



Technical Data Sheet

BRADY B-734 MATTE WHITE LASER MARKABLE POLYIMIDE LABEL STOCK

TDS No B-734
Effective Date: 09/13/2019

Description:

GENERAL

Print Technology: Laser Markable

Material Type: Polyimide

Finish: Matte

Adhesive: Permanent Acrylic

APPLICATIONS

B-734 is designed to meet the requirements for pre-process labeling of printed circuit boards and electronic components when marked with standard IR lasers. The product can be used for auto-dispensing applications and can meet small font requirements when used with a high resolution laser marking system.

RECOMMENDED LASER SPECIFICATIONS

IR Laser systems operating at 20 W or greater are recommended for this product when operating at near to mid IR regions. Typical systems are classified as Class IV lasers and include CO₂ lasers operating between 9.6 and 10.6µm. These systems will all produce strong contrasting marks when using appropriate power and writing speeds.

REGULATORY/AGENCY APPROVAL

UL: Brady B-734 is a UL Recognized Component to UL969 Labeling and Marking Standard when marked with an IR laser. See UL file MH17154 for specific details. UL information can be accessed on-line at UL.com in the UL Product IQ area.

For information on the Weee-RoHS compliance status for a Brady Product go to one of the following websites:

In Canada: www.bradycanada.ca/weee-rohs

In Europe: www.bradyeurope.com/rohs

In Japan: www.brady.co.jp/products/labelsuse/rohs

All other regions: www.bradyid.com/weee-rohs

SPECIAL FEATURES

B-734 meets the requirements of MIL-STD-202G, Method 215K.

B-734 is designed to withstand multiple cycles of harsh condition washes for printed circuit boards.

Details:

| PHYSICAL PROPERTIES | TEST METHODS | TYPICAL RESULTS |
|----------------------------------|---|--|
| Thickness | ASTM D1000 -Substrate -Adhesive -Total (excluding liner) | 0.0039 inch (0.099 mm) 0.0012 inch (0.030 mm) 0.0051 inch (0.130 mm) |
| Adhesion to: -Stainless Steel | ASTM D1000 20 minute dwell 24 hour dwell | 50 oz/in (55 N/100 mm) 67 oz/in (73 N/100 mm) |
| -Epoxy PC Board | 20 minute dwell | 38 oz/in (42 N/100mm) |

| | | |
|---------------------|---|-----------------------|
| | 24 hour dwell | 63 oz/in (69 N/100mm) |
| Tack | ASTM D 2979 Polyken™ Probe Tack 1 second dwell | 48 oz (1360 g) |
| Drop Shear | PSTC-7 1/2" x 1" | > 100 hours |
| Dielectric Strength | ASTM D1000 | 11,700 volts |

Performance properties were tested on B-734 samples that were laser marked using a 20 W CO₂ laser marking system. Laser marked B-734 samples were laminated to aluminum and allowed to dwell 24 hours before exposure to the indicated environmental conditions.

| PERFORMANCE PROPERTIES | TEST METHODS | TYPICAL RESULTS |
|-------------------------------------|--|--|
| Short Term High Service Temperature | 80 seconds at various temperatures | Slight discoloration of label but no visible effect to printed image at 572°F (300°C); Label moderately discolored, printed image slightly blurred, very slight shrinkage at 608°F (320°C); at 662°F (350°C) the label is moderately discolored, printed image is slightly blurred, slight shrinkage of topcoat, moderate adhesive ooze, label no longer functional. |
| | 5 minutes at various temperatures | Very slight discoloration of label and no visible effect to printed image at 500°F (260°C); Slight discoloration of label and no visible effect to printed image at 518°F (270°C); at 572°F (300°C) label moderately discolored with slight shrinkage, printed image is slightly blurred, label remains functional. |
| | 2 hours at various temperatures | No visible effect to label or printed image at 338°F (170°C); Slight discoloration of label but no visible effect to printed image at 428°F (220°C); at 500°F (260°C) label is moderately discolored with slight wrinkling, printed image difficult to read, label no longer functional. |
| Long Term High Service Temperature | 1000 hours at various temperatures | Very slight discoloration of label, no visible effect to printed image at 212°F (100°C); Slight discoloration of label, no visible effect to printed image at 266°F (130°C); at 320°F (160°C) label is moderately discolored with no visible effect to printed image, label remains functional. |
| Low Service Temperature | 1000 hours at -94°F (-70°C) | No visible effect to label or printed image |
| Humidity Resistance | 1000 hours at 100°F (38°C)/95%RH | No visible effect to label or printed image |
| UV Light Resistance | ASTM G155, cycle 1, Dry 1000 hours in Q-Sun Xenon Test Chamber | No visible effect to label or printed image |
| Weatherability* | ASTM G155, Cycle 1 1000 hours in Xenon arc Weather-Ometer® | No visible effect to label or printed image |
| Salt Fog Resistance | ASTM B117 1000 hours in 5% salt fog solution chamber | No visible effect to label or printed image |
| Abrasion Resistance | Taber Abraser, CS-10 grinding wheels, 500 g/arm (Fed. Std. 191A, Method 5306) | Print image legible after 1500 cycles |
| Chemical Vapor Phase | Labels adhered to epoxy PC board and exposed to the vapor of the boiling | |

| | | |
|------------|--|--|
| Resistance | chemical for 10 minutes and then rubbed with a cotton swab saturated with the chemical for 10 rubs | |
| | Ionox® 3955 | No visible effect to label, slight smear of printed image, still legible, label remains functional |
| | Micronox® MX2501 | No visible effect to label, slight smear of printed image, still legible, label remains functional |

