

# JEDEC JC-11 Committee

## The Standards Process

Martin G. Freedman  
Molex Incorporated  
17 Sterling Court  
Hershey, PA 17033-2188  
E-mail: [mfreedman-molex@msn.com](mailto:mfreedman-molex@msn.com)

# EIA/JC-11 Organization

- Electronic Industries Alliance (EIA)
- JEDEC Solid State Technology Association
- JEDEC Board of Directors
- JEDEC Committees
- JEDEC Sub-Committees
- JEDEC Task Groups

# EIA/JC-11 Organization

## JEDEC Board of Directors

- Chairman - Desi Rhoden, AMI<sup>2</sup>
- Vice-Chairmen
  - Finance: Martin Freedman, Molex
  - Human Resources: Mark Bird, AMKOR
  - Marketing: Terry Walther, Micron
  - At Large: Mian Quddus, Samsung
  - At Large: Harry Spence, Microsemi
- 29 Members
- 15 JEDEC Committees (13 Active)

## SOME MILESTONES

It all began with Marconi.....

- 1895 Marconi demonstrates 1st radio transmission
- 1924 Radio Manufacturers Association (RMA) formed: 50 members
- 1926 National Association of Electrical Manufacturers (NEMA) formed
- 1944 RMA & NEMA form Joint Electron Tube Engineering Council (JETEC)
- 1950 RMA becomes Radio Television Manufacturers Association (RTMA)
- 1953 RTMA becomes Radio Electronics & Television Manufacturers Association (RETMA)
- 1957 RETMA becomes Electronic Industries Association (EIA)
- 1958 JETEC becomes Joint Electron Device Engineering Councils (JEDEC)  
- recognizes the advent of the transistor

## SOME MILESTONES

- 1970 JEDEC becomes JEDEC Solid State Product Engineering Council  
- recognizes the advent of the integrated circuit
- 1977 JEDEC Tube Council disbands; JEDEC sponsored solely by EIA
- 1998 JEDEC becomes JEDEC Solid State Products Division of EIA
- 1998 EIA becomes Electronics Industry Alliance
- 1999 JEDEC becomes JEDEC Solid State Technology Association in EIA

# • JEDEC ORGANIZATION

- JEDEC Board of Directors

- Open to full JEDEC members (29 current members)
- Non-paid board members nominated by member companies
- Sets JEDEC policy and procedures
- Final approval on JEDEC standards

- 11 Working Committees

- Develop JEDEC standards and documents
- Voluntary effort from company representatives
- Small paid office Staff (~10 employees)

• All JEDEC activities are governed by JEDEC Manual 21.



- The EIA is an alliance of industry trade associations and standards organization intended to unify the voice of the industry in national and international forums

- Members:

- Consumer Electronics Manufacturers Association (CEMA)
- Electronic Components, Assemblies, Equipment & Suppliers Association (ECA)
- Telecommunications Industry Association (TIA)
- Electronic Information Group (EIG)
- Government Electronics & Information Technology Association (GEIA)
- Electronic Industries Foundation (EIF)
- JEDEC Solid State Technology Association (JEDEC)

# JEDEC Committees

## JEDEC Board of Directors

- JC-10 Terms/Definitions
- JC-11 Mechanical Standards
- JC-12 International Standards
- JC-13 Government Liaison
- JC-14 Quality/Reliability
- JC-15 Package Characterization
- JC-16 Electrical Interface

# JEDEC Committees

## JEDEC Board of Directors

- JC-17 Microelectromechanical Systems (MEMS) Merged into JC-14
- JC-22 Thyristors
- JC-25 Trans/Pwr
- JC-40 CMOS/Digital
- JC-41 Linear IC (Inactive)
- JC-42 Memory
- JC-44 Semi Cust. (Inactive)

# • JEDEC COMMITTEES

- Each committee develops a defined scope which must be approved by the Board of Directors
- Changes to committee scope statements must be approved by the Board
- Certain issues such as pricing CANNOT be discussed at JEDEC meetings
- NO commercial transactions can be pursued at JEDEC meetings
- Company logos CANNOT be displayed on JEDEC working or published documents

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# EIA/JEDEC JC-11 Committee

# •JC-11 COMMITTEE

- Mechanical outlines
  - Ceramic and plastic packages
  - Trays, carriers and shipping tubes
  - Design requirements
  - Measuring methods
- ~120 Member Companies (~25 in 1980)
  - Semiconductor manufacturers
  - OEMs
  - Equipment manufacturers
  - Interface product manufacturers
  - Socket manufacturers
  - Contract assemblers

