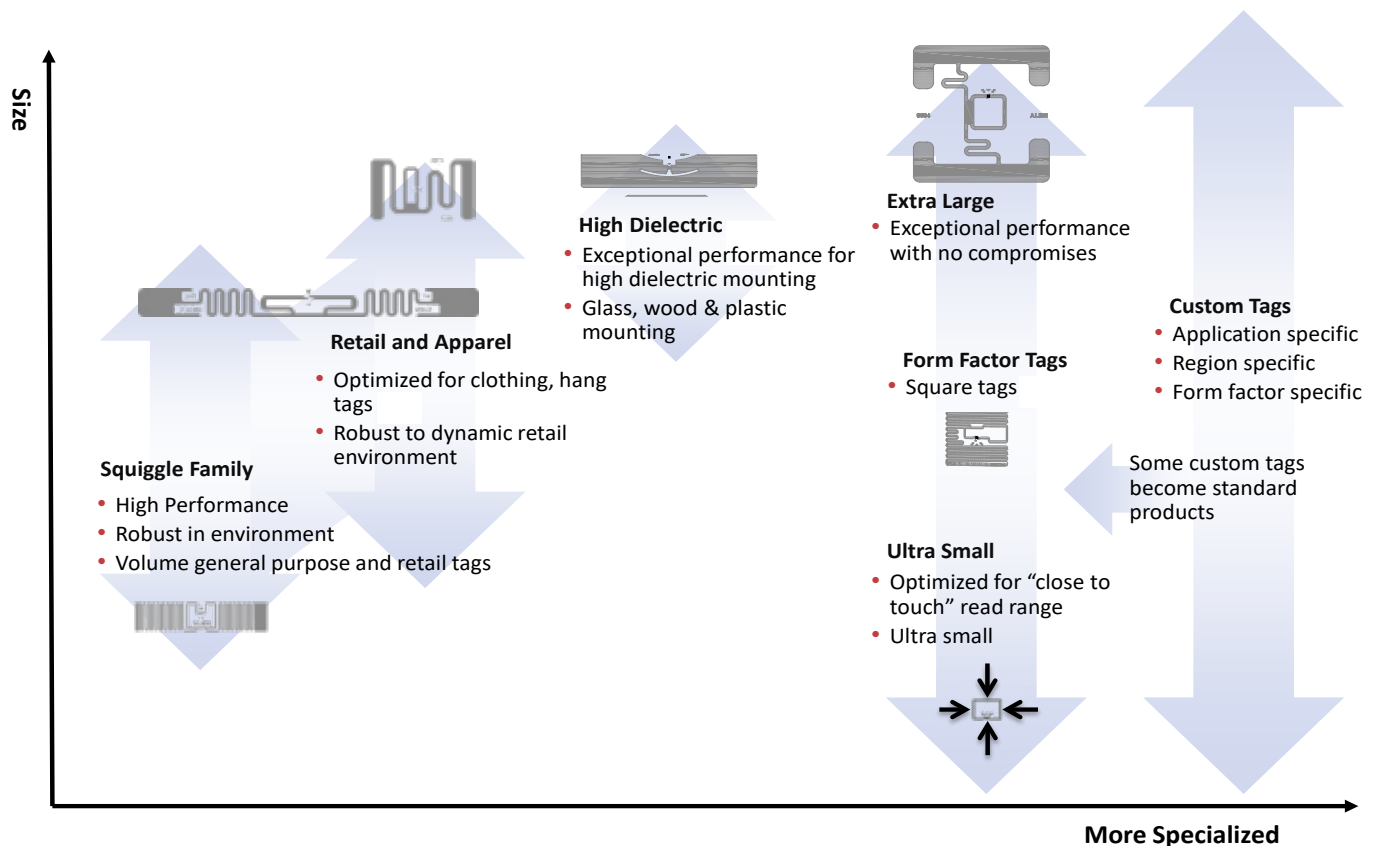




ALIEN FAMILY OF EPC GEN 2 RFID INLAYS

Designed for world-class industry-leading performance, Alien Technology® offers a range of UHF GS1 Class 1 Gen 2 inlays for today's high performance applications.

Powered by the high memory **Higgs-3**, volume focused **Higgs-4** & **Higgs-EC** or the **NEW Higgs-9 Next Generation high memory RFID IC** with increased memory, range, reliability and robustness, Alien® offers a diverse range of RFID inlays fitting a wide variety of sizes, applications and performance needs.



All Alien inlays are World Tag compliant, enabling operation across the diverse frequencies of the Americas, Europe, Middle East, Asia, and Africa.*

Please refer to Alien's Higgs-3, Higgs-4, Higgs-EC and Higgs-9 product overviews for specific details on each IC's capabilities & feature set.








Alien has the capability to design custom tags for appropriate volume applications and also offer reference designs under licence.

