

**BRADY L-2899-7B NFC temperature label**

TDS No. L-2899-7B  
Effective Date: 06/10/2020

**Description:**

NFC temperature label enables wireless temperature reading and monitoring for a wide range of devices.

**Details:**

**Material Specifications:**

Face Material	B-423 - White Polyester
Adhesive	Permanent modified acrylic adhesive
Finishing	Glossy White
Antenna	Aluminium
IC to antenna construction	Chip bonded to antenna using Anisotropic Conductive Film adhesive
Tag base material	PET

**General Specifications:**

Applications	NFC temperature label for use outdoor and indoor, proximity read ranges, UV exposed environment. The antenna is designed for application on non-metal surfaces.
Print Technology	Thermal transfer print, including RFID encoding.
Recommended Ribbon	Brady Series R6000 Halogen Free
Operating Temperature	-40 °C to 85 °C
Regulatory/Agency Approvals	For information on the Weee-RoHS compliance status for a Brady Product go to one of the following websites: In Canada: <a href="http://www.bradycanada.ca/weee-rohs">www.bradycanada.ca/weee-rohs</a> In Europe: <a href="http://www.bradyeurope.com/rohs">www.bradyeurope.com/rohs</a> In Japan: <a href="http://www.brady.co.jp/products/labelsuse/rohs">www.brady.co.jp/products/labelsuse/rohs</a> All other regions: <a href="http://www.bradyid.com/weee-rohs">www.bradyid.com/weee-rohs</a>

**Electronic Specifications:**

IC / Chip	NXP NHS3100
Operating Frequency	13.56 MHz
Supported Standard	ISO/IEC 14443A

- 32 kB on-chip flash programming memory
- 4 kB on-chip EEPROM of which 320 bytes are write-protected
- 8 kB SRAM

**RFID Regularity:**

- ISO14443 NFC interface, fully NFC Forum tag type 2 compliant

*important notice for reader use:*

*The reader must support the NFC functionality. Most Android devices will have the interface, however IOS devices below Iphone 7 will not support the measurement.*

*To retrieve the temperature - ID - counter, simply tap the label with the NFC enabled device.*

**Temperature accuracy:**

- Temperature range: absolute accuracy of  $\pm 0.3$  °C in the range of 0 °C to 40°C and  $\pm 0.5$  °C in the range of -40 °C to +85 °C

**Firmware:**

- The chip is flashed with Brady standard firmware, which allows the customer to change settings which can personalize the functionality of the label.
  - Website (HTTPS)
  - Hashing - key
  - Temperature offset
  - Resolution (7-12bits)
  - Lock bit
- *IOS and Android App available to support changing the settings in the label*

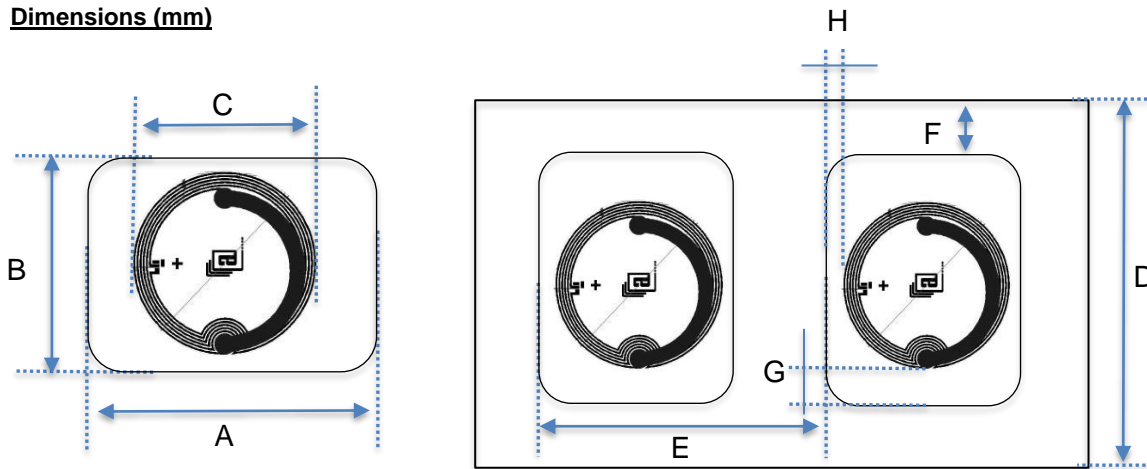
**Label Dimensions:**

Metric (mm)		
Width	Length	Thickness Total (with chip)
50.00	40.00	0.31

Label Mass (including antenna and chip)

