



Technical Data Sheet

TT411

THERMAL TRANSFER MATTE TAN POLYIMIDE FILM

GENERAL DESCRIPTION: TT411 is a topcoated matte tan polyimide film. It is coated with an aggressive permanent acrylic adhesive and backed with a 55# Glassine release liner.

USES/FEATURES: Ideal for marking electronic components, and the top/bottom side of printed circuit boards. This material is designed to withstand high temperatures and harsh chemicals. Can be used in through-hole and surface mount circuit board processes.

Indoor only. Excellent scratch, abrasion, chemical, and heat resistant when printed with thermal transfer resin/wax-based ribbons. This film is dimensionally stable (no shrinkage), high-performance adhesive. Preheating of the material and ribbon will enhance the performance. The matte topcoat printed with certain thermal transfer ribbons offers superior chemical resistance. This material has been tested to and passed MIL-STD-202G Method 215K and MIL-STD-883E Notice 4 Method 2015.13 when printed with our TTRR-AK or TTRR-CR ribbon.

RECOGNITION(S): RoHS Directive 2002/95/EC Compliant, UL- MH16873

RECOMMENDED RIBBON: Thermal Transfer Resin/Wax Ribbon, Thermal Transfer Resin Ribbon

| PHYSICAL PROPERTIES | TEST METHODS | CONVENTIONAL UNITS | S.I. UNITS |
|---------------------|--------------|--------------------|---------------|
| THICKNESS: | Film | 2.7 mils | 68.6 microns |
| | Adhesive | 2.0 mils | 50.8 microns |
| | Liner (55#) | 3.1 mils | 78.7 microns |
| | Total | 7.8 mils | 198.1 microns |

| ADHESIVE PERFORMANCE | TEST METHODS | CONVENTIONAL UNITS | S.I. UNITS |
|-----------------------------|-----------------|--------------------|---------------------------|
| ADHESIVE PERFORMANCE | Memory Chip | 16.7 oz/in | 184 N/m (20 minute dwell) |
| | Memory Chip | 24.8 oz/in | 273 N/m (24 hour dwell) |
| | Stainless Steel | 38.4 oz/in | 422 N/m (72 hour dwell) |

WARRANTY
"Our products are sold with the understanding that the buyer will test them in actual use and determine for himself their adaptability to his intended uses. We warrant to the buyer that our products are free from defects in material and workmanship. This warranty is in lieu of any other warranty, expressed or implied"

SERVICE TEMPERATURES: Lab tested using stationary standard ovens (test complete d on aluminum panels after a 24 hour dwell)

| Aluminum Panels | Temperatures | |
|-----------------|--------------|-------|
| 0-5 Minutes | 500°F | 260°C |
| 0-2 Minutes | 572°F | 300°C |
| 0-1 Minute | 626°F | 330°C |
| 0-10 Seconds | 842°F | 450°C |

*****CUSTOMER TO TEST IN ACTUAL APPLICATION TO DETERMINE IF MATERIAL MEETS CUSTOMER REQUIREMENTS****

MINIMUM APPLICATION TEMPERATURE: 50°F 10°C

EXTERIOR DURABILITY: Indoor Only

| TEST ENVIRONMENT: | PCS | READ RATE |
|--------------------------|------|-----------|
| Control | 99% | 100% |
| Zestron, 5 minutes, 25°C | 100% | 99% |

STORAGE STABILITY: Product should be stored at 70°F (21°C) and 40-50% relative humidity to ensure optimal performance.

SHELF LIFE: 2 years @ proper storage conditions.