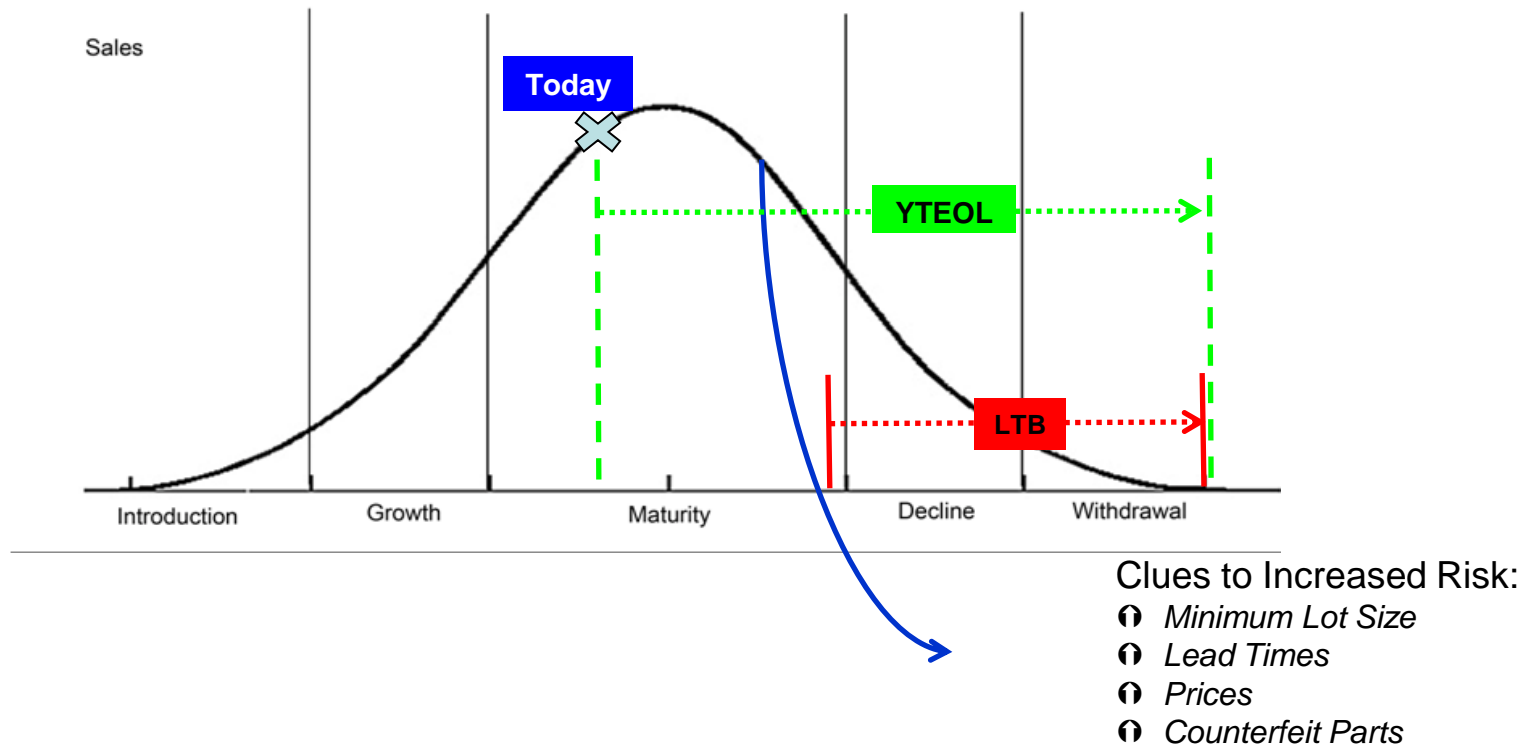


(per EIA-724)

- When will a part become obsolete?
- What alternatives are available?
- How it will affect your product cost?



Manual methods are difficult...