Label Mass (g)
0.37

**Dimensions (mm)**



		Length (mm)	Tolerance (mm)
A	Tag Width	50.00	+/- 0.2
B	Tag Length	40.00	+/- 0.2
C	Antenna Diameter	35.00	+/- 0.5
D	Web Width	55.00	+/- 0.5
E	Tag to Tag Pitch	50.00	+/- 1.5
F	Web edge to label	2.00	+/- 1.5
G	Antenna to side label	7.50	+/- 1.5
H	Antenna to top label	2.50	+/- 1.5

**Delivery and Packaging Specifications**

RFID labels per roll	500
Rolls in package	1
Winding	RFID labels out
Inspection and delivered tags	100% inspected, 500 good RFID labels per roll
Bad Tags Marked	Yes

**Label Performance**

**Details:**

PHYSICAL PROPERTIES	TEST METHODS	AVERAGE RESULTS
Thickness	ASTM D 1000 -Total (excluding liner)	0.0146 inch (0.37 mm)
Adhesion to: -Glass	ASTM D 1000 20 minute dwell 24 hour dwell	68 N/100mm (62 oz/inch) 90 N/100mm (82 oz/inch)
-Polypropylene	20 minute dwell 24 hour dwell	92 N/100mm (84 oz/inch) 88 N/100mm (81 oz/inch)

Performance properties tested on samples printed with the Brady Series R6000 Halogen Free. Printed samples were laminated to glass panels and allowed to dwell 24 hours before exposure to the indicated environments.

PERFORMANCE PROPERTIES		ENVIRONMENTAL RESISTANCE		
PERFORMANCE PROPERTIES	TEST METHODS	EFFECT TO LABEL	EFFECT TO PRINT IMAGE	EFFECT TO CHIP
High Service Temperature	30 days at temperatures 85°C, 100°C, and 120°C	No visible effect	No visible effect	Readable
Low Service Temperature	30 days at temperatures -40°C and -80°C	No visible effect	No visible effect	Readable
Short Term High Service Temperature	5 minutes at 180°C	No visible effect	No visible effect	Readable
Humidity Resistance	30 days at 37°C, 95% relative humidity	No visible effect	No visible effect	Readable
UV Light Resistance	30 days in Xenon Test Chamber	No visible effect	No visible effect	Readable
Weatherability	ASTM G155, Cycle 1 30 days in QUV accelerated weathering tester	No visible effect	No visible effect	Readable
Abrasion Resistance	Taber Abraser, CS10 grinding wheels, 250 g/arm (Fed. Std. 191A, Method 5306), 150 cycles	No visible effect	Print still legible after 150 cycles	No effect to chip. Chip still readable after 200 cycles

PERFORMANCE PROPERTIES	CHEMICAL RESISTANCE			
Samples were printed with the Brady Series R6000 Halogen Free. Samples were laminated to glass panels and allowed to dwell 24 hours prior to testing. Testing was conducted at room temperature and consisted of 30 minutes immersions in the specified test fluid. After immersion, the samples were removed from the test fluid and the printed image rubbed 10 times with a cotton swab saturated with the test fluid. The rating scale below shows the effect to the quality of the print for each sample.				
CHEMICAL REAGENT	EFFECT TO PRINT/TOPCOAT WITHOUT RUB	EFFECT TO PRINT/TOPCOAT WITH RUB	EFFECT TO ADHESIVE	EFFECT TO CHIPS
Ethanol	1	1	1	Readable
Toluene	1	5	1	Readable
Isopropyl Alcohol	1	1	1	Readable
DOT 4 Brake Fluid	1	3	1	Readable
Skydrol® 500B-4	1	2	1	Readable
Hydrochloric Acid 37%	1	1	1	Readable
Sodium Hydroxide 10%	1	1	1	Readable

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 and/or topcoat removal
- NP= print removed prior to rub

**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:**

Skydrol® is a registered trademark of the Monsanto Company

ASTM: American Society for Testing and Materials (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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