

Record of Line-item Letter Ballot Review by TC Chapter for Procedural Review

Region/Locale: **North America**
 Global Technical Committee: **Silicon Wafer**
 TC Chapter Cochairs: **Dinesh Gupta/STA, Noel Poduje/SMS**
 Standards Staff: **Kevin Nguyen**

	Scheduled in Background Statement	Actual
Date	07/11/2017	07/11/2017
Location	San Francisco Marriott Marquis	San Francisco Marriott Marquis
Reason for Change of Date and/or Location (if changed)		

Note: See *Regulations* ¶ 9.5 Exception for allowable reason to change.

Document Information

I. Document Number, Title, Lists of Line Items

Document Number 6019A	Document Title Line Item Revision of SEMI M1-1016, Specification for Polished Single Crystal Silicon Wafers	
List of Line Items	Line Item 1	Line Item Title Change ¶R3-4.4 as follows to point out that minority carrier lifetime measurements in electronic silicon manufacture must be controlled by recombination at impurities

Line Item 1 Adjudication

II. Tally

Standards staff to fill in.

Voting Tally: **As-cast tally after close of voting period**

Note: A minimum of 60% of the Voting Interests that have TC Members within the global technical committee that issued the Letter Ballot must return Votes. (*Regulations* ¶ 9.7.1.1)

Voting Tally:

Voting Interest:	Returned Votes	Distribution	Return Rate	
Letter Ballot	52	÷ 86	= 60.5%	≥60%
Intercommittee Ballot	31			
Voting Interest Reject(s)	1	Total Voters with Rejects		1
Voting Interest Accept(s)	38			

Note: See Regulations § 3.2.1 for definition of Voting Interest.

III. Rejects

Voting Interest Reject 1 (Voting Interest Name: Self)

Voter Reject 1 (Voter: Peter Wagner (Self))

Negative 1

Negative	Referenced Section/ Paragraph	*TF/TC Chapter to fill in, including text in the ballot if necessary.		
		1. R3-4.4 refers to DIN 50440-1, but this standard does not exist anymore.		
	Negative Text	*Original complete Negative text (e.g., issue, justification, suggestion) should be copied.		
TF input (optional)				
Withdrawal (check one)	<input checked="" type="checkbox"/>	No Negative withdrawal made by Voter.	GO TO "Related" subsection	
	<input type="checkbox"/>	Withdrawal document received by Standards staff on MM/DD/YYYY.	GO TO "Final" subsection → (A)	
Related	Motion and Reason (check one)	<input type="checkbox"/>	'Related' is mutually agreed upon. (Needs no motion.)	GO TO "Persuasive" subsection
		<input checked="" type="checkbox"/>	Negative is not related. (Needs ≥2/3 votes to pass.)	
		Reason	Because it is not part of the ballot	
	Motion by/ 2 nd by	Fritz Passek (Siltronic)/Kurt Haller (KLA-Tencor)		
	Discussion			
Result of Vote (check one)	<input type="checkbox"/>	9 Y-0 N; Motion passed.		
	<input type="checkbox"/>	[Negative is not related.] < 2/3	GO TO "Persuasive" subsection	
	<input checked="" type="checkbox"/>	2/3 ≤ [Negative is not related.]	GO TO "Final" subsection → (B)	
Final	(check if applicable)	<input type="checkbox"/>	(A)	Withdrawn (counted under h in disposition)
		<input checked="" type="checkbox"/>	(B)	Not related (counted under i in disposition)
		<input type="checkbox"/>	(C)	Related and not persuasive (significant)
		<input type="checkbox"/>	(D)	Not significant (counted under j in disposition)

		(E)	Related and persuasive and not addressed by technical change	DOCUMENT FAILS
		(F)	Addressed by technical change (counted under k disposition)	
(check if applicable)		Comment generated. See Section V-(ii) Comment # X.		

Negative 2

Negative	Referenced Section/ Paragraph	*TF/TC Chapter to fill in, including text in the ballot if necessary. In R3-4.4 the attributes “early” and “later” are used with respect to photoconductive decay methods. These attributes are superfluous and not necessary. A SEMI standard is not a history book.		
	Negative Text	*Original complete Negative text (e.g., issue, justification, suggestion) should be copied.		
TF input (optional)				
Withdrawal (check one)	x	No Negative withdrawal made by Voter.		GO TO “Related” subsection
		Withdrawal document received by Standards staff on MM/DD/YYYY.		GO TO “Final” subsection → (A)
Related	Motion and Reason (check one)	*	‘Related’ is mutually agreed upon. (Needs no motion.) GO TO “Persuasive” subsection	
			Negative is not related. (Needs ≥2/3 votes to pass.)	
		Reason	XXXX	
	Motion by/ 2 nd by	Name (Company)/Name (Company)		
	Discussion			
Result of Vote (check one)	XX Y-XX N; Motion passed/failed.			
		[Negative is not related.] < 2/3		GO TO “Persuasive” subsection
		2/3 ≤ [Negative is not related.]		GO TO “Final” subsection → (B)
Persuasive	Motion and Reason (check one)		Negative is related and persuasive. (Needs >1/3 votes to pass.)	
		x	Negative is related and not persuasive. (Needs ≥2/3 votes to pass.)	
		Reason	The terms “early” and “later” are descriptors that serve a useful purpose in distinguishing older Standards, which were not suitable for measurement on wafers, from more modern Standards. They are not superfluous. There is no detriment and significant benefit to including these descriptive terms.	

