BUILT TO WIN
VISHAY EVERYDAY

AMERICAS SALES CONFERENCE

Vishay Specialty Thin Film Division (STF)

Mar 9-12, 2026

VISHAY
The DNA of tech.®

Agenda

Who is Vishay STF - Custom Thin Film Build to Print

Custom Thin Film

- Value Proposition
- Where to Hunt
- How to win

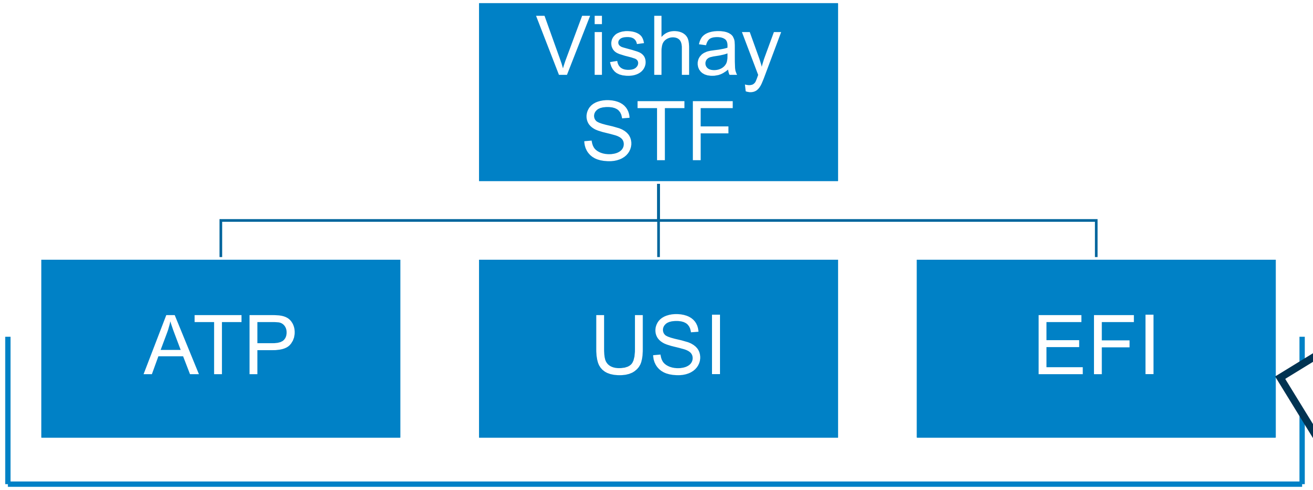
Standard Products - Wire Bondable Resistors, Capacitors, and Inductors

- Value Proposition
- Where to Hunt
- How to win

Design Resources and Support

Quiz

Vishay Specialty Thin Film Division (STF)

