

SQUID Package Assembly Procedure

Document Revision Record

Rev	Date	ECO#	Pages Affected	Description
-	8/8/97	NA	NA	New procedure

Authorized Personnel

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Parts & Tools List

#25018-201 Carrier assembly, SQUID
#25423-201 Body, SQUID package
#25043-101 Lid, SQUID package
#25448-101 Gasket, Lid
#25392-101 Cover, Protective
#25353-101 Clamp, Input, Right
#25354-101 Clamp, Input, Left
#25485-101 Sphere, Input clamp
#25452-101 Washer, Thermal ground
#25037-101 Washer, Square
#25053-101 Screw, SHC, #0-80 x.240, Vented
#25053-102 Screw, SHC, #0-80 x.220, Vented
#25053-103 Screw, SHC, #0-80 x.135, Vented
#25054-102 Screw, SHC, #2-56 x.180, Vented
#25451-201 Set screw, Cone
#25054-103 Screw, SHC, #2-56 x.625, Vented
Non-magnetic Allen wrench, size .050", 5/64"
Non-magnetic tweezers
Stycast epoxy # 1266
Alcohol #2-Propanol
Ultrajet 2000 air jet spray
Mini-vice
Keithley 580 Micro-ohmmeter
Fluke 77 Multimeter

Precaution

SQUID chip is ESD sensitive. Use appropriate ESD protection equipment and be cautious.

Procedure

All the following steps will be done in the readout clean room.

1. Epoxy spheres onto clamps

1.1 Use Procedure P0157 for the Stycast 1266 mix ratio and curing.

- 1.2 Epoxy spheres (#25485-101) to the input clamps (#25353-101, #25354-101).
- 1.3 Let cure over night or 24 hours.
- 1.4 Inspect the parts to make sure that there is no epoxy around the contact point (tip of the spheres).

2. Assemble SQUID carrier into the package

- 2.1 Spray the SQUID package body (#25423-201) with air jet.
- 2.2 Use a vice to hold the SQUID package body. Make sure the interface surfaces of the vice are covered with Kapton tape to avoid magnetic contamination.
- 2.3 Use two pairs of tweezers to remove the SQUID carrier (#25018-201) from its container. Use one pair of tweezers to hold the thermal strap and another to hold the up-right corner of the sapphire substrate.
- 2.4 Carefully tilt the carrier to let the Lemo connector end get into the package first. Insert the Lemo connector into the hole. Slowly adjust the position so that the whole carrier can get in and sit in position.
- 2.5 Put 4 square washers (#25037-101) at the corners of the sapphire carrier and insert screws (#25053-102) into place. Align the carrier straight at the middle and tighten the screws.
- 2.6 Put the washer (#25452-101) on the thermal strap (#25450-101). Insert and tighten down the screw (#25053-103). Adjust the shape of the thermal strap with a pair of tweezers if needed.
- 2.7 Adjust the location of the Lemo connector per dimensions called on drawing #25017-201. Tighten up the set screw (#25452-201). Record the dimension into P0159 Table-1.
- 2.8 Check resistance from input circuit to ground and fill the readings into P0159 Table-1.
- 2.9 Put the input clamps (#25353-101 + #25485-101, #25354-101 + #25485-101) into the package. Put the screws (#25053-102) in and tighten them down. Adjust the position to make sure the spheres are on the center of the niobium pads.
- 2.10 Put the lead gasket (#25448-101) on the top of the package. Use tweezers to place the edge of the gasket into the groove of the package body.
- 2.11 Put the SQUID package lid (#25043-101) on the top of the lead gasket. Insert 4 screws (#25054-102) and tighten them down.

3. Continuity measurement

- 3.1 Use Keithley 580 to measure the resistance of each pair at the Lemo connector. Use Fluke 77 meter to check pins which are supposed to be open. Record the readings in table P0159-Table 1.

P0159 Table 1
Resistance Measurements of SQUID Package Assembly

SQUID Package Serial No. _____
Carrier Serial No. _____

Lemo Connector Pins	Nominal Resistance	Measured Resistance
4-5 (Signal)	1.2-1.3 Ω *	
1-8 (FB)	2.9-3.8K Ω *	
2-3 (Mod)	4.2-4.7K Ω *	
9-10 (Bias)	380-450 Ω *	
4- Ground	1-2 Ω	
5- Ground	1-2 Ω	
Input- Ground	2 M Ω	
Dimension from drawing #25017-201	.19 \pm .02	

Note:

1. *The measurements listed here must be within $\pm 20\%$ of the values given for this carrier in table P0153-table 7.
2. The resistance between any two pins other than the pairs listed in the table should be open (>20 M Ω).
3. The resistance between any pin to ground should be open (>20 M Ω) except pin 4 and 5.

Fluke Ohmmeter Serial No. _____

Keithley 580 Serial No. _____

Operator: _____

Date _____

QA: _____

Date _____