# JC-11 Subcommittee Chairs

- JC-11 Vice Chair - R. Griffin, NSC
- JC-11.1 Editorial - R. Kinnison, TI
- JC-11.2 Design - T. Allen, Micron
- JC-11.4 Uncased – E. Blackshear, IBM
- JC-11.5 Pkg. Interface – R. Henderer, Entegris
- JC-11.7 IEC - M. Bird, AMKOR
- JC-11.9 Govt. Coord. - R. Krause, NTK
- JC-11.10 Ceramic Packages - R. Kinnison, TI

# JC-11 Subcommittee Chairs

- JC-11.11 Plastic Packages - M. Bird,  
AMKOR
- JC-11.12 Hybrid Circuits - (Inactive)
- JC-11.13 Gauges & Tools - M. Mardi,  
Xilinx
- JC-11.14 Microassemblies - B. Bromley,  
Compaq

# •WORKING GROUPS

## •“Point” Committees

- Permanent working groups in JC-11
- Individual scopes defined
- Chaired by JC-11 members
- Chairs nominated & elected by committee members

## •Task Groups

- Ad hoc committees
- Limited scope & duration
- Chaired by committee member volunteer
- Initiated by member or committee as a whole
- One active task group

# Current Task Groups

- **IEC (SC47D) TAG Review, M. Bird, AMKOR, Chair**

# What is it?

# What does it do?

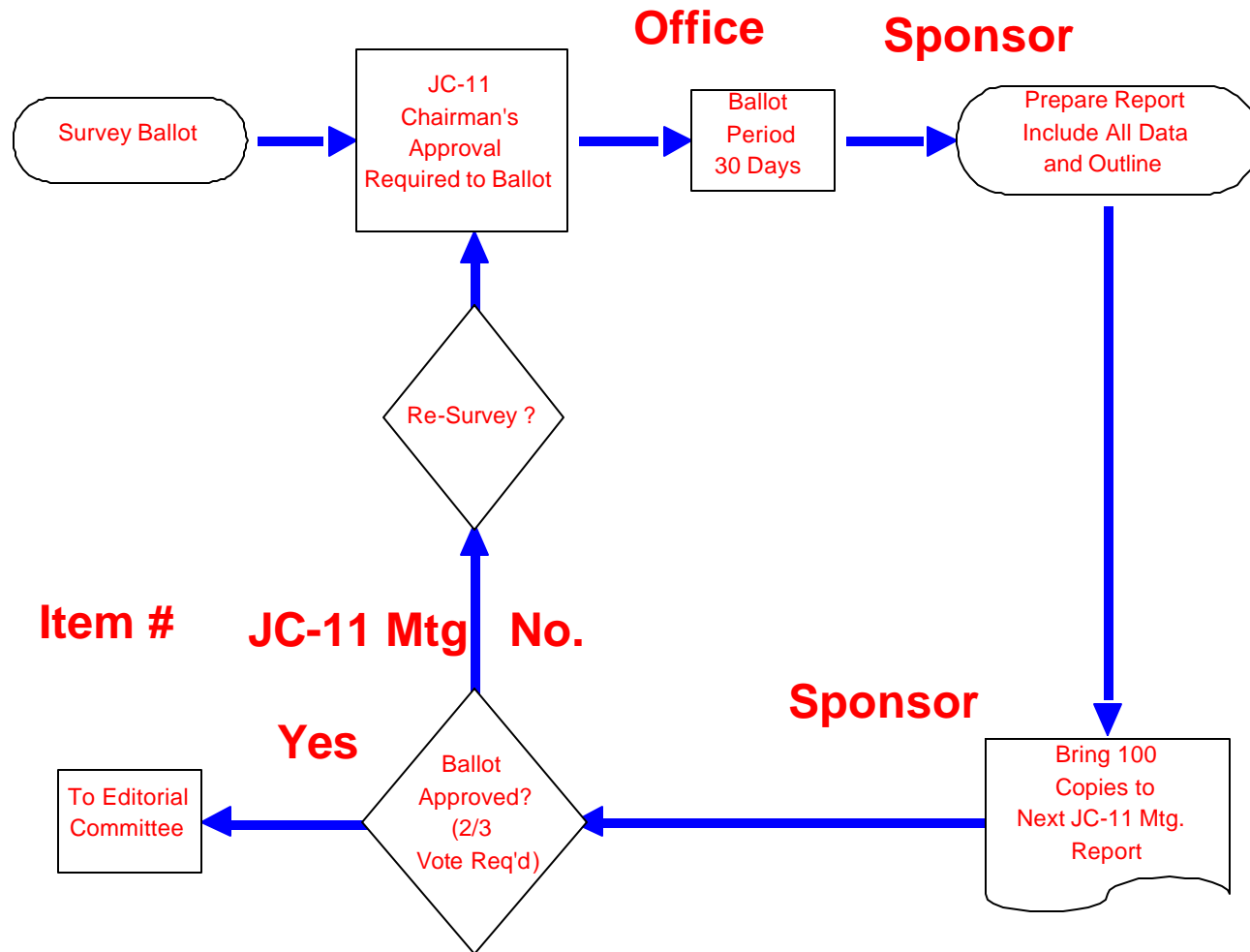
- We establish package outlines to avoid proliferation

How does an outline become  
registered or standardized?