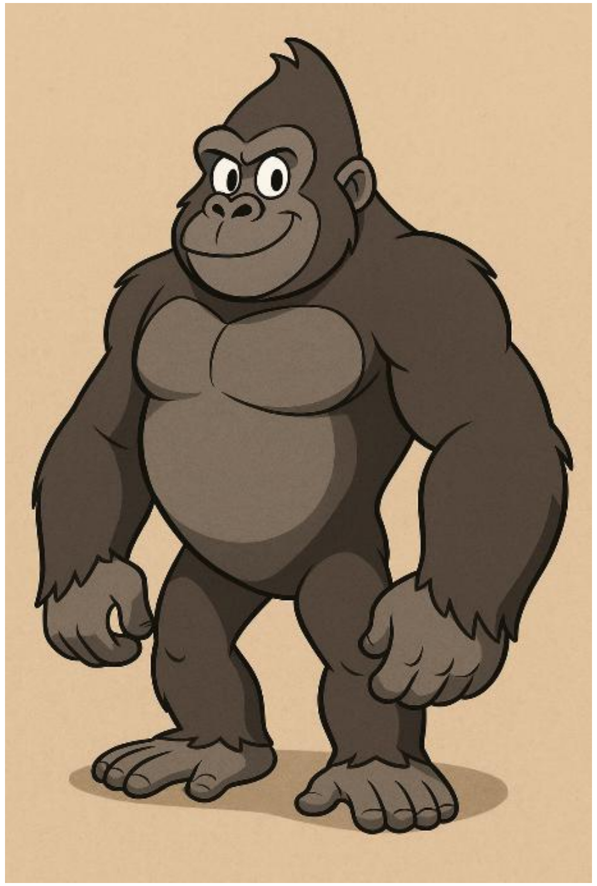

Vishay STF

ATP

USI

EFI

Standard products
- Resistors
- Capacitors
- Inductors



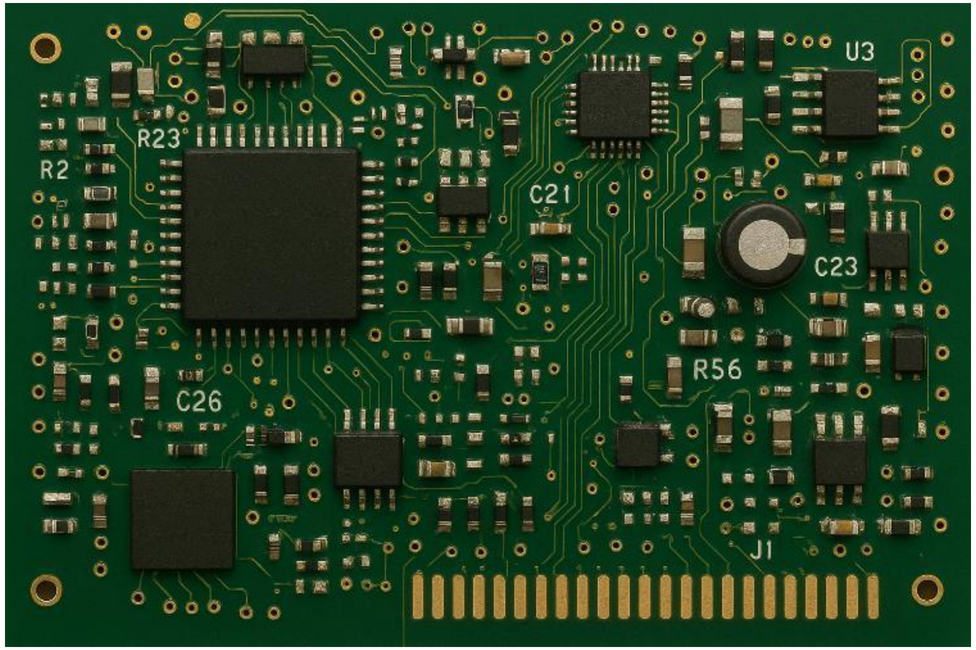
Vishay STF

- Custom Thin Film Build to Print
  - US based
  - No capacity constrains
- Wire Bondable Standard Products
  - Resistors
  - Capacitors
  - Inductors

Custom Thin Film – What is it?

Miniaturized passive circuits deposited on ceramic substrates

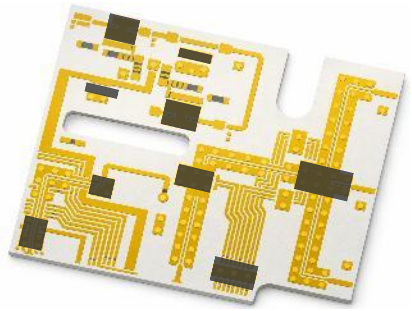
Printed Circuit Board (PCB)
Routing Electrons (signals) from one component to another



PC

Thin Film – Solving problems

Routing Electrons (signals) from one component to another



Custom Thin Film

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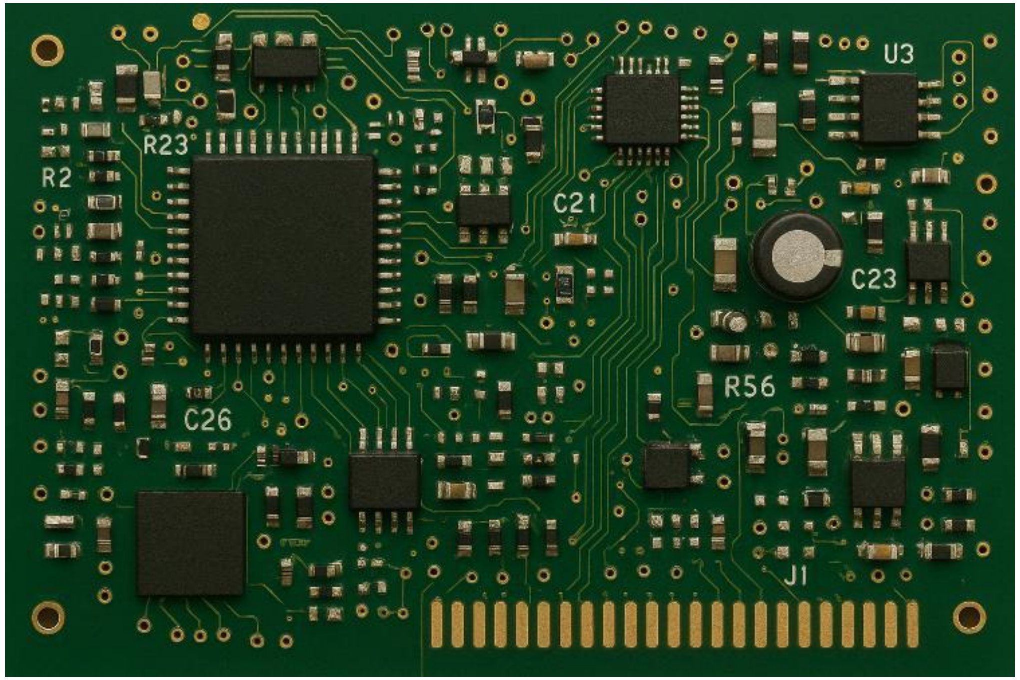
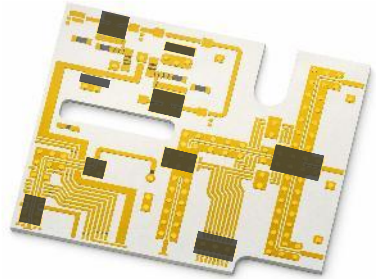
Value-Driven Custom Solutions

PCB



FR4 = $0.85 / in²

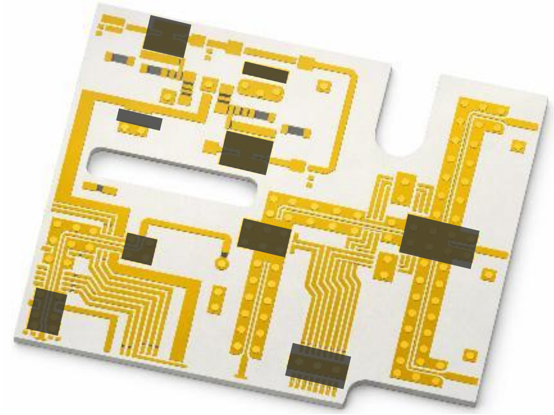
Thin Film



Thin Film = FR4 x 150

Value-Driven Custom Solutions

PCB



FR4 = ~~$15~~

Specialty PCB Material = $60

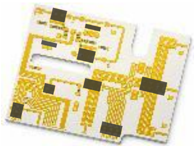
Thermal Hardware = $30

Package = $10

etc……

Total Parts = $125

Thin Film



Custom Thin Film = $150

Thermal Hardware = $5

Package = $7

etc……..

