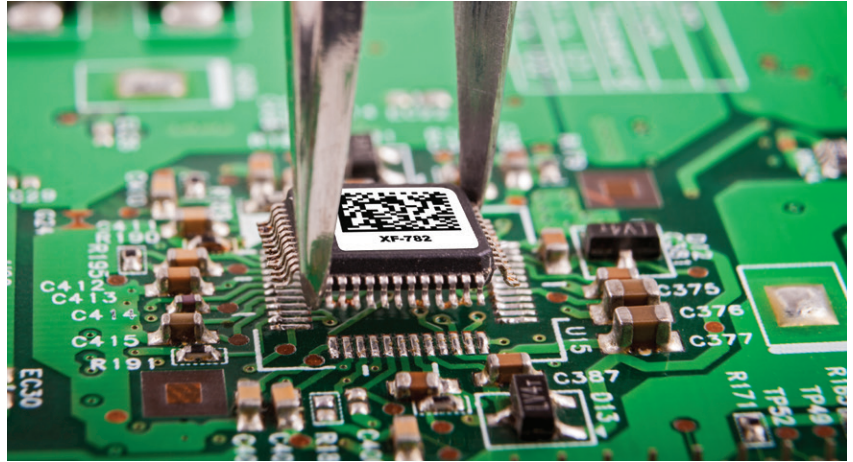


## Application Profile

# ESD-Safe™ Tracking and Masking of Static Sensitive Devices



### Industries:

PCB manufacturing; consumer, automotive, aerospace, medical electronics.

### Products:

Barcode tracking labels:

XF-446, XF-781, XF-782, XF-784

Masking tapes:

XT-622, XT-623, XT-626, XT-637, XT-692, XT-744

High opacity masking tapes:

XT-719

### Applications:

ESD-Safe™ ID, tracking and masking of static sensitive PCBs, devices, components, circuits, assemblies, surfaces, fixtures, etc.

### EOS/ESD Compliance:

ANSI/ESD S20.20, ESD S541 and IEC 61340

### Customer Benefits:

- Surface resistance of  $>10^4$  and  $<10^{11}$  Ohms
- Low charging;  $<125$  volts
- High and low temperature dimensional stability.
- Chemical resistance.
- Halogen free, REACH and RoHS compliant.



For more information or to receive samples for evaluation, please contact Dave Genest at:  
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## Industry Needs

Electrostatic discharge (ESD) can occur when static charge is released, in the form of electrical current, into a sensitive (ESDS) device. If the charge exceeds the specified threshold of the device, it can cause immediate or latent damage. ESD can also generate electromagnetic interference (EMI) that can cause logic resets and corrupt data communications. Even with the implementation of antistatic bracelets, booties, ionizers, etc. the ESD problem continues to grow. Careful attention is now being given to the role of induced charges from process-required insulators in ESD Control Plans.

The ANSI/ESD S20.20 standard and its international equivalent IEC 61340 defines the ESD Control Plan required for an ESD protected area (EPA). Within the S20.20 standard is the ANSI/ESD S541 standard that governs package requirements including process-required insulators such as labels and tapes when used in the proximity of ESDS devices. The S541 standard requires that labels and tapes used in an S20.20 EPA must have surface resistances  $>10^4$  and  $<10^{11}$  Ohms to be considered static dissipative and accumulated voltages  $<125$  volts when used within 1" and 2000 volts within 12" of ESDS devices.

## Polyonics ESD-Safe™ Solutions

Polyonics has developed a family of ESD-Safe polyimide and polyester (PET) labels and tapes that fully comply with the ANSI/ESD S541 standard and are safe to use in ANSI/ESD S20.20 Control Plans. The materials have durable static dissipative top surfaces with surface resistances  $>10^5$  and  $<10^{11}$  Ohms and low charging pressure sensitive adhesives (PSA) and liners that generate less than 125 volts with liner removal.

The materials have proven to help designers and manufacturers protect their most sensitive ESDS devices from electrostatic charges arising from both human contact (HBM) and charged devices (CDM) and have become valuable elements in the successful S20.20 ESD Control Plans of global electronics EMS', ODMs, converters and OEMs.