# JC-11 Procedure

- Survey ballot  
Information gathering  
Chairman's approval required to issue
- Must be non-commercial
- 21 day minimum ballot period
- Sponsor must provide all data to the Committee
- Sponsor is not required to use data

# JEDEC JC-11 Survey Ballot Flow Chart



# Registered and Standard Outlines

## How Do They Differ

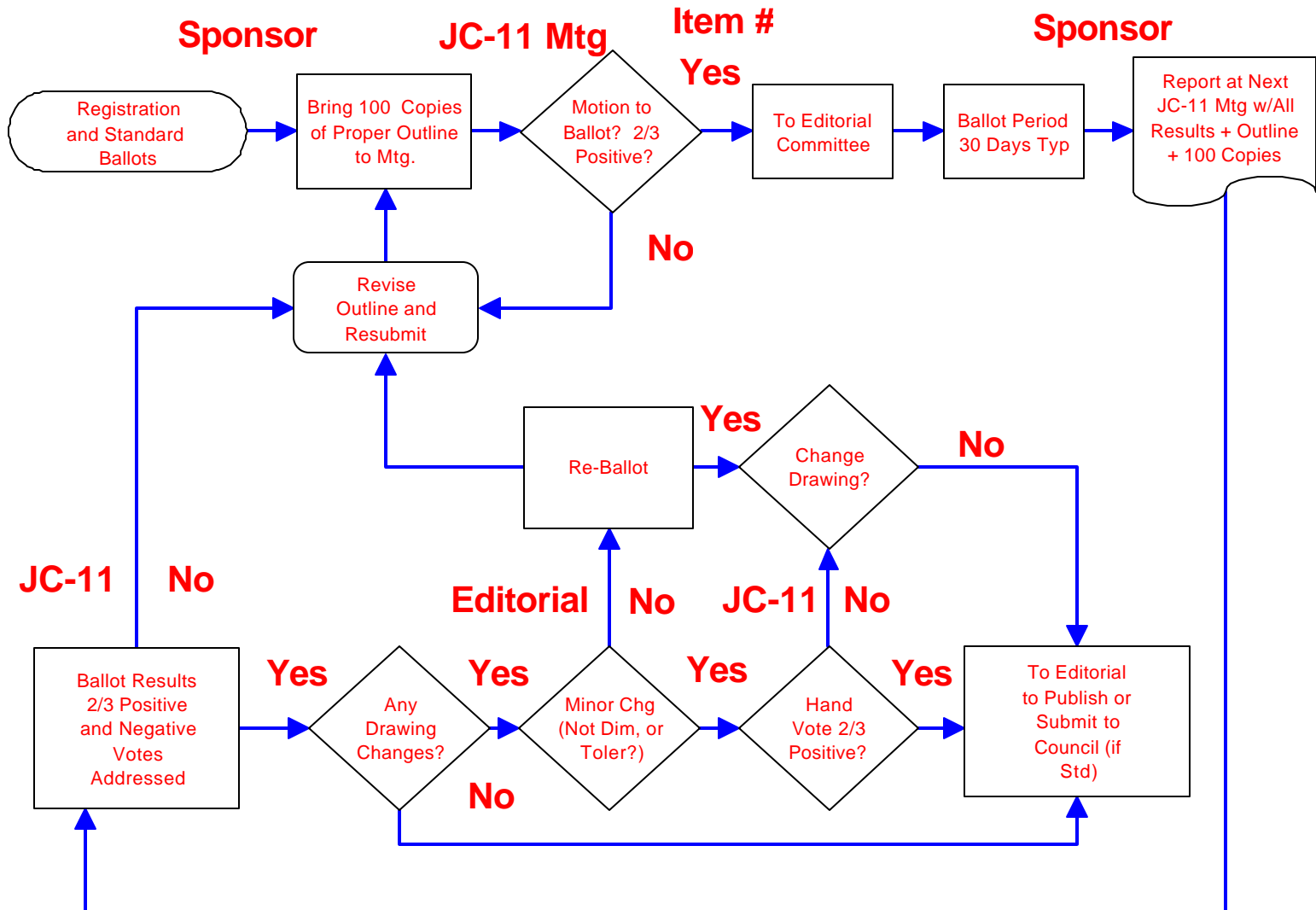
- Registered Outline