Total Parts = $175

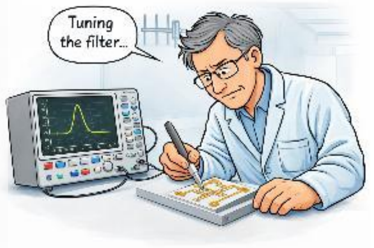
Value-Driven Custom Solutions

PCB

Total Parts = $125

Technician Tuning = $200

Total System Cost = $325



Thin Film

Total Parts = $175

Thin Film Solves the Problems Standard PCBs Can't

Problems Custom Thin Film Solves

- High Frequency – Low loss and high bandwidth
- High Power/Current – Low loss and can handle temperature extremes
- Small Size and Tight Tolerances – Fine lines/spaces and light
- Wire Bondable – Special metallization
- Strange Shapes – Custom machining
- Tough Environment – Hypersonic to cryogenic to space

Thin Film Doesn't Meet All Needs

Challenges

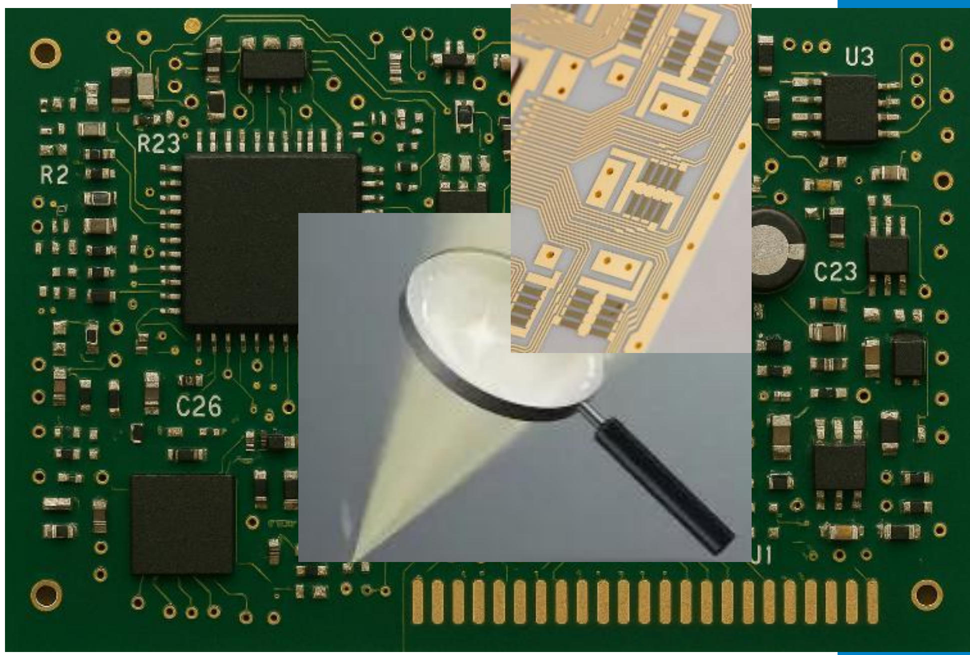
Cost

Multi Layer

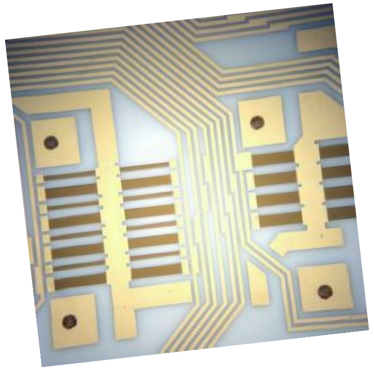
Limited in Size

Solution

Select Area Usage



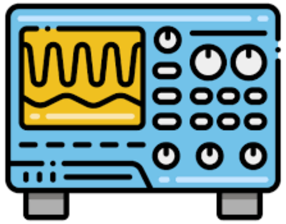
“Where to Hunt”
Target Markets/ Top Applications



CUSTOM THIN FILM BUILD-TO-PRINT SERVICES

Three Markets. When Performance Really Matters

- **DEFENSE & AEROSPACE** — mission-critical, long-life systems
- **RF & MICROWAVE MODULES** — high frequency signal integrity
- **ADVANCED INDUSTRIAL** — performance beyond catalog limits



“Where to Hunt”
Target Markets/ Top Applications

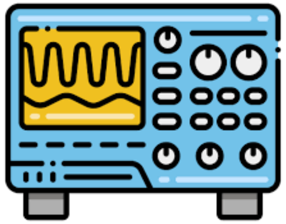
CUSTOM THIN FILM BUILD-TO-PRINT SERVICES

1. DEFENSE & AEROSPACE (Primary Market)

- Radar, EW Systems, Space Electronics, Avionics, Missile Guidance, Detonators
- Long program lifecycles with frozen designs

“Where to Hunt”
Target Markets/ Top Applications

CUSTOM THIN FILM BUILD-TO-PRINT SERVICES



2. RF & MICROWAVE MODULES

- Cellular Communications, SATCOM, Test & Measurement systems
- High-frequency signal integrity (>8 GHz)

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“Where to Hunt”
Target Markets/ Top Applications

CUSTOM THIN FILM BUILD-TO-PRINT SERVICES

3. ADVANCED INDUSTRIAL

- Industrial Laser & Photonics, Medical Imaging, AI Infrastructure, Infrared Imaging, Inkjet Printheads
- Custom form factors, tight tolerances, harsh conditions
- Low-to-medium volumes with high value per design

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How to Win?