*With exception of ALN-9730 & EMEA optimized ALN-9730-E



Alien Family of EPC Gen 2 RFID Inlays

Inlays: Squiggle Family

Product	Higgs-3	Higgs-4	Higgs-EC	Higgs-9	Antenna Size ¹	Application
Squiggle™ (SQ) 	ALN-9640	ALN-9740	ALN-9840	ALN-9940 	3.732" x 0.319" 94.8mm x 8.1mm	Item/asset tracking including: pallet placards, cases, baggage, denim, poly bags, electronics, apparel tags and boxed items.
Squiglette (ST) and Squiglette-E (STE) 	ALN-9630	ALN-9730 ALN-9730-E ²	ALN-9830	N/A	2.756" x 0.374" 70mm x 9.5mm	
Short (SH) 	ALN-9662	ALN-9762	ALN-9862	ALN-9962 	2.756" x 0.669" 70mm x 17mm	
Express (EX) 	N/A	N/A	ALN-9835	N/A	2.576" x 0.500" 70mm x 12.7mm	
Squig (SG) 	ALN-9610	ALN-9710	N/A	N/A	1.752" x 0.409" 44.5mm x 10.4mm	
Doc Tag (DOC) 	N/A	ALN-9741	ALN-9841 	N/A	3.74" x 0.32" 95mm x 8.15mm	Paper/cardboard tagging, documents, file folders (e.g. medical, dental, legal etc), envelopes and booklets






Product	Features	Benefits
Squiggle (SQ) Squiglette (ST) and Squiglette-E (STE) Short (SH) Squig (SG) Express (EX)	Squiggle is one of the most widely used general purpose tags. Family extends the Squiggle features into different form-factors. One of the best performing general purpose tag family on the market. Designed to work well in challenging environments.	Well proven design for a broad range of worldwide applications. All Alien tags are world-tags and work well in all regions. Tags denoted with an "E" on the model number (and name) are <i>specially</i> tuned for optimal performance in Europe (but are still world tags). A very robust general purpose tag (for ultimate robustness in high dielectric environments - see Aliens "G" or "BAT" tags).
Doc Tag (DOC)	Dielectrically matched to papers, cardboards and similar printed stock. Extremely tolerant to close placement of multiple tags.	Allows tags to be placed on documents or files where these documents will be tightly packed together with many tags in close proximity to each other. These tags have minimal chance of shadowing (hiding each other) from the reader.

¹ Sizes are approximate. **Dimensions are inlay ANTENNA sizes.** Tags and labels will be larger. Please refer to specific product details available on Alien's website for exact measurements - www.alientechnology.com

² All Alien tags are world-tags and work well in all regions. However, tags denoted "E" are specially tuned for optimal performance in Europe.



Inlays: High Dielectric Family / Automotive (Tires, Windshields)

Product	Higgs-3	Higgs-4	Higgs-EC	Higgs-9	Antenna Size ¹	Application
G Tag (G) Higgs-3 (top) & Higgs-9 (bottom) 	ALN-9654	N/A	N/A	 ALN-9954	3.66" x 0.748" 93mm x 19mm	High density plastic totes, windshields, batteries etc.
BAT (BAT) 	N/A	ALN-9770	N/A	N/A	3.25" x 1.25" 82.5mm x 32mm	Automotive batteries, fluid filled objects, plastic containers and metal filled objects.
Tread (TR) 	N/A	N/A	ALN-9874	N/A	3.15" x 1.57" 80mm x 40mm	Optimized for retail automotive tire labels, general automotive assets, materials normally a challenge for RF
Wonder Dog™ (WD) 	N/A	ALN-9768	N/A	N/A	3.30" x 0.91" 86mm x 23mm	General purpose, automotive metalized windshields/ head lamp and consumer electronic devices.
Bio Tag (BIO) 	N/A	ALN-9714	N/A	N/A	0.67" x 0.59" 17mm x 15mm	Pharmaceuticals, healthcare, vials/ ampoules, small glass objects and small liquid filled objects.


Product	Features	Benefits
G Tag (G)	Exceptional performance for high dielectric mounting.	Ideal for windscreen/safety glass, standard glass, plastics, wood or other materials normally a challenge for RF.
BAT (BAT)	Highly tuned for read rates and distances when amongst metal/water based objects contained in plastics, glass etc.	Optimized for use with thin high-dielectric materials, particularly when materials contain metallic material and/or water based fluids.
Tread (TR)	Optimized for automotive tire retail labeling and other difficult to read material normally challenging for RF.	Robust reliability when reading multiple and densely stacked automotive tires and similar dielectric material assets.
Wonder Dog™ (WD)	Both a good general purpose tag but also excellent near metal or fluids. Excellent with lower power readers (e.g. handheld).	Excellent general purpose high-performance tag ideal for challenging dielectric materials while still providing excellent performance with handhelds and lower power readers.
Bio Tag (BIO)	Small form factor, non-near field read tag and tuned for placement on glass containing water or oil based fluids.	Offers read/write distances compatible with usage in pharmaceutical production facilities and handheld reader usage for logistics and supply chain. Designed to provide 30 cm / 12" or greater read distance even when applied to vials containing water based fluids.