Part Detail

	Client Input Data	Q-Star™ Matched Data
Item Ref		N/A
In House PN		N/A
Mfr PN	JM38510R75203SDA	JM38510R75203SDA
Mfr	National Semiconductor	NSC
CAGE Code		27014
Spec		
Screening Level		M38510S
Part Type		Semiconductor Component
Description		AND GATE, 2-INPUT, QUAD
NSN		N/A
Qty	1	N/A

Q-Star™ Alerts Issued for JM38510R75203SDA

Date Issued	Mfr PN	Spec	Mfr	Alert Type	Life Time Buy
6/21/2008	JM38510R75203SDA		<u>NSC</u>	Not in Production	
3/28/2008	JM38510R75203SDA		<u>NSC</u>	Part Re-instated	
3/28/2008	JM38510R75203SDA		<u>NSC</u>	Life Time Buy	6/20/2008
3/1/2008	JM38510R75203SDA		<u>NSC</u>	Not in Production	
2/20/2008	JM38510R75203SDA		<u>NSC</u>	Life Time Buy Extended	2/29/2008
12/11/2007	JM38510R75203SDA		<u>NSC</u>	Part Re-instated	
12/11/2007	JM38510R75203SDA		<u>NSC</u>	Life Time Buy	3/21/2008
8/2/2007	JM38510R75203SDA		<u>NSC</u>	Not in Production	
8/4/2006	JM38510R75203SDA		<u>NSC</u>	Life Time Buy	8/1/2007
9/2/2005	JM38510R75203SDA		<u>NSC</u>	Part Re-instated	
8/17/2005	JM38510R75203SDA		<u>NSC</u>	Life Time Buy While Supplies Last	

Note: A bracket on the left side of the table spans from 8/17/2005 to 6/21/2008, labeled "34 mos".

End-of-life revenues often represent over 50% of the total program volume and a high percentage of profits

Date	Status	LTB Expiration
Aug	In Production	
Sep		
Oct		
Nov		
Dec		
2006		
Jan		
Feb		
Mar		
Apr		
May		
Jun		
Jul		
4-Aug		1-Aug-07
Sep	Life Time Buy	
Oct		
Nov		
Dec		
2007		
Jan		
Feb		
Mar		
Apr		
May		
Jun		
Jul		
2-Aug	Not in Production	
Sep		
Oct		
Nov		
11-Dec	Part Re-instated	
11-Dec		21-Mar-08
2008	Life Time Buy	
Jan		
20-Feb	Life Time Buy Extended	29-Feb-08
1-Mar	Not in Production	
28-Mar	Part Re-instated	
28-Mar		20-Jun-08
Apr	Life Time Buy	
May		
21-Jun	Not in Production	
Jul		
Aug		
Sep		
Oct		
Nov		
Dec		
2009	Discontinued w/Alternates	
Jan		
Feb		
Currently		

In Production

- Unit Price: \$56.10

Not in Production

- New Unit Price: \$168.30

Delay Costs

- Escalation: \$112.20 per unit
- 300% increase

- How many parts per year experience this scenario?
- What is the cost to redesign?

Table D-2. Resolution NRE Cost Metrics (FY11)

Resolution type	90% confidence (left limit)	Mean	90% confidence (right limit)	Weeks to resolve (average)
Reclamation	\$1,000	\$20,000	\$39,000	12
Alternate source ^a	\$0	\$41,000	\$92,000	11
Administrative substitute	\$1,000	\$3,000	\$5,000	4
Desktop substitute	\$0	\$5,000	\$10,000	8
Normal substitute	\$22,000	\$34,000	\$46,000	25
Complex substitute	\$122,000	\$432,000	\$724,000	40
Emulation ^b	\$29,000	\$73,000	\$117,000	26
Aftermarket manufacturing	\$0	\$33,000	\$58,000	21
Redesign–COTS product	\$82,000	\$1,118,000	\$2,154,000	42
Redesign–Custom part ^c	\$542,000	\$1,094,000	\$1,646,000	61
Redesign–PNHA	\$654,000	\$1,010,000	\$1,366,000	64