Denotes new part with anticipated wide industry acceptance

- Standard Outline

Denotes part with wide industry acceptance

# JEDEC JC-11 Registration and Standards Ballot Flowchart

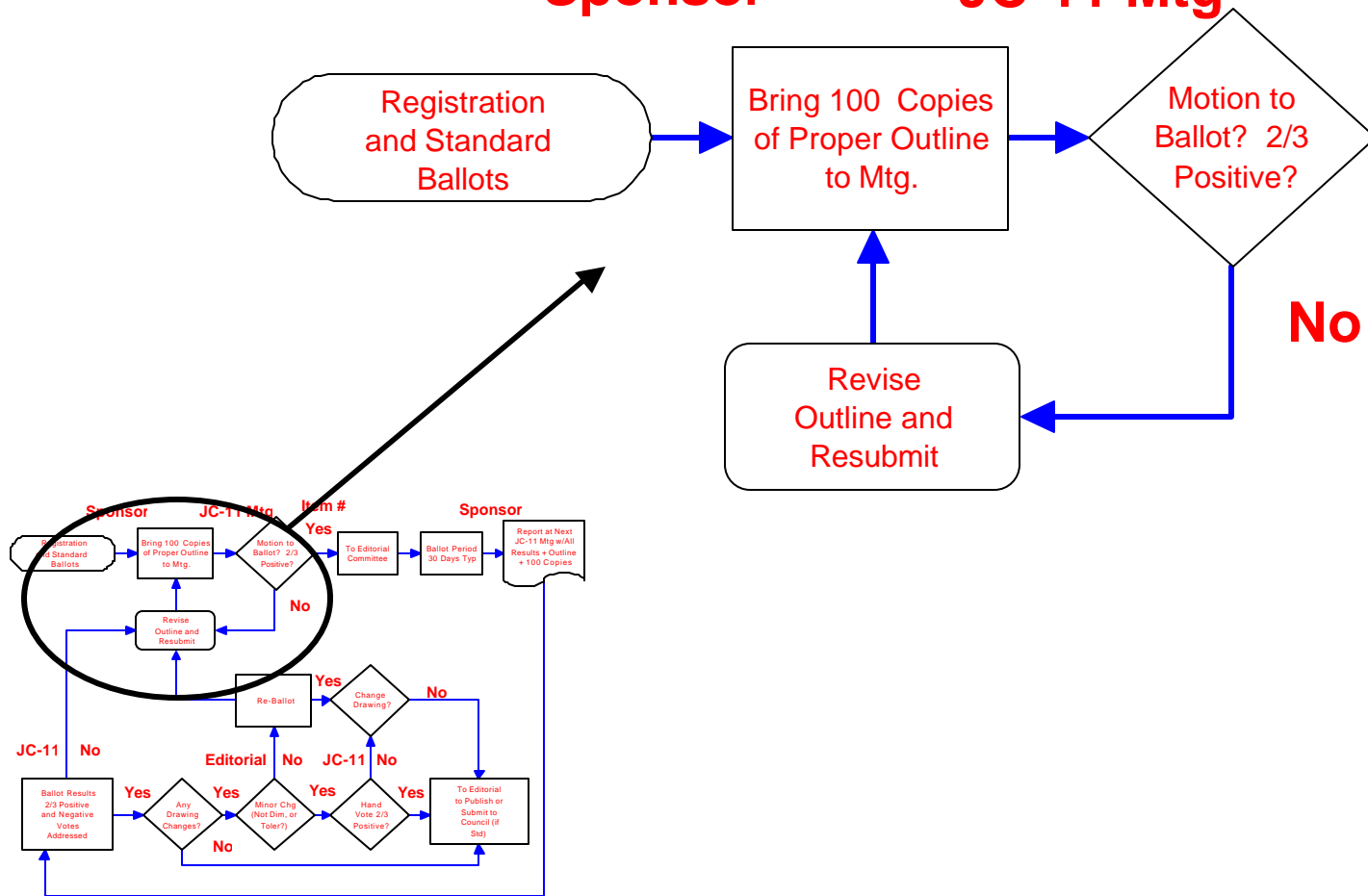


- Sponsor presents proposed outline to the JC-11 Committee
- Obtains approval ballot (2/3 vote required)
- Sponsor addresses negative votes and comments and review ballot results at JC-11 Committee Meeting

