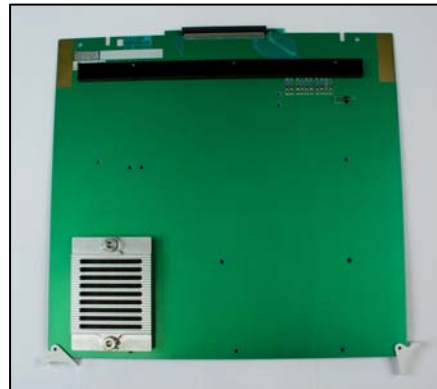


- Industry's first crystal temperature test system with 100% electronic switching
- Proprietary 50 ohm reflection network provides typical frequency measurement repeatability ≤ 0.02 ppm !
- High speed, high precision frequency measurement using calculated FL over temperature
- Chamber holds eight 64-position pallet socket DUT PCBs for a total of 512 parts
- Crystals of different frequencies can be tested in a single temperature run
- Parameter and curve fit characteristics are checked against easy to define QC limits
- All data is published in a *Microsoft Access*[™] data base
- Printouts are generated using *Crystal Reports*[®]
- Data can be exported to *Microsoft Excel*[™] for custom data analysis



64 Position
Pallet



64 Position
Pallet Socket
DUT PCB

SPECIFICATIONS

250B-1 Frequency Range:
250C Frequency Range:
Frequency Correlation:
Frequency Repeatability:
Temperature Stability:
Temperature Range:

1 MHz to 220 MHz
1 MHz to 500 MHz
 ± 1 ppm* at series (typical)
 ≤ 0.02 ppm (typical)
 $\pm 0.1^\circ$ C
 -55° C to 125° C (MR)
 -65° C to 125° C (MR with LN₂ Boost)

* Proprietary measurement and calibration algorithms provide correlation to industry standard crystal measurement equipment.

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SYSTEM CONFIGURATION

- S&A 250B-1 or 250C Network Analyzer
- S&A 4350MR Option 1 Temperature Test Chamber
- Eight position card cage and backplane PCB
- 50 Ohm Reflection Networks
- Windows® based System Software
- Computer
- Printer (Optional)

SAMPLE REPORTS

Crystal Plots

Run Name: Crystal Test Run
 Print: All Operator: RMB
 Row A: Measured FL
 Row B: Measured FL
 Row C: Measured FL
 Row D: Measured FL

Ref F: F @ 25.00°C (Std)
 Run Start: 10-Nov-2001 8:37 am
 Run Finish: 10-Nov-2001 10:15 am
 S&A W2200 Rev: 1732

Crystal Condensed Plots

Run Name: Crystal Test Run
 Print: All Operator: RMB
 Row A: Measured FL
 Row B: Measured FL
 Row C: Measured FL
 Row D: Measured FL

Ref F: F @ 25.00°C (Std)
 Run Start: 10-Nov-2001 8:37 am
 Run Finish: 10-Nov-2001 10:15 am
 S&A W2200 Rev: 1732

A001 Sample test parts -051012

Deviation from curvefit shows the system's excellent measurement repeatability

Crystal Setup File Parameters

Run Name: Example Run
 Print: All Operator:
 Row A: Measured FL
 Row B: Measured FL
 Row C: Measured FL
 Row D: Measured FL

Ref F: F @ 25.00°C
 Run Start: 26-Oct-2001 4:51 pm
 Run Finish: 26-Oct-2001 6:34 pm
 S&A W2200 Rev: 1725

Setup: 12megv2
 Reference F: 12,795,900 Hz CL: 0.00 pF Power: 100.00 uW Into 12.00 Ohms Measure: FR/T

STATUS	FR	CO	SR	Q	CL	L	PWR	TEMP	F/T
	ppm	pF	Ohms	k	FF	nW	nW	°C	ppm
	10.0	3.0	25.0		13.0	13.00			
	-10.0	2.5			12.0	11.00			

Delta	WCD	WCT	CUT	ANGL
Ohms	ppm	Ohms	Ohms	°
1.6	-0.2	11.0	AT	2.66

Crystal Failures Only

Run Name: Example Run
 Print: All Operator:
 Row A: Measured FL
 Row B: Measured FL
 Row C: Measured FL
 Row D: Measured FL

Ref F: F @ 25.00°C (Std)
 Run Start: 26-Oct-2001 4:51 pm
 Run Finish: 26-Oct-2001 6:34 pm
 S&A W2200 Rev: 1725

Crystal #	Serial #	Setup File Parameters	Crystal Data	Curve Fit Parameters
A001	*2a001*	Fail FR Low		

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