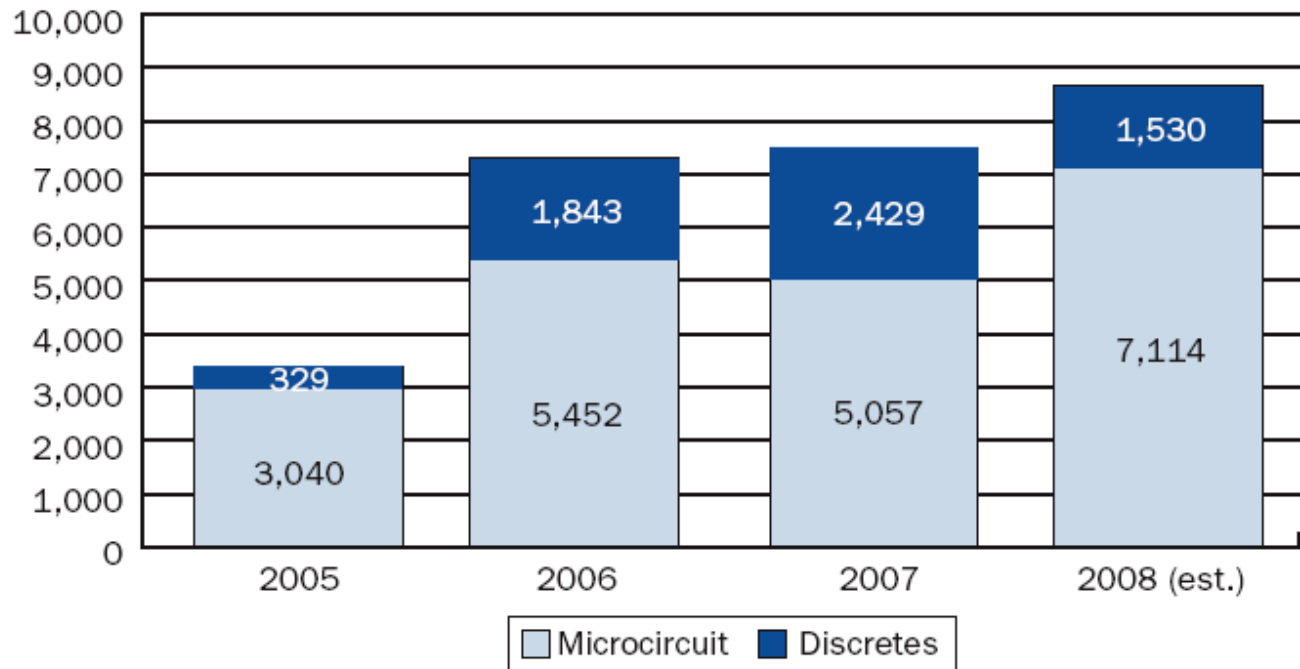
Based on DOC survey of military & contractors for 2007 – 2009 reported values

How Bad is it?

- “Semiconductor Industry Association estimates counterfeits cost US Semiconductor companies \$7.5B in lost revenue & 11,000 US jobs.”
- “A 2002 CBP press release contained an estimate that U.S. businesses and industries lose \$200 billion a year in revenue and 750,000 jobs due to counterfeits of merchandise;”
- “The Motor and Equipment Manufacturers Association reported an estimate that the U.S. automotive parts industry has lost \$3 billion in sales due to counterfeit goods.”
- Government will no longer reimburse for repair, contract is at risk, & can be disbarred. E.G. Lockheed \$2.1M Missile Contract Penalty
- Incalculable legal risk and resulting financial penalty