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Alien Family of EPC Gen 2 RFID Inlays

Inlays: Specialized Retail

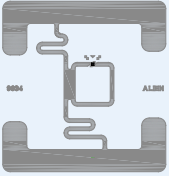
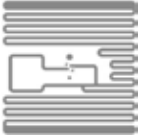


Product	Higgs-3	Higgs-4	Higgs-EC	Higgs-9	Antenna Size ¹	Application
Spider-360 (SP) 	N/A	ALN-9726	N/A	N/A	1.97" x 1.18" 50mm x 30mm	Retail, apparel, hang-tags, joker tags, airline baggage, labels and document tracking.
Garment Tag (GT) 	N/A	ALN-9728	ALN-9828	N/A	aka "30 x 50"	Retail, apparel, hang-tags, joker tags, labels and document tracking.
Garment Tag (GT-L)  	N/A	N/A	ALN-9827	N/A	1.97" x 1.18" 50mm x 30mm aka "30 x 50"	Auburn™ I&K compliant retail, apparel, hang-tag & general asset tracking
HiScan™ (HS) 	N/A	ALN-9720	N/A	N/A	1.57" x 0.61" 40mm x 15.5mm	Specialized tag designed for the most challenging retail and apparel applications and in handheld environments.
Glint™ (GL) 	N/A	ALN-9715	N/A	N/A	1.06" x 0.38" 27mm x 9.7mm	Jewelry, cosmetics and other smaller form factor items.
Pearl™ (PE) 	N/A	ALN-9716	N/A	N/A	0.87" x 0.49" 22mm x 12.5mm	
Gecko™ (GE) 	N/A	N/A	ALN-9825		1.14" x 0.59" 29mm x 15mm	Retail, apparel, compact form factor assets, dense readability.

Product	Features	Benefits
Spider-360 (SP)	An orientation agnostic 30x50mm form-factor tag. Useful when end-on reads are required.	Designed for 360 degree readability for dynamically changing tag orientation. Ideal for (but not limited to) retail, apparel, airline baggage, etc.
Garment Tag (GT)	30x50mm form-factor and tuned for use in retail with packed shelves or hanging garments.	High performance readability (distance / rates) for real-world retail application environments. Optimized for stacked and hanging goods.
Garment Tag (GT-L)	30x50 form-factor with additional performance enhancement for dense packed, shelves and hanging garments	Adds Auburn I&K compliance for an ever more robust reliability for today & tomorrow's fast moving retail application environments.
HiScan™ (HS)	Tuned for high-performance reading in lower-power reading environments.	Robust readability in real-world retail application environments including (but not limited to): rapid handled movement, tags closely spaced together, low transmit power readers etc.
Glint™ (GL)	Very small non-near-field tag designed for close placement to metals or metallic surfaces.	Compact tag design for jewelry and other smaller format assets. Utilizes close proximity of metallic objects to increase read range. Offers read/write distances in feet/meters versus inches/centimeters.
Pearl™ (PE)		
Gecko™ (GE)		For smaller format assets requiring readability in dense tagged asset populations.

¹ Sizes are approximate. **Dimensions are inlay ANTENNA sizes.** Tags and labels will be larger. Please refer to specific product details available on Alien's website for exact measurements - www.alientechnology.com



Inlays: Form-factor/Orientation Family

Product	Higgs-3	Higgs-4	Higgs-EC	Higgs-9	Antenna Size ¹	Application
2x2 	ALN-9634	N/A	N/A	N/A	1.73" x 1.81" 44mm x 46mm	Large items, baggage tagging, apparel and pharmaceutical bottles.
Square (1x1) 	ALN-9629	N/A	N/A	N/A	0.89" x 0.89" 22.5mm x 22.5mm	Item level tagging, apparel, pharmaceutical bottles and other high value consumables.
SIT (SIT) 	ALN-9613	ALN-9713	N/A	N/A	0.472" x 0.354" 12mm x 9mm	Jewelry, pharma, bottles, liquids, foods, DVD's, access control, loyalty cards, and other anti-counterfeiting
Slimline™ (SL) 	N/A	ALN-9745	N/A	N/A	3.701" x 0.228*** 94mm x 5.8mm** <small>***3.701" x 0.12" / 94mm x 3.05mm without inlay chip targets (not electrically significant - used for chip mounting only).</small>	Book spines, door edges, cigarette boxes, small package labels, narrow form factor assets.