*B-734 is not recommended for outdoor use.

| | |
|-----------------------------|----------------------------|
| PERFORMANCE PROPERTY | CHEMICAL RESISTANCE |
|-----------------------------|----------------------------|

B-734 samples were laser marked using a 20 W CO₂ laser marking system, then laminated to FR-4 epoxy PC board. After 24 hr dwell, test samples were immersed in the test fluids for 10 minutes, then rubbed 10 times with a cotton swab saturated with the test fluid.

| CHEMICAL REAGENT | SUBJECTIVE OBSERVATION OF VISUAL CHANGE | | |
|--|---|--------------------|----------|
| | EFFECT TO LABEL | LASER MARKED IMAGE | |
| | | WITHOUT RUB | WITH RUB |
| Kyzen Corp. 15% Aquanox® A4625 at 140°F (60°C) | No visible effect | 1 | 1 |
| Kyzen Corp. 17% Aquanox® A4520 at 140°F (60°C) | No visible effect | 1 | 1 |
| Kyzen Corp. 10% Aquanox® A4638 at 150°F (65°C) | No visible effect | 1 | 1 |
| Kyzen Corp. 20% Aquanox® A4703 at 145°F (63°C) | No visible effect | 1 | 1 |
| Zestron, 15% Atron® AC205 at 150°F (65°C) | No visible effect | 1 | 1 |
| Zestron, 15% Atron® AC207 at 150°F (65°C) | No visible effect | 1 | 2 |
| Zestron, 15% Vigon® A201 at 150°F (65°C) | No visible effect | 1 | 1 |
| Zestron, 15% Vigon® N600 at 150°F (65°C) | No visible effect | 1 | 1 |
| Isopropyl Alcohol 99% at 180°F (82°C) | No visible effect | 1 | 1 |
| Deionized water at 212°F (100°C) | No visible effect | 1 | 1 |

Rating Scale:

1=no visible effect

2=slight smear or print removal, detectable but minimal smear

3=moderate smear or print removal (print still legible)

4=severe smear or print removal (print illegible or just barely legible)

5=complete print removal

| | |
|-----------------------------|----------------------------------|
| PERFORMANCE PROPERTY | TEST METHOD |
| Solvent Resistance | MIL-STD-202G, Method 215K |

B-734 samples were laser marked using a 20 W CO₂ laser marking system, then laminated to FR-4 epoxy PC board. Labels were marked with alphanumerics and barcodes. Test samples were subjected to 3 cycles of 3 minute immersions immediately followed by a toothbrush rub after each immersion.

| TEST FLUID | LASER MARKED IMAGE |
|--|--------------------|
| Solvent A 1 part IPA, 3 parts mineral spirits | Meets requirement |
| Solvent C Terpene Defluxer | Meets requirement |
| Solvent D Saponifier @ 70°C | Meets requirement |

Shelf Life:

Shelf life is two years from the date of receipt for this product as long as this product is stored in its original packaging in an environment below 80°F (27°C) and 60% RH. It remains the responsibility of the user to assess the risk of using this product. We encourage customers to develop testing protocols that will qualify a product's fitness for use in their actual application.

Trademarks:

ANSI: American National Standards Institute (U.S.A.)

ASTM: American Society for Testing and Materials (U.S.A.)

PSTC: Pressure Sensitive Tape Council (U.S.A.)

Polyken™ is a trademark of Testing Machines Inc.

Aquanox® is a registered trademark of the Kyzen Corporation

Atron® is a registered trademark of the Zestron Corporation

Ionox® is a registered trademark of the Kyzen Corporation

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Vigon® is a registered trademark of the Zestron Corporation

Weather-Ometer® is a registered trademark of Atlas Material Testing Technology LLC

UL: Underwriters Laboratories Inc. (U.S.A.)

All S.I. Units (metric) are mathematically derived from the U.S. Conventional Units.

Note: All values shown are averages and should not be used for specification purposes.

Test data and test results contained in this document are for general information only and shall not be relied upon by Brady customers for designs and specifications, or be relied on as meeting specified performance criteria. Customers desiring to develop specifications or performance criteria for specific product applications should contact Brady for further information.

WARRANTY

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Brady North America | 6555 W. Good Hope Rd | Milwaukee, WI 53223 | USA | Tel: 414-358-6600 | Fax: 800-292-2289