INFORMIC · FREE BUYER TOOL

Counterfeit IC Incoming Inspection Checklist

Print one per lot. Checks 1–8 need only a datasheet and a microscope; 9–10 need samples or a lab.

Lot details

Part number (MPN)		Manufacturer	
Quantity received		Package / packing	
Date code(s) on label		Lot code(s)	
Supplier		PO / order no.	
Inspected by		Inspection date	

10-point checklist

#	Check	What to look for	Result	Notes
1	**Verify the seller before you pay**	Company registration, physical address, ISO 9001, references you contact yourself. Wire-only payment and no small test order = warning sign.	☐ Pass ☐ Fail ☐ N/A	
2	**Inspect packaging and labels**	Reel/tray/tube in good condition; moisture-sensitive parts sealed in a moisture-barrier bag with humidity card; label shows MPN, qty, date code, lot code.	☐ Pass ☐ Fail ☐ N/A	
3	**Label matches the chip**	MPN and date code on the label match the chip marking. Several date codes in one “factory-sealed” reel need an explanation.	☐ Pass ☐ Fail ☐ N/A	
4	**Top surface under magnification**	Even, fine mold texture. Sanding marks, glossy/painted look or texture that differs at the edges = remarking or blacktopping.	☐ Pass ☐ Fail ☐ N/A	
5	**Marking vs a known-good part**	Logo, font, spacing and position match a known-good sample. Blurred/old logo, uneven characters, ink where laser is expected = red flags.	☐ Pass ☐ Fail ☐ N/A	
6	**Pin-1 mark and mold marks**	Pin-1 dot and ejector marks look the same on every chip. Filled-in, rough or different-size dots suggest a reworked surface.	☐ Pass ☐ Fail ☐ N/A	
7	**Inspect the leads**	Clean, evenly plated, consistent shape. Solder residue, uneven tinning, scratches, oxidation or re-straightened leads = recycled parts.	☐ Pass ☐ Fail ☐ N/A	
8	**Consistency across the lot**	Compare several chips side by side: same marking, texture, colour and lead finish. Mixed fonts or date codes = mixed sources.	☐ Pass ☐ Fail ☐ N/A	
9	**Solvent test on samples (screen only)**	Acetone/IPA wipe on samples you can lose. A clean result does NOT prove authenticity; aggressive solvents give false alarms.	☐ Pass ☐ Fail ☐ N/A	
10	**Lab tests for critical / high-value parts**	X-ray, XRF, acoustic microscopy, decapsulation or electrical test at an independent lab (SAE AS6171). See page 2.	☐ Pass ☐ Fail ☐ N/A	

Lot decision ☐ Accept ☐ Hold for lab testing ☐ Reject / return Signature:

Seven types of counterfeit IC

Counterfeit type	What it is	Usually caught by
Recycled / refurbished	Used chips pulled from scrap boards, cleaned, sometimes re-tinned, sold as new	Lead condition, solder residue, XRF of lead finish
Remarked	Original marking sanded off and new marking applied (better grade, newer date code)	Surface texture, fonts and logo, solvent test, decapsulation
Blacktopped	Original marking covered with a coating, then remarked	Solvent and scrape tests, surface texture
Out-of-spec / defective	Chips that failed factory test, sold as good	Electrical testing
Cloned	Unauthorized copies of the design	Decapsulation, electrical testing
Overproduced	Genuine design made beyond the contracted quantity	Traceability; hard to detect physically
Forged documents	Fake certificates of conformance or test reports	Verify documents with the issuer

Which lab test finds what

Lab test	What it checks	Destroys part?	SAE AS6171
External visual	Marking, surface texture, leads, dimensions	No	AS6171/2
Solvent & scrape	Whether marking or surface was added later	Yes (samples)	AS6171/2
X-ray	Die size/position, bond wires, lead frame vs known-good	No	AS6171/5
XRF	Elements in the lead finish (e.g. lead in a “lead-free” part)	No	AS6171/3
Acoustic microscopy	Delamination, voids, cracks, signs of resurfacing	No	AS6171/6
Decapsulation	Die markings, manufacturer logo, die revision	Yes	AS6171/4
Electrical test	Behaviour against the datasheet; downgraded parts	Usually no	Required

When is lab testing worth paying for?
When a failure would cost far more than the test: open-market parts for a production run, obsolete or hard-to-find parts, high-value chips (FPGAs, processors), and parts for medical, automotive or industrial products. For a few low-cost prototype parts, visual inspection is usually enough.

Old date code? Not a red flag by itself: over 98% of parts stored 15–20 years in moisture-barrier bags still met J-STD-002 solderability (Rochester Electronics study). A date code that does not fit the part’s production history is.

Remember: no single test, and no amount of testing, proves a part is authentic (SAE International). A traceable source and a supplier warranty cover what testing cannot.

HOW INFORMIC CHECKS EVERY LOT

Every incoming lot is inspected before it ships: labels, marking, surface, leads and package under a microscope; independent Shenzhen labs such as White Horse Labs on request. You get photos of the inspected parts and the packed box before dispatch. Warranty: 3 years (international brands) / 1 year (Chinese brands).

Send your BOM: electroniccomponent.com/upload-bom · reply within 24 hours
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Based on SAE AS6171, SAE AS6081A, NASA GSFC solvent-test evaluation and the Rochester Electronics storage study. Full guide with sources: electroniccomponent.com/how-to-spot-counterfeit-ics