Door opener questions to engage the customer

CUSTOM THIN FILM BUILD-TO-PRINT SERVICES

- Do you use thin film technology?
- Do your designs include high frequencies, high power/current, or strange shapes?
- Is small size or tight tolerances critical?
- Does your design need to go into a harsh environment?
- Do you use wire bonding in your design?
- Have you seen Vishay's Thin Film manufacturing capabilities?

Vishay STF - Custom Thin Film Build to Print

YOU BRING US THE OPPORTUNITY – WE HELP YOU WIN IT

- Same day quotes
- < 6 week delivery

Making Selling Easy

STF Standard Products

Wire Bondable Resistors, Capacitors, and Inductors

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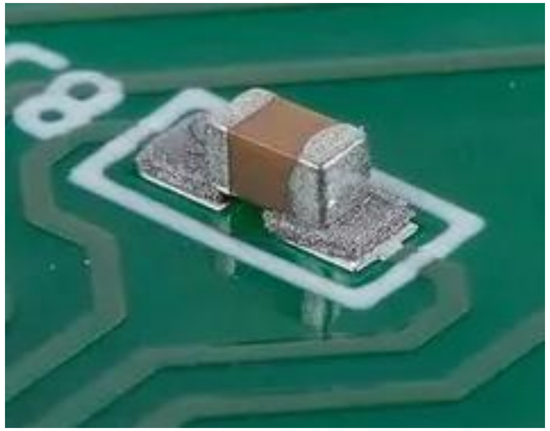
STF Standard Products

High Performance *Wire Bondable*

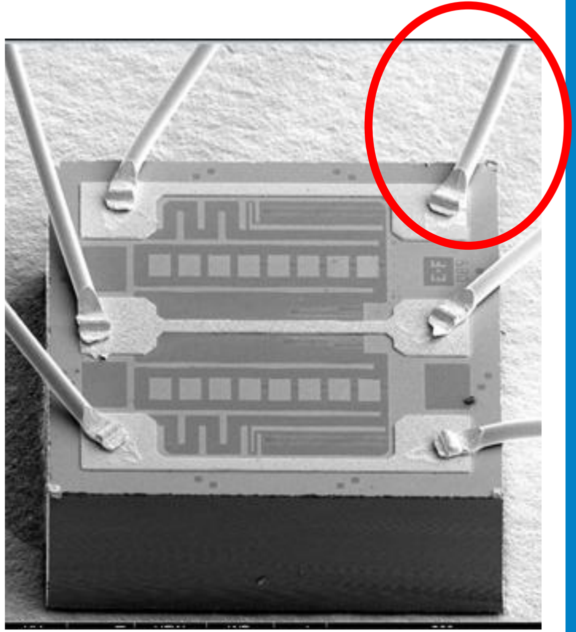
Resistors	Capacitors	Inductors
1Ω - 20MΩ	1 pF to 1,000 pF	3 nH - 150 nH

What is Wire Bonding?



Surface Mount

Electrically connects parts (R,C, L, SiC FET, etc.) to the board



Wire Bond

Resistors – Capacitors - Inductors

Smaller Size with Better Performance

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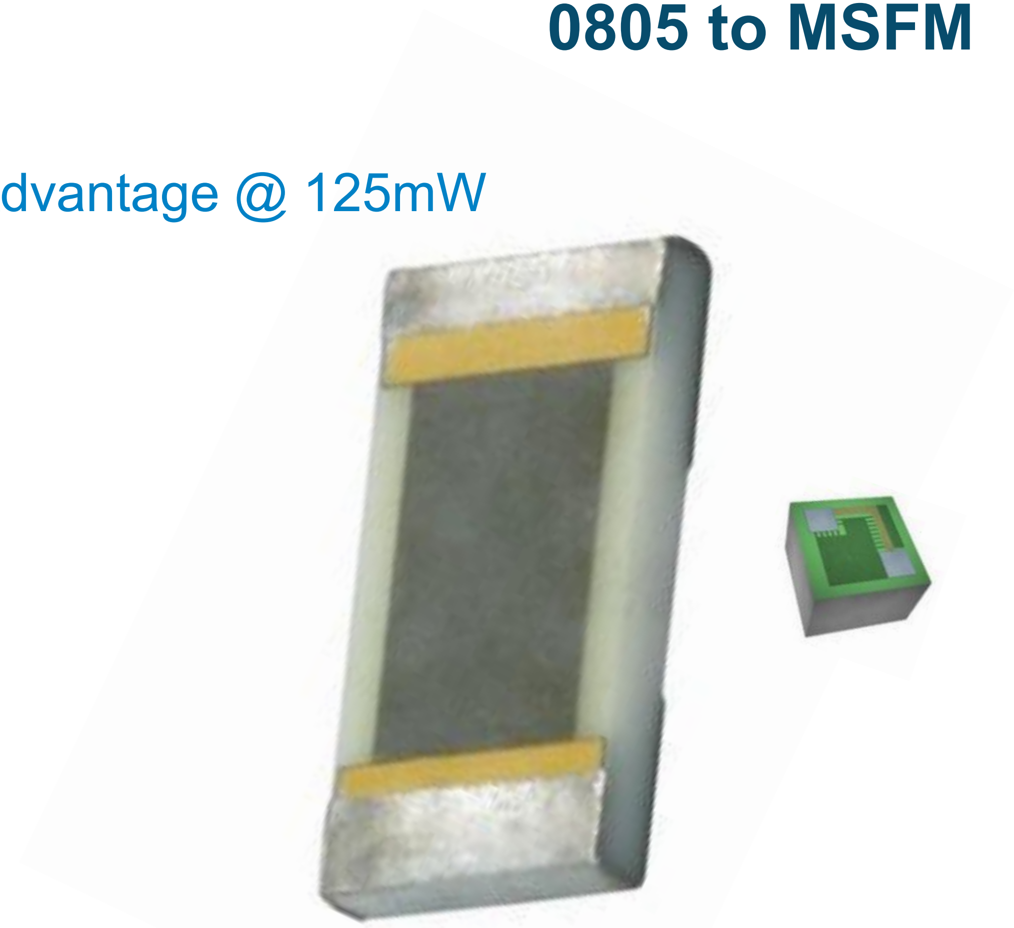
Texas to Rhode Island