	Motion by/ 2nd by	Noel Poduje (SMS)/Fritz Passek (Siltronic)			
	Discussion				
	Result of Vote (check one)	10 Y-0 N; Motion passed			
		<input type="checkbox"/>	[Negative is related and persuasive.] > 1/3	Is a technical change recommended? (check one)	
		<input type="checkbox"/>	[Negative is related and not persuasive.] < 2/3	<input type="checkbox"/>	
		<input type="checkbox"/>	2/3 ≤ [Negative is related and not persuasive.] < 90%	GO TO “Final” subsection → (C)	
		<input checked="" type="checkbox"/>	90% ≤ [Negative is related and not persuasive.]	GO TO “Not Significant Finding Option” subsection	
Not Significant Finding Option	This option can be used only “if the TC Chapter finds a Negative not persuasive by a vote equal to or greater than 90% of the persons voting on the action”. (Regulations ¶ 9.6.4.4.2)				
	Use of “Not significant finding option” (check one)	<input checked="" type="checkbox"/>	It is mutually agreed upon to term the Negative “not significant”.	GO TO “Final” subsection → (D)	
		<input type="checkbox"/>	It is mutually agreed upon to term the Negative “significant”.	GO TO “Final” subsection → (C)	
		<input type="checkbox"/>	Whether or not the Negative is “not significant” is decided by a vote.		
	Motion	The Negative is “not significant”.			
	Motion by/ 2nd by	Name (Company)/Name (Company)			
Vote	<input type="checkbox"/>	XX Y-XX N; Motion passed with simple majority	GO TO “Final” subsection → (D)		
	<input type="checkbox"/>	XX Y-XX N; Motion failed with simple majority	GO TO “Final” subsection → (C)		
Final	(check if applicable)	<input type="checkbox"/>	(A)	Withdrawn (counted under h in disposition)	
		<input type="checkbox"/>	(B)	Not related (counted under i in disposition)	
		<input type="checkbox"/>	(C)	Related and not persuasive (significant)	
		<input checked="" type="checkbox"/>	(D)	Not significant (counted under j in disposition)	
		<input type="checkbox"/>	(E)	Related and persuasive and not addressed by technical change	DOCUMENT FAILS
		<input type="checkbox"/>	(F)	Addressed by technical change (counted under k disposition)	
	(check if applicable)	<input type="checkbox"/>	Comment generated. See Section V-(ii) Comment # X.		

Disposition of Voting Interest Reject 1

Check only when the Document has not been failed.

2	Original number (#) of Negatives	(g)
#	Number of Negatives withdrawn	(h)
1	Number of Negatives found not related	(i)

1	Number of Negatives found not significant		(j)
#	Number of Negatives addressed by technical change (Negative becomes not significant)		(k)
Final	x	$g - (h + i + j + k) = 0$	Reject is Not Valid and is not included in the denominator of § VI. <i>Approval Conditions Check</i>
		$g - (h + i + j + k) > 0$	Reject is included in the denominator of § VI. <i>Approval Conditions Check</i>
		Reject without a Negative	Not Valid

Note: If all of the Negatives included with a Reject Vote are withdrawn, determined to be not related, or determined to be not significant, the Reject Vote is not valid. (Regulations ¶ 9.4.3.3)
Note: A Negative addressed by a technical change is automatically considered to be not significant. (Regulations ¶ 9.6.4.4.2)

IV. Other Technical Issues

None

V. Comments

V- (i) Voters' Comments

Commenter 1 (Frank Riedel (Siltronic)) - Comment 1

Comment	*TF/TC Chapter to fill in section/paragraph #, if necessary.	
	Just a modest piece of advice: 'minority charge carrier' were the more precise term.	
Action	The TC Chapter agreed to do one of the following actions.	
	*No motion is required in this step.	
		Already addressed by Commenter #, Comment #
		No further action was taken by the TC Chapter.
		Refer to the TF for more consideration.
		New Business
	x	Editorial Change
	Options for editorial change (check one)	Case 1: No vote in this section: To be included and voted on as a group in § VI. <i>Editorial Changes Other than Those Voted on in § V.</i>
		Case 2: Voted in this section: Original section number and at least one full sentence are required in "FROM" and "TO" fields.
	x	
Editorial	1	FROM: R3-4.4, changes all occurrences of "minority carrier"

	TO: R3-4.4, “minority charger carrier”
	Justification (If necessary) For clarification of the term, no technical content added.
Motion	To approve above editorial change(s)
Motion by/2nd by	Noel Poduje (SMS)/Fritz Passek (Siltronic)
Discussion	XXXX
Vote	10 Y-0 N; Motion passed .

