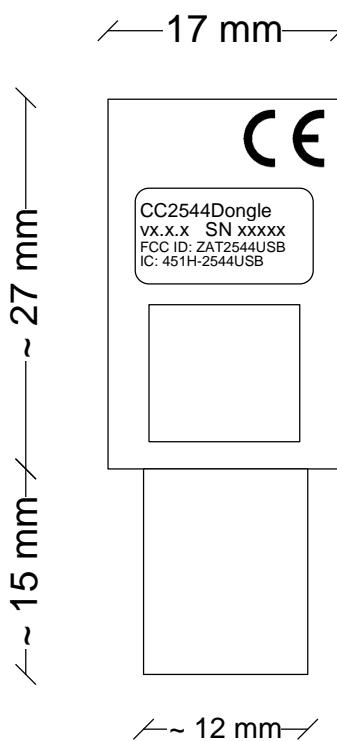


Description of Label for CC2544Dongle

Label



Placement of label on product (backside)



Information about label and label material:

Label manufacturer is Brady. Specific part info:

Label part number B473 (<http://www.bradyid.com/bradyid/domino/contentView.do/B473.html>).

We use series R6000 ribbons (R6007 - <http://www.bradyid.com/bradyid/pdpv/IP-R6007.html>).

See following pages for relevant datasheet information.



Technical Data Sheet

BRADY B-473 THERMAL TRANSFER PRINTABLE GLOSSY WHITE STATIC DISSIPATIVE POLYESTER LABEL STOCK

TDS No. B-473

Effective Date: 26-Sep-2006

Description:

GENERAL

Print Technology: Thermal Transfer

Material Type: White Polyester

Finish: Glossy

Adhesive: Static Dissipative Permanent Acrylic

APPLICATIONS

Printed circuit board and electronic component post-process labeling

RECOMMENDED RIBBONS

Brady Series R6000

REGULATORY/AGENCY APPROVALS

UL: B-473 is a UL Recognized Component to UL969 Labeling and Marking Standard when printed with Brady Series R6000 ribbon. See UL file MH17154 for specific details. UL information can be accessed online at UL.com. Search in *Certifications* area.

CSA: B-473 is CSA Accepted to C22.2 No. 0.15-95 Adhesive Labels Standard when printed with the Brady Series R6000 ribbon. See CSA file 041833 for specific details. CSA information can be accessed online at directories.csa-international.org.

SP Provning Forskning: ESD-approved for IEC 61340-5-1 and EN 100015-1 per SP Swedish National Testing and Research Institute (see ESD-approval DNo: 230-02-0034).

Brady B-473 is RoHS compliant to 2005/618/EC MCV amendment to RoHS Directive 2002/95/EC.

SPECIAL FEATURES

B-473 has a static dissipative adhesive and is supplied on a static dissipative release liner. It has surface resistivity values in the recommended range for Dissipative ESD Packaging Materials as defined in Table 1 of ANSI/ESD S20.20 ($\geq 1 \times 10^5$ to $< 1 \times 10^{12}$ ohms). B-473 also meets the requirements of EIA-541 "Packaging Material Standards for ESD Sensitive Items" in which a charged material must decay to 1% of its initial voltage in less than 2

seconds.

Details:

PHYSICAL PROPERTIES	TEST METHODS	AVERAGE RESULTS
Thickness	ASTM D 1000 -Substrate -Adhesive -Total	0.0020 inch (0.05 mm) 0.0014 inch (0.04 mm) 0.0034 inch (0.09 mm)
Adhesion to: - Stainless Steel	ASTM D 1000 20 minute dwell 24 hour dwell	49 oz/inch (54 N/100 mm) 60 oz/inch (66 N/100 mm)
Tack	ASTM D 2979 Polyken™ Probe Tack (1 second dwell, 1 cm/sec separation)	31 oz (885 g)
Drop Shear	PSTC-7 (except use 1/2" x 1" sample)	70 hours
Tensile Strength and Elongation	ASTM D 1000 -Machine -Cross	38 lbs/inch (665N/100 mm), 68% 56 lbs/inch (980N/100 mm), 46%
Dielectric Strength	ASTM D 1000	9000 volts
ELECTRICAL PROPERTIES	TEST METHODS	AVERAGE RESULTS
Surface Resistivity - Adhesive	EOS/ESD S11.11 -adhesive	5×10^8 ohms/sq.
Liner Surface Resistivity	EOS/ESD S11.11 - Release side - Backside	1.7×10^{10} ohms/sq 2.5×10^9 ohms/sq
Static Decay - Adhesive	EIA-541 to 1% of initial charge	0.01 seconds
Static Decay - Liner	EIA-541 to 1% of initial charge - Release side	0.2 seconds
Voltage (Label removed from liner, adhesive tested)	Value is obtained by removing a 1.5" x 0.25" label from liner and immediately holding label to a static sensing device calibrated in volts.	10 volts

Voltage (Label removed from liner, liner tested)	Value is obtained by removing a label from liner and immediately holding label to a static sensing device calibrated in volts.	3.4 volts
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The following testing was performed with B-473 thermal transfer printed on a BradyPrinter™ THT 300X using a Brady Series R6000 ribbon. Labels printed with 3:1 ratio barcodes with 6 mil X dimension bars and alphanumerics. Samples laminated to aluminum panels and allowed to dwell 24 hours prior to testing.