0805 to MSFM

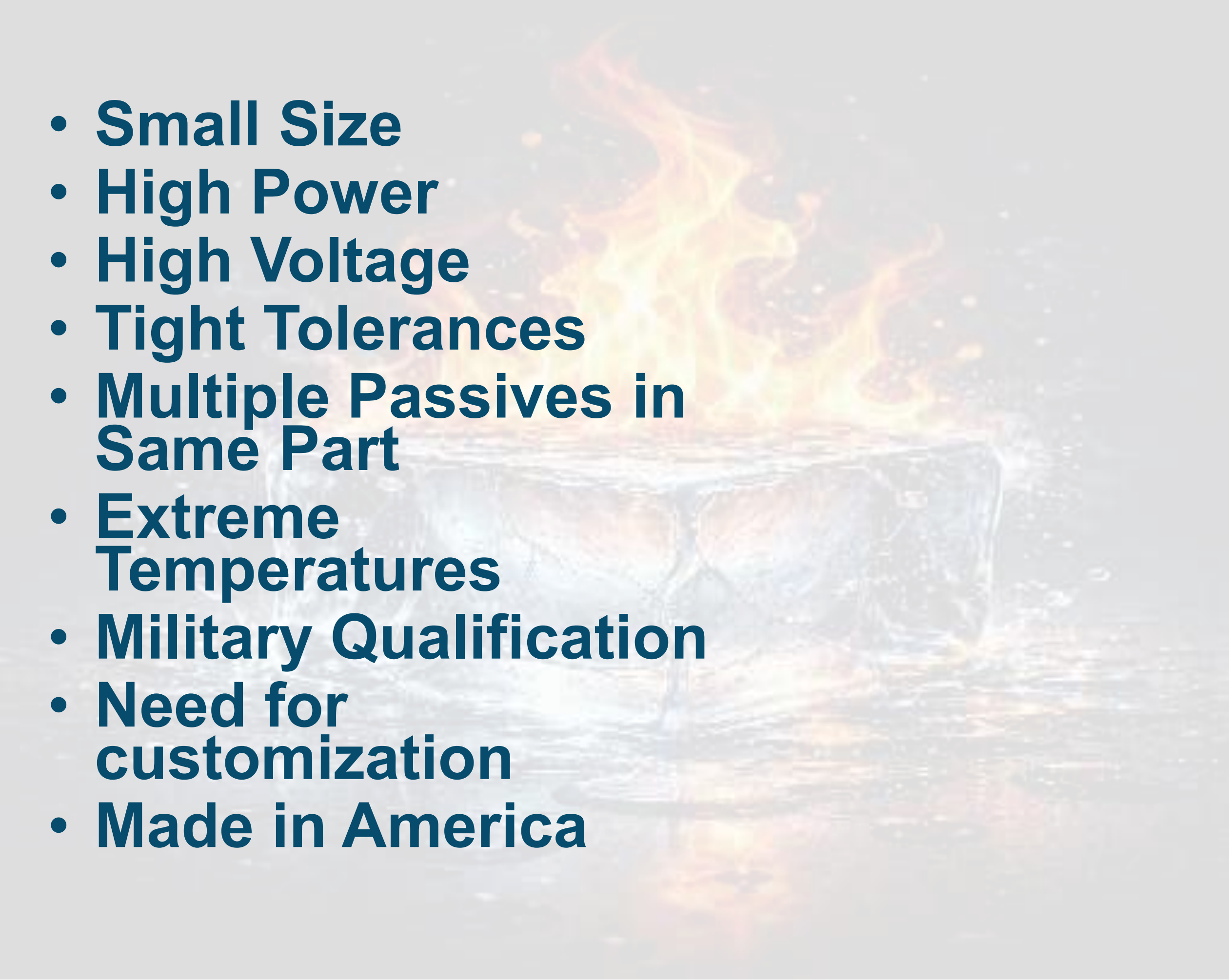
Power Handling Advantage @ 125mW



High Performance *Wire Bondable*

Resistors-Capacitors-Inductors

We Solve Customer Problems



- Small Size
- High Power
- High Voltage
- Tight Tolerances
- Multiple Passives in Same Part
- Extreme Temperatures
- Military Qualification
- Need for customization
- Made in America

High Performance *Wire Bondable*

Resistors-Capacitors-Inductors

Where We Don’t Fit

- Commodity
  - Very Low Price/Margin

“Where to Hunt”
Target Markets/ Top Applications

STANDARD PRODUCTS (WIRE BONDABLE)

Three Markets. Stability, Reliability, Performance

- **DEFENSE & AEROSPACE** — wire bondable passives in qualified systems
- **MEDICAL** — compact, repeatable electronics in regulated environments
- **INDUSTRIAL & INSTRUMENTATION** — robust performance in demanding applications