# JEDEC JC-11 Registration and Standards Ballot Flowchart

**Sponsor**

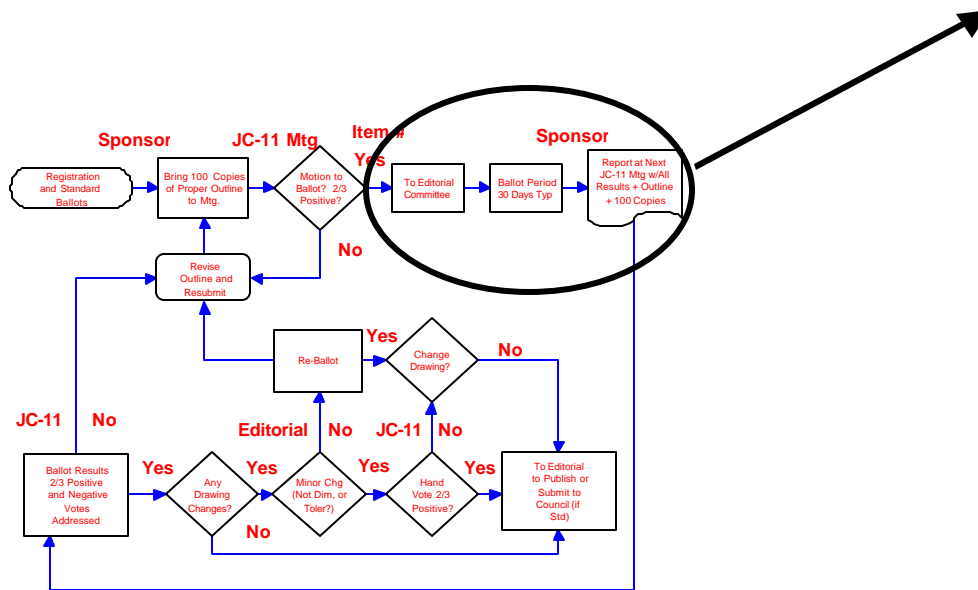
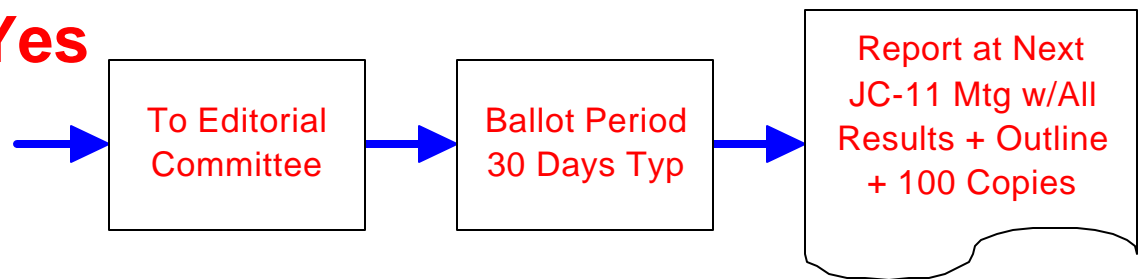
**JC-11 Mtg**



