

Application Guide

ESD-Safe™ Tracking and Masking of Static Sensitive Devices

Industries:

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

Products:

Barcode tracking labels:

XF-446, XF-733, XF-734, XF-737, XF-738, 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:

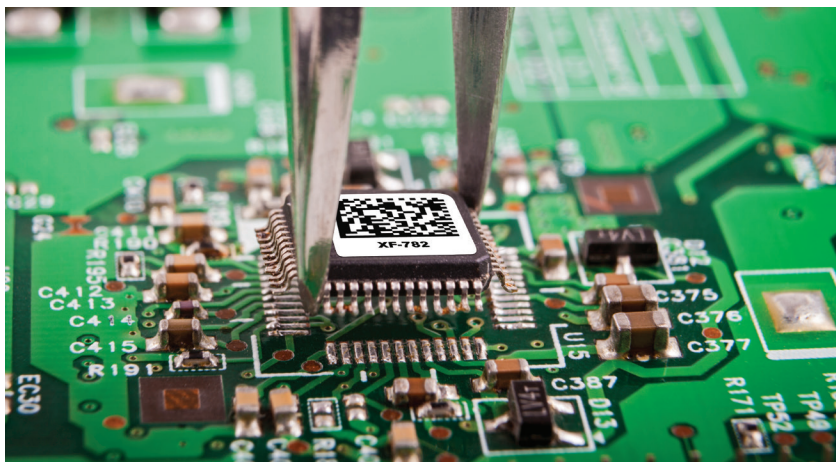
ESD-Safe ID, tracking and masking of static sensitive PCBs, devices, components, circuits, assemblies, surfaces, fixtures, etc.

EOS/ESD Compliance:

ANSI/ESD S20.20, ESD S541, IEC 61340 and JEDEC JESD625B

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.



Industry Needs

Electrostatic discharge (ESD) can occur when static charge is released, in the form of electrical current, into an ESD 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, its international equivalent IEC 61340, and the JEDEC JESD625B standards define the ESD control plan required for an ESD protected area (EPA). All three standards provide guidance relative to packaging requirements, including process-required insulators such as labels and tapes, when used in the proximity of ESDS devices. The S20.20 and 61340 specify accumulated voltages on labels and tapes be less than 125 volts when used within 1" and 2000 volts within 12" of ESDS devices while JESD625B specifies 250 volts within 1" and 1000 volts within 12". In addition, all three standards (including S541 within S20.20) offer surface resistance specifications within the traditional $>10^4$ and $<10^{11}$ Ohms static dissipative range.

Polyonics ESD-Safe Solutions

Polyonics has developed a family of ESD-Safe polyimide and polyester (PET) labels and tapes that comply with the S20.20, 61340 and JESD625B standards for charged insulators used in the proximity of ESDS devices. The materials have durable static dissipative top surfaces with surface resistances $>10^4$ 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 electronics designers and manufacturers protect their most static sensitive devices from electrostatic charges arising from both human contact (HBM) and charged devices (CDM) and have become valuable elements in the successful S20.20, IEC 61340 and JESD625B ESD control plans of global electronics EMS', ODMs, converters and OEMs.



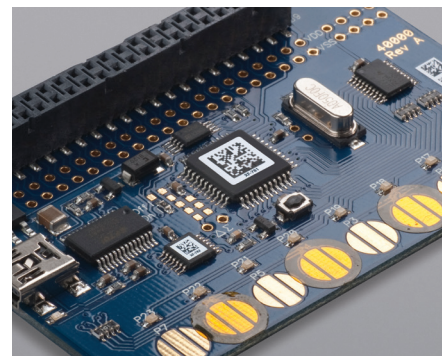
For more information or to receive samples for evaluation, please contact Dave Genest at: info@polyonics.com or 603.903.6327

	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/tracking, static dissipative >10 ⁷ and <10 ⁸ Ohms, low charging PSA and liner (<125V), UL969 recognized.
	XF-733	25 µm PI	25 µm acrylic	50 µm	ESD-Safe thermal transfer printable gloss white high temperature label, resistant to harsh fluxes and abrasion, PCB top-side ID/tracking, static dissipative >10 ⁴ and <10 ⁹ Ohms, low charging PSA and liner (<50V), UL969 recognized.
	XF-734	50 µm PI	38 µm acrylic	88 µm	ESD-Safe thermal transfer printable gloss white high temperature label, resistant to harsh fluxes and abrasion, PCB top-side ID/tracking, static dissipative >10 ⁴ and <10 ⁹ Ohms, low charging PSA and liner (<50V), UL969 recognized.
	XF-737	25 µm PI	25 µm acrylic	50 µm	ESD-Safe thermal transfer printable matte white high temperature label, resistant to harsh fluxes and abrasion, PCB top-side ID/tracking, static dissipative >10 ⁴ and <10 ⁹ Ohms, low charging PSA and liner (<50V), UL969 recognized.
	XF-738	50 µm PI	38 µm acrylic	88 µm	ESD-Safe thermal transfer printable matte white high temperature label, resistant to harsh fluxes and abrasion, PCB top-side ID/tracking, static dissipative >10 ⁴ and <10 ⁹ Ohms, low charging PSA and liner (<50V), UL969 recognized.
	XF-781 ¹	25 µm PI	25 µm acrylic	50 µm	ESD-Safe thermal transfer printable semi-gloss white high temperature label, PCB top/bottom side ID/tracking, static dissipative >10 ⁸ and <10 ¹¹ Ohms, low charging PSA and liner (<125V), UL969 recognized.
	XF-782 ¹	50 µm PI	50 µm acrylic	100 µm	ESD-Safe semi-gloss white thermal transfer printable, high temperature label, PCB top/bottom side ID/tracking, static dissipative >10 ⁸ and <10 ¹¹ 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 and non-reflow ID/tracking, static dissipative >10 ⁸ and <10 ¹¹ 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 ⁵ and <10 ⁹ Ohms, low charging PSA and liner (<125V).
	XT-623	50 µm PI	38 µm low tribocharging acrylic	88 µm	ESD-Safe, static dissipative >10 ⁵ and <10 ⁹ Ohms, low charging PSA and liner (<125V).
	XT-626	25 µm PI	25 µm low tribocharging acrylic	50 µm	ESD-Safe, static dissipative >10 ⁵ and <10 ⁹ 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 ⁵ and <10 ⁹ Ohms, low charging PSA and liner (<125V).
	XT-692	25 µm white PET	25 µm acrylic	50 µm	ESD-Safe, static dissipative >10 ⁵ and <10 ⁹ 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 ⁴ and <10 ⁹ Ohms, low charging PSA and liner (<125V).
	XT-744	25 µm PI	13 µm acrylic	38 µm	ESD-Safe, static dissipative >10 ⁵ and <10 ⁹ 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.
¹Surface 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: info@polyonics.com or 603.903.6327



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