AI

“Where to Hunt”
Target Markets/ Top Applications

STANDARD PRODUCTS (WIRE BONDABLE)

1. DEFENSE & AEROSPACE (Primary Market)

- EW Systems, Space Electronics, Avionics, Missile Guidance
- Mission-critical electronics with zero-failure tolerance

“Where to Hunt”
Target Markets/ Top Applications

STANDARD PRODUCTS (WIRE BONDABLE)

2. MEDICAL

- Implantable and diagnostic electronics
- Precision, stability, and repeatability over life
- Regulated environments requiring traceability and consistency

“Where to Hunt”
Target Markets/ Top Applications

STANDARD PRODUCTS (WIRE BONDABLE)

3. INDUSTRIAL & INSTRUMENTATION

- Test, measurement, and control electronics
- Performance limits beyond commodity passives

How to Win?
Door opener questions to engage the customer

STANDARD PRODUCTS (WIRE BONDABLE)

Questions to Ask
- Do you use wire bondable components?
- Do you have a space problem with tight tolerancing and power needs?
- Do you need microwave or high thermal performance?

How to Win
- Space saving, small size
- High Reliability
- Tight Tolerances and Ratios
- Excellent power handling
- Flexibility in chip, package and substrate geometry
- Do you have custom requirements

IGBR – Miniature Wire Bondable High-Power Resistor

Used with SiC MOSFETS

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IGBR - Resistor

Miniature – High Power – Back Contact

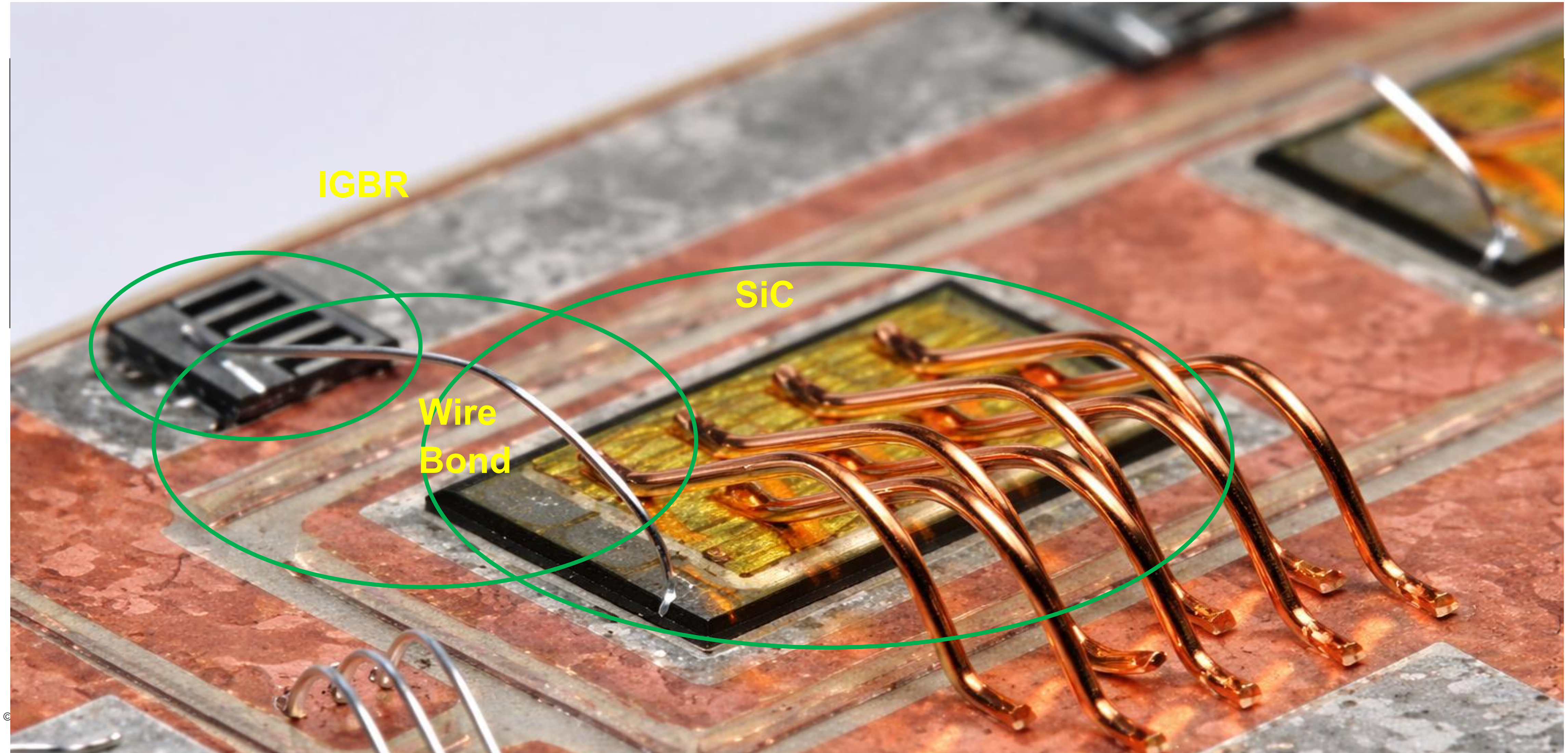
Part Family	Die Size (mm)	Typical Power Rating (W)	Range (Ω)
IGBRA	0.5 × 0.5	0.5	15–25
IGBRB	1.0 × 1.0	2.0	5–25
IGBRC	1.5 × 1.5	3.0	1.8–25
IGBRD	2.0 × 2.0	4.0	1.8–25

- Back Contact → One Wire Bond Termination Needed

Application: SiC Power Module

IGBR - Resistor

SiC Power Module



“Where to Hunt”
Target Markets/ Top Applications

IGBR: WIRE-BONDABLE, HIGH-POWER BACK-CONTACT RESISTOR

Three Markets. When Heat and Power Handling Really Matters.