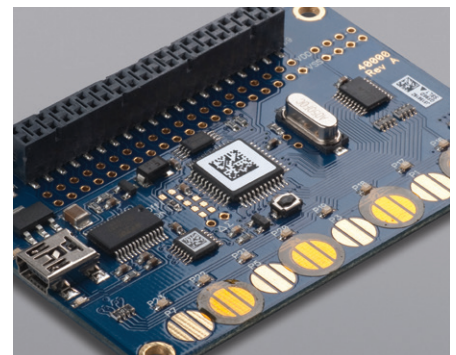
	Product	Film/face	Adhesive	Total Thickness	Description
L A B E L S	XF-446	50 µm PET	25 µm acrylic	75 µm	ESD-Safe™ thermal transfer printable gloss white high temperature label, PCB top-side ID and tracking, static dissipative >10 <sup>7</sup> and <10 <sup>8</sup> Ohms, low charging PSA and liner (<125V), UL969 recognized.
	XF-781 <sup>1</sup>	25 µm PI	25 µm acrylic	50 µm	ESD-Safe™ thermal transfer printable semi-gloss white high temperature label, PCB top/bottom side ID and tracking, static dissipative >10 <sup>8</sup> and <10 <sup>11</sup> Ohms, low charging PSA and liner (<125V), UL969 recognized.
	XF-782 <sup>1</sup>	50 µm PI	50 µm acrylic	100 µm	ESD-Safe™ semi-gloss white thermal transfer printable, high temperature label, PCB top/bottom side ID and tracking, static dissipative >10 <sup>8</sup> and <10 <sup>11</sup> Ohms, low charging PSA and liner (<125V), UL969 recognized.
	XF-784	25 µm PI	25 µm acrylic	50 µm	ESD-Safe™ matte white thermal transfer printable high temperature label, PCB top/bottom side ID and tracking, static dissipative >10 <sup>8</sup> and <10 <sup>11</sup> Ohms, low charging PSA and liner (<125V).
T A P E S	XT-622	25 µm PI	25 µm low tribocharging acrylic	50 µm	ESD-Safe™, static dissipative >10 <sup>5</sup> and <10 <sup>9</sup> Ohms, low charging PSA and liner (<125V).
	XT-623	50 µm PI	38 µm low tribocharging acrylic	88 µm	ESD-Safe™, static dissipative >10 <sup>5</sup> and <10 <sup>9</sup> Ohms, low charging PSA and liner (<125V).
	XT-626	25 µm PI	25 µm low tribocharging acrylic	50 µm	ESD-Safe™, static dissipative >10 <sup>5</sup> and <10 <sup>9</sup> Ohms, low charging PSA and liner (<125V), flame retardant UL94 VTM0.
	XT-637	25 µm clear PET	25 µm low tribocharging acrylic	50 µm	ESD-Safe™, static dissipative >10 <sup>5</sup> and <10 <sup>9</sup> Ohms, low charging PSA and liner (<125V).
	XT-692	25 µm white PET	25 µm acrylic	50 µm	ESD-Safe™, static dissipative >10 <sup>5</sup> and <10 <sup>9</sup> Ohms, low charging PSA and liner (<125V).
	XT-719	50 µm matte black PI	38 µm low tribocharging acrylic	88 µm	ESD-Safe™, high opacity, static dissipative >10 <sup>4</sup> and <10 <sup>9</sup> Ohms, low charging PSA and liner (<125V).
	XT-744	25 µm PI	13 µm acrylic	38 µm	ESD-Safe™, static dissipative >10 <sup>5</sup> and <10 <sup>9</sup> Ohms, low charging PSA and liner (<125V).

**NOTES:** ● Surface resistances measured per ANSI/ESD STM 11.11. ● Charge accumulations measured per Modified ESD ADV 11.2.

<sup>1</sup>Surface resistance measured at 50% RH.

## POLYONICS AT A GLANCE

Polyonics manufactures high performance materials for high temperatures and harsh environments. These include printable high temperature label and tag materials, single and double coated engineered tapes, laser markable label materials and printable flexible substrates. The ultra-thin polyimide, polyester and aluminum materials include ultra-high temperature, flame retardant, static dissipative and high opacity options. Polyonics materials are used by converters and OEMs worldwide in electronics, metal processing, aerospace, automotive and medical device applications.



For more information or to receive samples for evaluation, please contact: [dave.genest@polyonics.com](mailto:dave.genest@polyonics.com) or 603.903.6327



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