# JEDEC JC-11 Registration and Standards Ballot Flowchart

**Item #**  
**Yes**

**Sponsor**

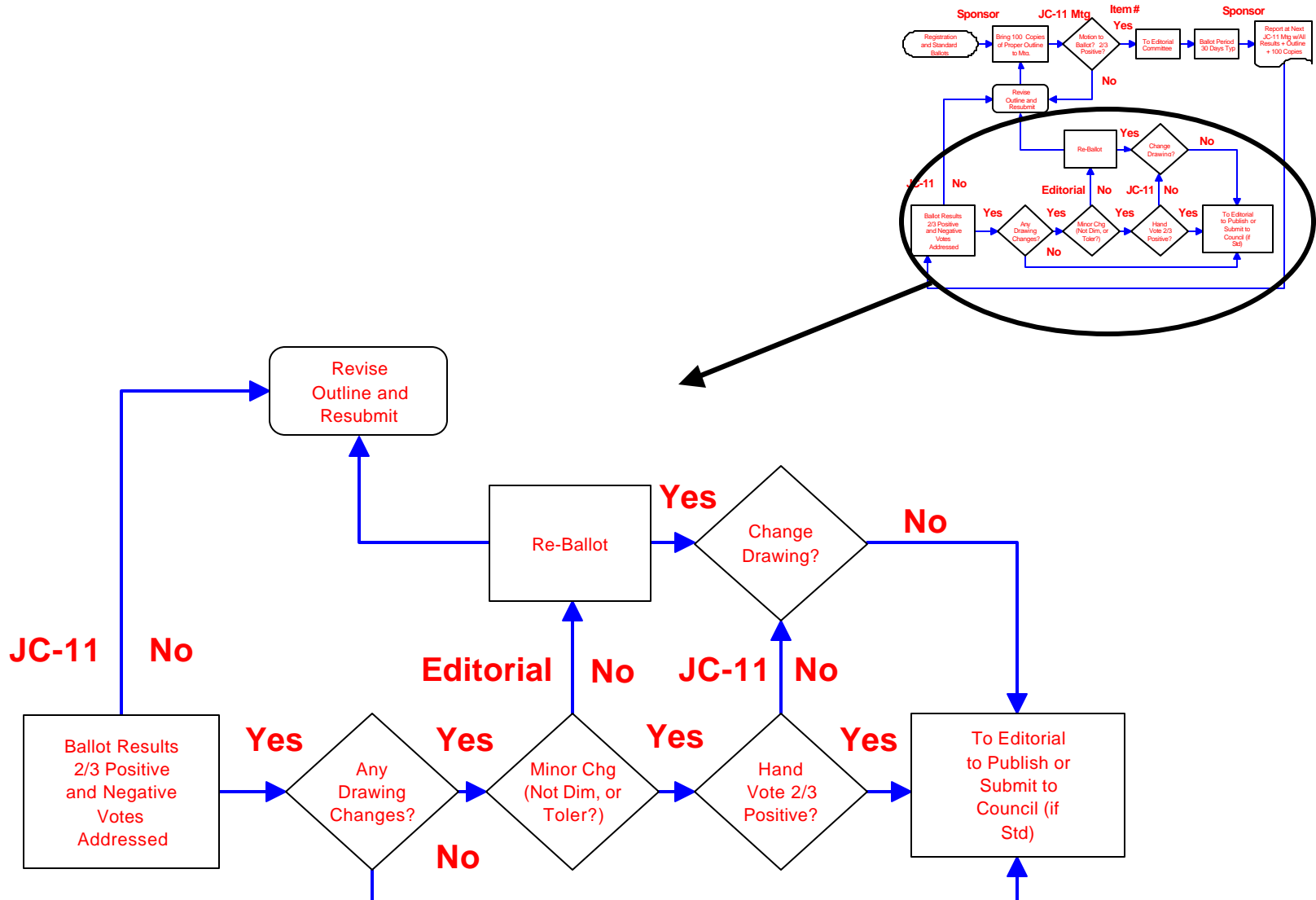


If a result of a ballot for a registered outline are 2/3 positive and all negative votes and comments are adequately addressed, then the outline is published in Publication 95.

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If results of a ballot for a standard outline are 2/3 positive and all negative votes and comments are adequately addressed, then the outline is forwarded to the JEDEC Board of Directors for approval and then if approved it is published in Publication 95.

# JEDEC JC-11 Registration and Standards Ballot Flowchart



# JC-11 Metrication Policy

- The use of hard metric dimensions will be required for all new designs beginning January 1, 1992. Extensions to existing inch system families shall contain metric dimensions which are exact conversions of the inch system units.
- “Hard Metric” dimensioning will be defined by guidelines in the JC-11 Design Handbook.
- Prior to 1992 the JC-11 Design Handbook will express a strong statement of preference for “hard” metrics for all new designs in all handbook sections.
- The JC-11 Design Handbook will require the use of only one system of units in mechanical outline drawings. Prior to 1992, the system will be that which is/was used in the design of the device. Notes in the outline drawings will use only the system of units used in the device design. After January 1, 1992, the only system of units permitted on outline drawings will be metric.
- All text/references in the JC Design Handbook will use metric units.

Active coordination with the Institute for Interconnecting and Packaging Electronic Circuits (IPC), which adopted a policy of “hard” metric conversion by 1990, will take place through the JC-11 Design Handbook Committee. Coordination with other Committees/functions such as IEC, EIAJ, SEMI, and DESC will take place through existing JC-11 liaison arrangements.

# JC-11 PUBLICATIONS

JEDEC Publication 95 (JEP 95) Registered and Standard Outlines for Solid State and Related Products

JEDEC Standard 95-1 (JESD 95-1) Design Requirements for Outlines of Solid State and Related Products

# JC-11 PUBLICATIONS

- **JESD 95-1** Design Requirements

- Defines algorithms and allowed values for standard outlines
- Reflects “best practice” for outline design
- Requires JEDEC Board of Directors approval for publication
- Published as STANDARDS
- Also includes “Standard Procedures and Practices” for global issues

# JC-11 PUBLICATIONS

- Outline number designation: **\_O-xxx**
- Examples: **MO-142, TO-220, CO-023**
  
- Outline number designation: **\_S-xxx**
- Examples: **MS-012, TS-002, CS-013**

# •OUTLINE FUNCTIONS

- Ensure mechanical interchangeability
  - Define contact footprint
  - Define volumetric requirements
  - Define contact dimensions
  - Define dimensions to ensure manufacturability
  - Define dimensions to ensure "reliability"

•But, JEDEC does NOT guaranty or warranty packages built to JEDEC outlines, nor does JEDEC police conformance.