V-(ii) Comments Created by Handling Negative
None

VI. Editorial Changes Other than Those Voted on in § V

Original section/paragraph number and at least one full sentence are required in “FROM” and “TO” fields. Refer to section V (i) above.

VII. Approval Conditions Check

VII. - (i). Approval Rate

APPROVAL CONDITION 1: All Negatives have been discussed and were withdrawn, found not related, found not persuasive, or addressed by a technical change. (Regulations ¶ 9.7.1.2)

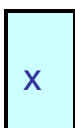
APPROVAL CONDITION 2: At least 90% of the sum of valid Voting Interest Accept and Voting Interest Reject Votes must be Accept. (Regulations ¶ 9.7.1.3)

Note: If both approval conditions are not satisfied, the Document fails.

		Accepts		(Accepts + Valid Rejects)					
Approval Rate	=	38	/	38	=	100.0%		≥90%	

VII. – (ii) Approval Level (check one)

Note: See Regulations § 9.7.2 for further information.



Globally Approved (No Ratification Ballot needed):
Line Item 1 meets the Letter Ballot approval conditions for the global technical committee.

Need a Ratification Ballot:

Line Item 1 meets the Letter Ballot approval conditions for the TC Chapter and a Ratification Ballot will be issued to validate technical changes.

Checks for Entire Document Including All Approved Line Items

VIII. Safety Check

Note: This Safety check applies to the entire Standard or Safety Guideline including all the approved Line Items. See § 15 of the Regulations for further information.

Motion	x	This is not a Safety Document , when all safety-related information is removed, the Document is still technically sound and complete. (<i>Regulations ¶ 8.7.1</i>)
		This is a Safety Document , when all safety-related information is removed, the Document is not technically sound and complete. (<i>Regulations ¶ 8.7.2</i>)
		Safety Checklist (<i>Regulations ¶ 15.3</i>) is complete and has been included with the Document throughout the balloting process. (<i>Regulations ¶ 15.1.2</i>)
Motion by/2nd by		Tetsuya Nakai (SUMCO)/Kurt Haller (KLA-Tencor)
Discussion		XXXX
Vote		9 Y-0 N; Motion passed

IX. Intellectual Property (IP) Check

Note: This IP check applies to the entire Standard or Safety Guideline including all the approved Line Items. See § 16 of the Regulations for further information.

x	The TC Chapter meeting chair asked those participating, if they were aware of any potentially material patented technology or copyrighted items* in the Standard or Guideline. (<i>Regulations ¶ 8.8.1</i>)	
Motion	x	No potentially material patented technology or reproduction of copyrighted items is known. GO TO SECTION X.
		Potentially material patented technology or reproduction of copyrighted items is known, but a Letter of Assurance (LOA) or copyright release letter for such items has been obtained or presented to the TC Chapter. GO TO SECTION X.
		Potentially material patented technology or reproduction of copyrighted items is known and use of such materials is technically justified by the TC Chapter, but an LOA or copyright release letter for some of the item(s) has NOT been obtained or presented to the TC Chapter.
		Ask ISC for special permission to publish.
		Quit activity.
		Wait for LOA for patented technology or release of copyrighted items.
	Motion by/2nd by	
Discussion		XXXX
Vote		XX Y-XX N

	Final Action	<input type="checkbox"/>	Motion passed
		<input type="checkbox"/>	Motion failed

* Note: Such potentially material patented technology or copyrighted items might have become known since the Standard or Safety Guideline was last reviewed, or might become relevant due to this Letter Ballot.

X. Action for This Document

Motion applicable items)	<input type="checkbox"/>	Line item(s) [X], [X] and [X] passed TC Chapter review as balloted and will be forwarded to the ISC A&R SC for procedural review.
	<input checked="" type="checkbox"/>	Line item(s) [1] passed TC Chapter review with editorial changes and will be forwarded to the ISC A&R SC for procedural review.
	<input type="checkbox"/>	Line item(s) [X], [X] and [X] passed TC Chapter review with technical changes and with or without editorial changes and will be forwarded to the ISC A&R SC for procedural review. A Ratification Ballot will be issued to verify the technical changes.
	<input type="checkbox"/>	Line item(s) [X], [X] and [X] failed TC Chapter review and will be returned to the TF for rework.
	<input type="checkbox"/>	Line item(s) [X], [X] and [X] failed TC Chapter review and work will be discontinued.
Motion by/ 2nd by	Noel Poduje (SMS)/Fritz Passek (Siltronic)	
Discussion	XXXX	
Vote	10 Y-0 N	
Final Action	<input checked="" type="checkbox"/>	Motion passed
	<input type="checkbox"/>	Motion failed

Standards staff to record the result of the A&R procedural review here:

A&R	<input type="checkbox"/>	Line item(s) [X], [X] and [X] are Approved for publication
	<input type="checkbox"/>	Line item(s) [X], [X] and [X] are Approved pending acceptance of the Ratification Ballot
	<input type="checkbox"/>	Line item(s) [X], [X] and [X] are Not approved
	Reason:	