PERFORMANCE PROPERTIES	TEST METHOD	TYPICAL RESULTS
Short Term High Service Temperature	5 minutes at 354°F (180°C)	No visible effect to label at 180°C. Slight film shrinkage at 190°C but label is still functional. At 210°C label has severe film shrinkage.
Long Term High Service Temperature	30 days at 248°F (120°C)	No visible effect at 120°C
Low Service Temperature	30 days at -40°F (-40°C)	No visible effect at -40°C
Humidity Resistance	30 days at 100°F (37°C) and 95% R.H.	No visible effect
UV Light Resistance	30 days in UV Sunlighter™ 100	No visible effect
Weatherability ¹	ASTM G155, Cycle 1 30 days in Xenon Arc Weatherometer	No visible effect
Salt Fog Resistance	ASTM B 117 30 days in 5% salt fog solution chamber	No visible effect

PERFORMANCE PROPERTY	CHEMICAL RESISTANCE
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Samples printed with Series R4900 and R6000 ribbons using a BradyPrinter™ Model 300X. Labels printed with 3:1 ratio barcodes with 6 mil narrow X dimension bars and alphanumerics. Test was conducted at room temperature after 24 hour dwell. Testing consisted of 5 cycles of 10 minute immersions in the specified chemicals followed by a 30 minute recovery period. Samples rubbed 10 times with cotton swab immersed in test fluid after final immersion.

CHEMICAL REAGENT	SUBJECTIVE OBSERVATION OF VISUAL CHANGE			
	LABEL STOCK	R4900	R6000	EFFECT OF COTTON SWAB RUBS

Methyl Ethyl Ketone	Slight adhesive ooze	No visible effect	No visible effect	Printing removed
1,1,1-Trichloroethane	Slight adhesive ooze	No visible effect	No visible effect	Printing removed
Toluene	Slight adhesive ooze	No visible effect	No visible effect	Printing removed
Freon® TMS	Slight adhesive ooze	No visible effect	No visible effect	No visible effect
Isopropyl Alcohol	No visible effect	No visible effect	No visible effect	No visible effect
Mineral Spirits	No visible effect	No visible effect	No visible effect	No visible effect
JP-4 Jet Fuel	No visible effect	No visible effect	No visible effect	No visible effect
Mil 5606 Oil	No visible effect	No visible effect	No visible effect	No visible effect
ASTM #3 Oil	No visible effect	No visible effect	No visible effect	No visible effect
Gasoline	Slight adhesive ooze	No visible effect	No visible effect	No visible effect
Skydrol® 500B-4	Slight adhesive ooze	No visible effect	No visible effect	Printing removed
Super Agitene®	No visible effect	No visible effect	No visible effect	No visible effect
Alphametals BIOACT® EC-7R™	Slight adhesive ooze	No visible effect	No visible effect	No visible effect
Deionized Water	No visible effect	No visible effect	No visible effect	No visible effect
3% Alconox® Detergent	No visible effect	No visible effect	No visible effect	No visible effect
10% Sodium Hydroxide Solution	No visible effect	No visible effect	No visible effect	No visible effect
10% Sulfuric Acid Solution	No visible effect	No visible effect	No visible effect	No visible effect

Product testing, customer feedback, and history of similar products, support a customer performance expectation of at least **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 degrees F (27°C) and 60% RH*. We are confident that our product will perform well beyond this time frame. However, it remains the responsibility of the user to assess the risk of using such product. We encourage customers to develop functional testing protocols that will qualify a product's fitness for use, in their actual applications.

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

EIA: Electronic Industry Association (U.S.A.)

EOS/ESD: Electrical Overstress/Electrostatic Discharge (U.S.A.)

PSTC: Pressure Sensitive Tape Council (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.

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Specification Of Black 6000 Series Thermal Transfer Printer Ribbon - Brady IP™ Printer Enabled

Size: 4.330" x 984' (109.980 mm x 299.920 m)

Color: Black

Core Inside The ribbon core inside diameter is 1 in (25.40 mm), ink side out.

Diameter:

Formulation: Resin

Ribbon Series: 6000

Printer Brady IP

Compatibility:

RoHS Compliant with RoHS Directive. NOTE: All statements concerning RoHS

Compatibility: Directive compliance refer to 2005/618/EC MCV amendment to RoHS

Directive 2002/95/EC. Product compliance is based upon information provided by suppliers of the raw materials used by Brady to manufacture these products, or by independent laboratory testing of these products. As such, Brady makes no independent representations or warranties, express or implied, and assumes no liability in connection with the use of this information.

QTY/UOM: 1/Roll