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# OUTLINE CATEGORIES

**D\_** = Diode outline (< 3 leads)

**T\_** = Transistor outline (< 6 leads)

**M\_** = Microelectronic outline (> 5 leads)

**U\_** = Uncased outline (exposed silicon)

**C\_** = Carrier outline (trays, tubes, other carriers)

# •BALLOT TYPES

- Registration Ballot will result in publication of a registered outline
- Standard Ballot will result in publication of a standard outline or section of JESD 95-1
- Survey Ballot is intended to gather information prior to ballot preparation or to gather comments on a proposal prior to formal ballot

- All ballots require approval by the committee for distribution except for survey ballot which only requires approval by the committee chairman.
- All ballots are tracked by an item log number assigned at time of approval for ballot.

# •BALLOT PROCEDURE

- All voting requires 2/3 approval of those voting
- Voting options
  - Approve
  - Approve with comments
  - Disapprove (with reasons for disapproval)
  - Abstain
- All ballot distribution is electronic (ballots posted on JEDEC members WEBSITE)
- Voting results MUST be reported to JC-11

# •BALLOT PRACTICE

- Prepare drawing of new outline proposal or revision (preview with Editorial chairman advised)
- Drawing requirements
  - Dimensioning method conforms to ASME Y14.5
  - Drawing watermarked with PROPOSAL
  - Older outline must be brought into conformance with current editorial practice
- Distribute copies at JC-11 meeting (80 minimum)
- Describe proposal & make motion to proceed to ballot (having a second arranged is advised)
- 2/3 approval of member companies attending
- Prepare formal ballot for distribution by JEDEC

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- Describe proposal & make motion to proceed to ballot (having a second arranged is advised)
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- Prepare formal ballot for distribution by JEDEC

# •BALLOT PROCEDURE

- Send drawing in PDF format to Editorial chairman for review & approval for distribution
- Ballot posted on JEDEC members website for voting
- Ballots returned to sponsor by voting members
- Sponsor responds to any negative votes
- Ballot results reported to JC-11 committee
  - Describe any changes being made to proposal
  - Additional approval for reballot not required
- Prepare outline for publication
- Send drawing in PDF format to Editorial chairman for review & approval for publication
- Submit drawing in DXF format for JEDEC archive

# OTHER ORGANIZATIONS

American National  
Standards Institute  
(ANSI)

Sanctions JEDEC as the U. S. national standards body for the electronics industry.

Electronics Industries  
Association of Japan  
(EIAJ)

JC-11 holds annual joint and occasional task group meetings with EIAJ EE-13 packaging standards committee

International Electro-  
Technical Commission  
(IEC)

JEDEC acts as secretariat for TC-47 and JC-11 chairs SC47D packaging standards committee

