	± 25	ppm	Reference to the Frequency at 25°C
Operating Drive Level		100	µW	
Maximum Drive Level		500	µW	Crystal never to be exposed to more than 500uW applied during crystal production.
Equivalent Series Resistance	ESR	25	Ω	Max.
MaxRR-MinRR at Drive Level Dependency Sweep	DLD2	8	Ω	Max. measured from 10nW to 500uW
MaxRR at Drive Level Dependency Sweep	RLD2	25	Ω	Max. measured from 10nW to 500uW
Shunt Capacitance	C0	2 to 4.25	pF	
C0/C1 Ratio	C0/C1	200		Min.
Aging at 25°C		± 5	ppm	Max, 1st year, ±3ppm thereafter
Storage Temperature		-55 to +125	°C	
Insulation Resistance		500	MΩ	Min

Note :

1. All specs apply over full operating temp. range and full range of drive levels unless otherwise noted.
2. Maximum freq. offset is the sum of all freq. tolerance specs.
3. Test must be performed from low DL to high DL.
4. Crystal must not be operated for a minimum of 24hrs prior to testing.
5. Damage cannot occur to the crystal in the event that power is applied between -20~0°C.
6. All crystals must include either printed or etched date/lot code marking.
7. All crystals must be clearly marked with the manufactures' name.
8. The vendor is responsible for certifying that each shipment meets these requests.

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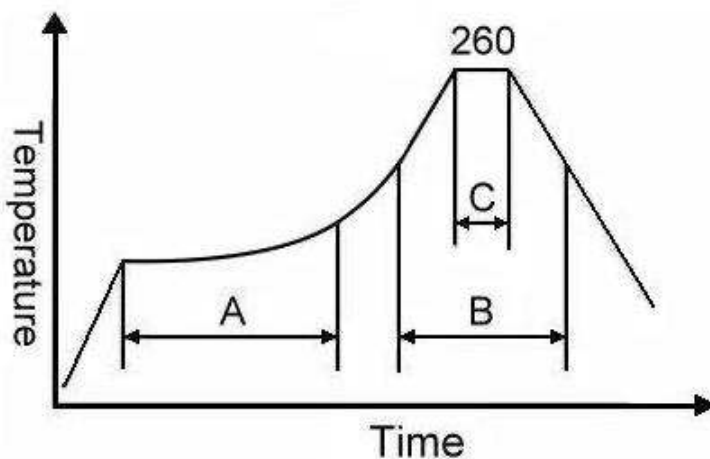
## RELIABILITY SPECIFICATIONS

### MECHANICAL AND ENVIRONMENTAL RATINGS:

- a) FINE LEAK TEST: JESD22-A109 (Condition 1A)
- b) GROSS LEAK TEST: JESD22-A109 (Condition C)
- c) MOISTURE RESISTANCE: JESD22-A113
- d) SHOCK: JESD22-B104 (Condition B)
- e) SOLDERABILITY : (RoHS version): J-STD-002
- f) VIBRATION: JESD22-B103
- g) SOLVENT RESISTANCE: JESD22-B107
- h) RESISTANCE TO SOLDERING HEAT (RoHS version): J-STD-020D Table 5.2 Pb free devices (3 cycles max)

## SUGGESTED IR REFLOW PROFILE

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



Note:

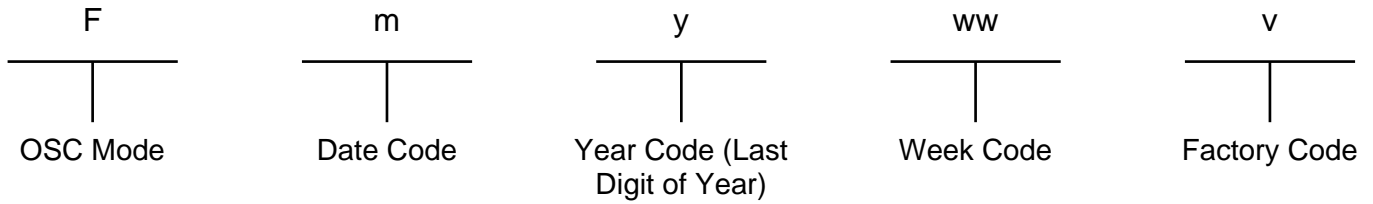
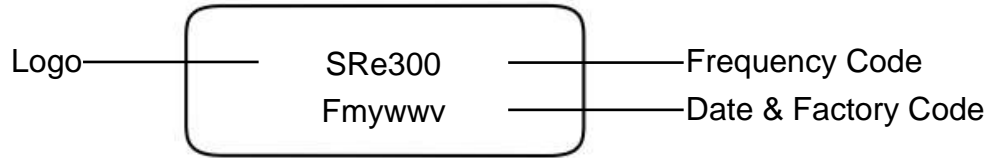
	Stage	Temperature	Time
A	Preheat	150~200°C	60~120 Sec
B	Primary Heat	217°C	60~150 Sec
C	Peak	260°C	10 Sec

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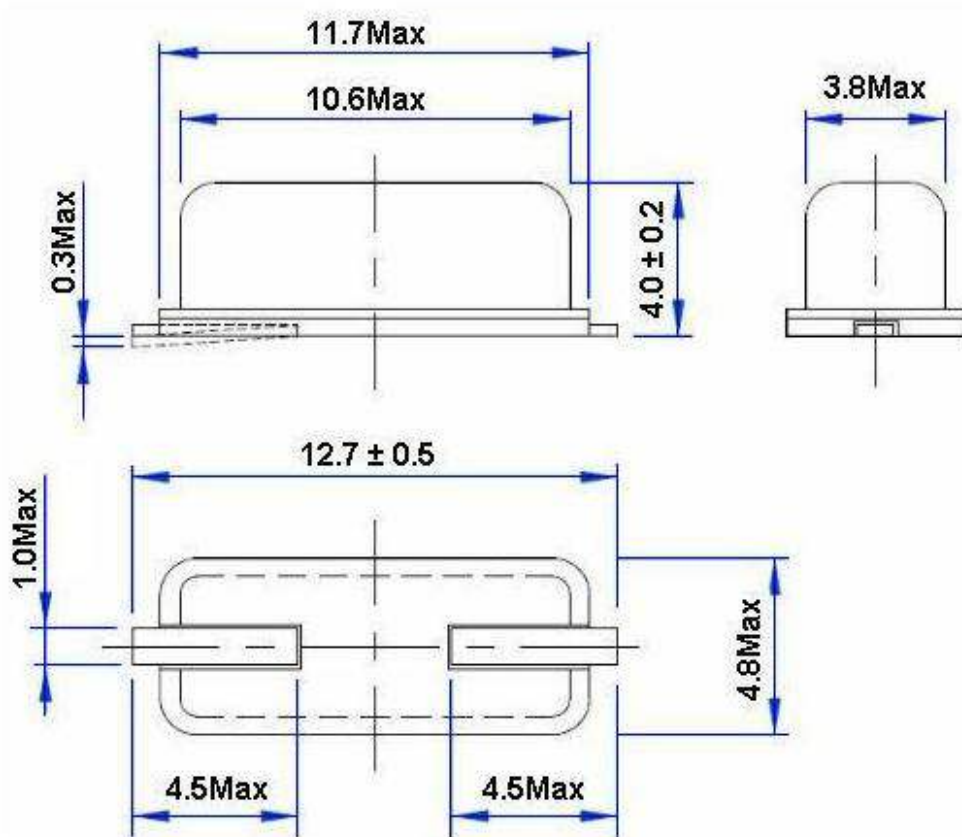
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## MARKING



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



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## PACKING