Product	Features	Benefits
2x2	Highest performance in a 2" form factor.	A square form-factor for tracking of larger items. Multiple-frequency sensitivity optimized for high performance in all world regions.
Square (1x1)	High performance when a longer tag form factor is inappropriate.	The Square provides performance close to the 2x2 in a smaller form-factor.
SIT (SIT)	Ultra Compact. Near field access only. Can be used adjacent to metallic objects.	Fits very small objects normally challenging for RFID. Close proximity read zone for added security. Extended read range enabled through appropriate placement to conductive surfaces.
Slimline™ (SL)	Ultra slim form-factor at 5.8mm or 3.05mm thin (3.05mm without inlay targets).	Extreme narrow form-factor enabling use where RFID is normally not possible. Comparable Squiggle/Squigglette level performance in an ultra narrow form-factor.

¹ Sizes are approximate. **Dimensions are inlay ANTENNA sizes.** Tags and labels will be larger. Please refer to specific product details available on Alien's website for exact measurements - www.alientechnology.com



Inlay Application Guide:

The following table is a guide to facilitate narrowing inlay selection relevant to your application.

	Squiggle Family						Specialized Retail						High-Dielectric / Automotive				Form-factor					
	Squiggle® (SQ)	Short (SH)	Squiglette (ST)	Squig (SG)	Express (EX)	Doc Tag (DT)	Gecko (GE)	Pearl (PE)	Glint (GL)	HScan (HS)	GT-Tag (GT)	GT-L Tag (GT-L)	Spider-360 (SP)	BAT-Tag (BAT)	Wonder-Dog (WD)	Tread (TR)	G-Tag (G)	Bio-Tag	SlimLine (SL)	2x2	Square (1x1)	SIT (SIT)
Higgs-9 Model #	ALIN-9940	ALIN-9962	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	ALIN-9954	N/A	N/A	N/A	N/A	N/A
Higgs-EC Model #	ALIN-9840	ALIN-9862	ALIN-9830	N/A	ALIN-9835	ALIN-9841	ALIN-9825	ALIN-9816	ALIN-9815	ALIN-9820	ALIN-9828	ALIN-9827	N/A	N/A	N/A	ALIN-9874	N/A	N/A	N/A	N/A	N/A	N/A
Higgs-4 Model #	ALIN-9740	ALIN-9762	ALIN-9730 ALIN-9730-E	ALIN-9710	N/A	ALIN-9741	N/A	ALIN-9716	ALIN-9715	ALIN-9720	ALIN-9728	N/A	ALIN-9726	ALIN-9770	ALIN-9768	N/A	N/A	ALIN-9714	ALIN-9745	N/A	N/A	ALIN-9713
Higgs-3 Model #	ALIN-9640	ALIN-9662	ALIN-9630	ALIN-9610	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	ALIN-9654	N/A	N/A	ALIN-9634	ALIN-9629	ALIN-9613
Retail																						
Mobile Asset Tracking*																						
Automotive																						
Pharma / Healthcare																						
Ultra compact																						
Wood/ Plastic/ Glass																						
Files/ Paper																						
General Purpose																						
Ref Design Available?	Yes	Yes	Yes	Yes	Yes	No	No	No	Yes	No	No		No	Yes	No		Yes	No	Yes	Yes	Yes	Yes



* Includes Consumer Electronic Devices (TV's, STB's etc)

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HANDLING PRECAUTIONS Observe standard handling practices to minimize ESD.

DISCLAIMER Application recommendations are guidelines only - actual results may vary and should be confirmed. This is a general purpose product not designed or intended for any specific application.

This product is covered by one or more of the following U.S. patents: 7967204, 7931063, 7868766, 7737825, 7716208, 7716160, 7688206, 7659822, 7619531, 7615479, 7598867, 7580378, 7576656, 7562083, 7561221, 7559486, 7559131, 7554451, 7551141, 7542301, 7542008, 7531218, 7522055, 7500610, 7489248, 7453705, 7425467, 7417306, 7411503, 7385284, 7377445, 7364084, 7353598, 7342490, 7324061, 7321159, 7301458, 7295114, 7288432, 7265675, 7262686, 7260882, 7253735, 7244326, 7218527, 7214569, 7199527, 7193504, 7173528, 7172910, 7172789, 7141176, 7113250, 7101502, 7080444, 7070851, 7068224, 7046328, 6998644, 6988667, 6985361, 6980184, 6970219, 6952157, 6942155, 6933848, 6927085, 6816380, 6780696, 6731353, 6693384, 6683663, 6665044, 6657289, 6623579, 6606247, 6606079, 6590346, 6586338, 6566744, 6555408, 6527964, 6479395, 6468638, 6420266, 6316278, 6291896, 6281038. Other patents pending.

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