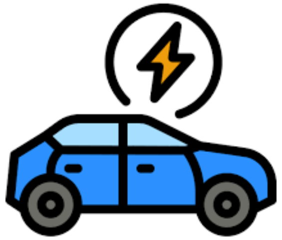
- **ELECTRIC VEHICLE** — high-current efficiency at scale
- **AI INFRASTRUCTURE** — power density driving thermal limits
- **SATELLITES** — reliability across extreme thermal cycles

“Where to Hunt”
Target Markets/ Top Applications

IGBR: WIRE-BONDABLE, HIGH-POWER BACK-CONTACT RESISTOR

1. ELECTRIC VEHICLE – SIC POWER MODULES (Primary Market)

- Power conversion, Energy Management Systems, Traction Inverters, On-Board Chargers, DC-DC Converters
- High current handling with efficient heat extraction
- Automotive-grade reliability and long service life



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“Where to Hunt”
Target Markets/ Top Applications

IGBR: WIRE-BONDABLE, HIGH-POWER BACK-CONTACT RESISTOR

2. AI INFRASTRUCTURE

- Power delivery, load management in servers, PSUs, Rectifiers
- Thermal performance critical to uptime and efficiency
- Designed for continuous, high-duty operation

“Where to Hunt”
Target Markets/ Top Applications

IGBR: WIRE-BONDABLE, HIGH-POWER BACK-CONTACT RESISTOR

3. SATELLITES & SPACE SYSTEMS

- Power conditioning in size & weight-constrained platforms
- Long mission life with no serviceability
- Proven stability under radiation and vacuum conditions

How to Win?
Door opener questions to engage the customer

IGBR: WIRE-BONDABLE, HIGH-POWER BACK-CONTACT RESISTOR

Questions to Ask

- Do you use SiC MOSFETS?
- Do you use wire bonds?
- Do you need a very small, high power, resistor?

How to Win

- Space saving, small size
- Excellent power handling
- High Reliability
- Tight Tolerances and Ratios
- Flexibility in chip, package and substrate geometry
- Customer customization requirements

QUESTION FOR A COOKIE

Quiz

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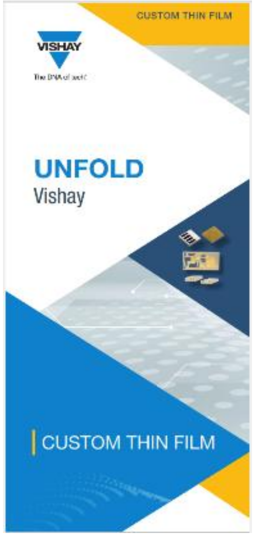
- What is Custom Thin Film and where is it used?
- Name an application for a STF Resistor, Capacitor, or Inductor
- What question can you ask your customer to see if they have a thin film application?
- What question can you ask your customer to see if they have a STF Resistor, Capacitor, or Inductor opportunity?

Design Resources & Selling Tools

- Unfold Vishay
- Customer Presentation
- Standard Promotion Materials
  - Samples, Design Kits, Etc.


CUSTOM THIN FILM

VISHAY

UNFOLD
Vishay

CUSTOM THIN FILM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VISHAY SPECIALTY THIN FILM
Technical Overview

Vishay STF
Custom Thin Film
Wire Bondable Resistors-Capacitors-Inductors

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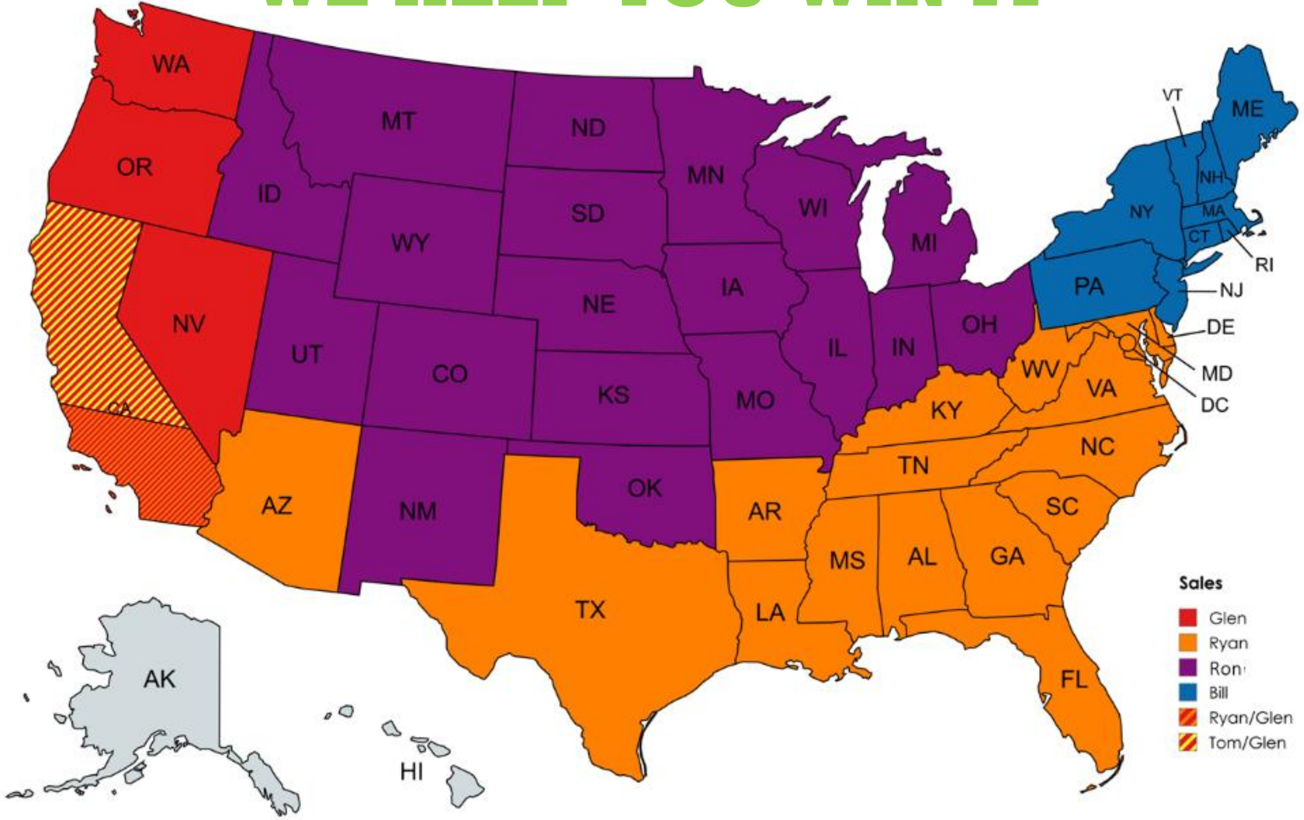
YOU BRING US THE OPPORTUNITY – WE HELP YOU WIN IT