# International Electrotechnical Commission (IEC)

# The Role of JC-11 in the World Standardization Process

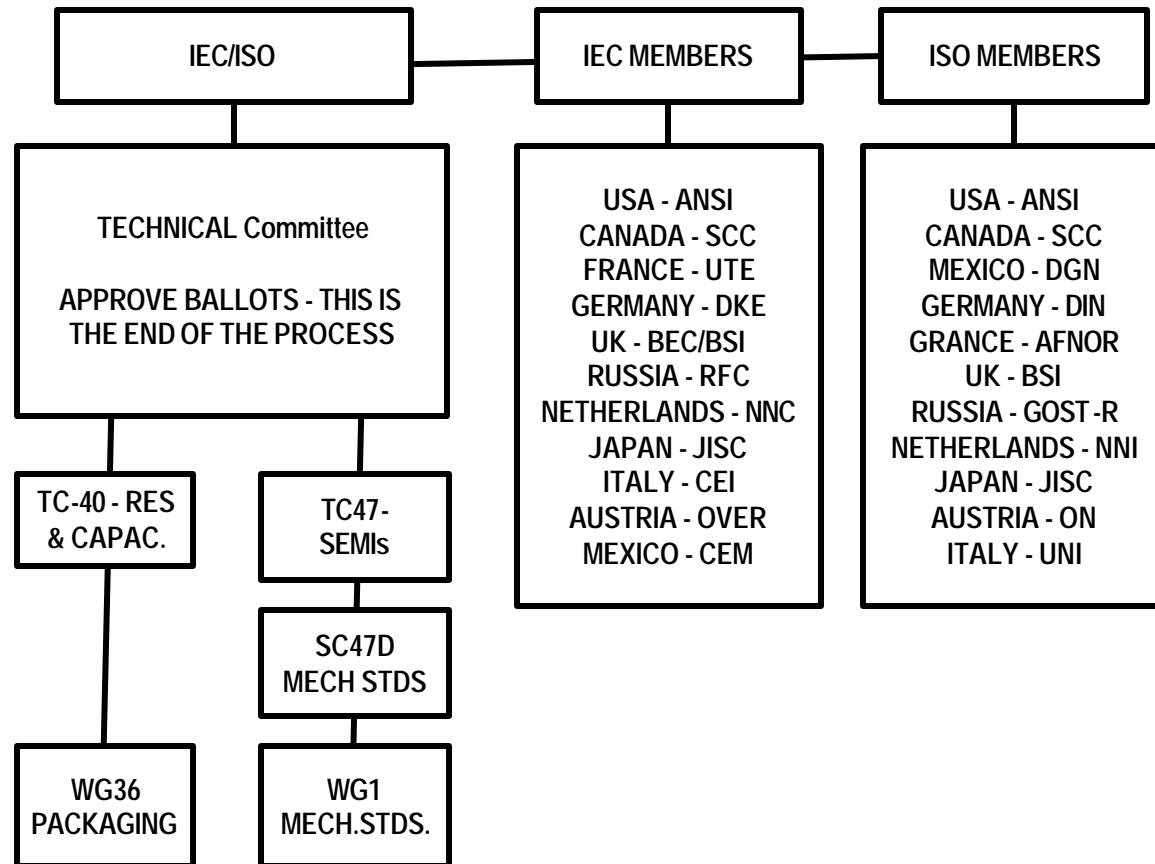
**IEC**

International Electrotechnical Commission

**ISO**

International Standards Organization

**These Two Organizations are  
Closely Linked**



*Working Group consists of experts who provide technical opinion only they are appointed by their country ( i.e. ANSI in US)  
Balloting is conducted through member organization (i.e. ANSI in US) ANSI has appointed EIA to be the “workers” on TC40  
and TC47*

# Objective

To Define Clear and Unambiguous  
Provisions to Facilitate International Trade  
and Communications

# TC-47 Main Committee

<i>TC/SC Function</i>	<i>TC47 General</i>	<i>SC47A Integrated Circuits</i>	<i>SC47C Flat Panels</i>	<i>SC47D Mechanical Standardization</i>	<i>SC47E Discrete Devices</i>
Chairman Secretariat	FR USA	FR Japan	Japan Japan	USA USA	France Korea
Title	WG-1 Terms & Def	WG-2 Logic IC	WG-1 Non- Fiber Optic Semiconductors	WG-1 Mech Stds.	WG-1 Diodes/Thyristors
Convenor	UK	Japan	Japan	USA	France
Title	WG-2 Envir Test	WG-3 Memories\	WG-2 LCD & Solid State Displays	WG-2 Terms & Def	WG-2 Microwave
Convenor	France	USA	Japan	Japan	Japan
Title	WG-3 IECQ (Quality)	WG-6 TQM	WG-4 Plasma Panel		WG-3 Power Devices
Convenor	France	France	Japan		France
Title	WG-4 Semicustom IC	WG-7 MCM			
Convenor	TBD	USA			
Title		WG-8 Pkg Reliab			
Convenor		USA			
Title		WG-9 EMC			
Convenor		Netherlands			

# Ballot Process

Project Stage	Associated Document	
	Name	Abbreviation
Proposal Stage	New Work Item Proposal	NP
Preparatory Stage	Working Draft(s)	WD
Committee Stage	Committee Draft(s)	CD
Approval Stage	Draft Int'l Standard	DIS
Publication Stage	International Standard	--

# Balloting Periods

- Committee Drafts 5 months
- Draft Int'l Std (DIS) 2 months
- Changes to DIS 2 months
- All Others 3 months nominal

# The Fast Track

<b>Fast Track (Step Skipped)</b>	<b>Reason</b>
Preparatory Stage	Suitable Draft Available
Preparatory and Committee Draft Stages	Existing standard from another source is submitted
Committee Draft	Suitable working draft is submitted to National Bodies for approval E.G. Trend Document
Approval Stage	Committee decides on publication of document provisionally