See us at our table for a cookie and discussion



BUILT TO WIN
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AMERICAS SALES CONFERENCE

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Appendix

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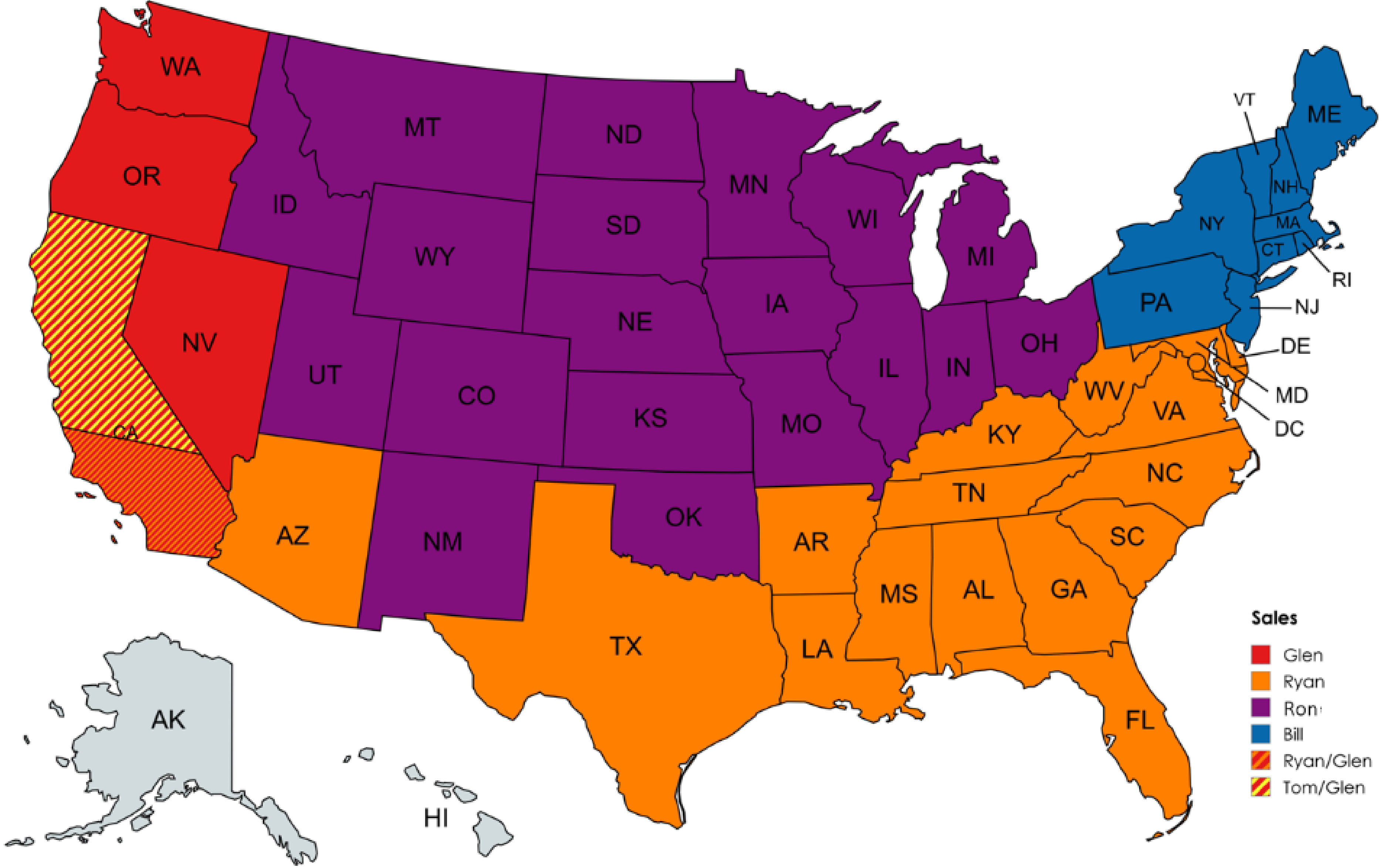

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