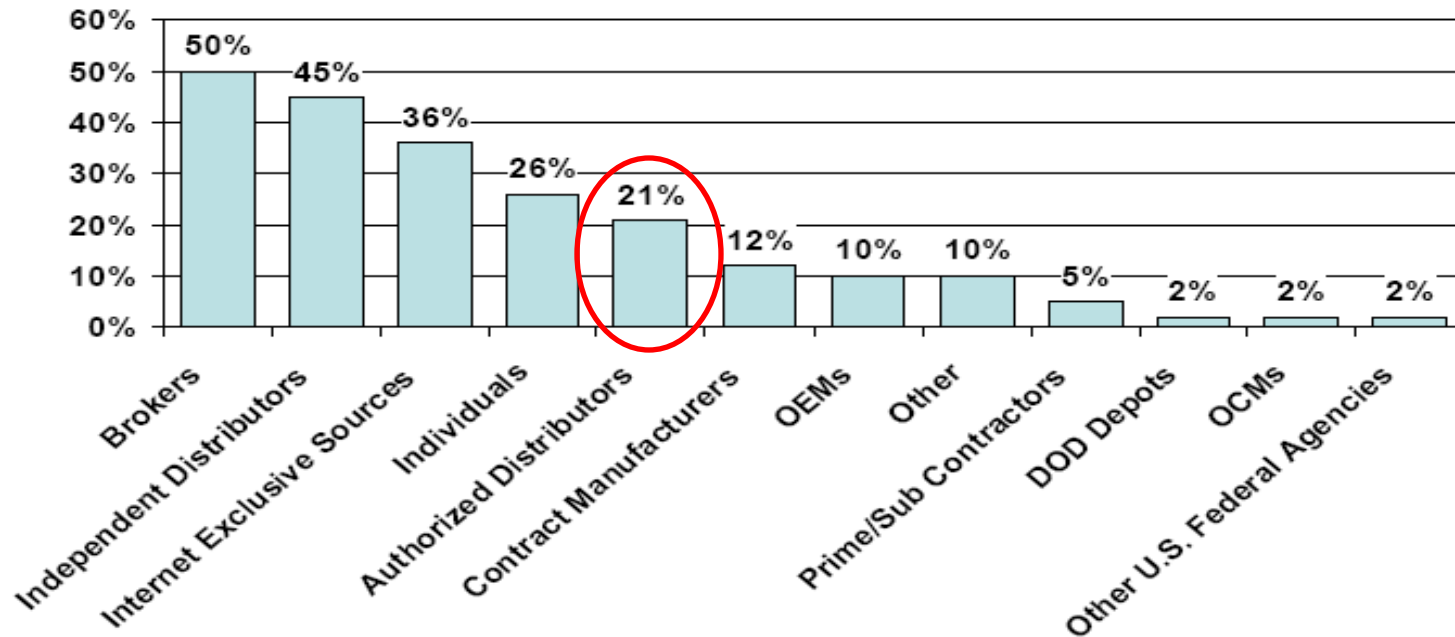
- 5/21/2012 – DOD Electronics Supply Chain Counterfeit Study – over 1 million parts, 2009 & 2010.
- DOC reported counterfeit incidents ...from 3,868 to 9,356 cases in automobile airbags, defibrillators, and military equipment.
- 11/2007 – 5/2010, Customs seized 5.6 million counterfeit microprocessors destined for military contractors and commercial aviation.
- 2009, Customs seized over \$30 million in counterfeit medical products, including pharmaceuticals, personal care products, electronic components, and power systems.
- 3,228 shipments of semiconductors that were not seized made their way into the U.S. electronics supply chain through sales VisionTech made to more than 1,100 buyers in virtually every industry sector.
- FDA reported that intra-aortic pumps worth \$7M were recalled after malfunctioning components were found to be counterfeit.

**Figure 1: Increase in the Rate of Total Counterfeit Incidents at OCMs
(DOC Study, Figure II-4 Total Counterfeit Incidents – OCMs [2005 – 2008])¹⁹**



Source: The U.S. Department of Commerce, Office of Technology Evaluation, *Counterfeit Electronics Survey*, November 2009

No Single Source is a Safe one...



* Only includes companies who encountered counterfeits

Source: U.S. Department of Commerce, Office of Technology Evaluation, *Counterfeit Electronics Survey*, November 2009.

21% of affected OCMs identified authorized distributors as having sold counterfeit parts

- THAAD computer system in Ballistic Missile System
- 2006 – Purchases 1,700 flash memory from Hyper Tech in Florida no longer in production – Independent distributor
- 50 in the field and a failure (internal test?) occurred
- 2010 – Stock sent for testing & found counterfeit
- “Detection opportunities missed” & “process gaps”
- \$1.94M repair cost

Case Study: Fortune 200 – C130 Aircraft

- Memory chip in display units – health condition of aircraft
- Supply to Military Prime – Global F500
- 1 Field failure – May 2010. Already in 400 units
- Supply chain – 2009 - Hong Dark to Global ITC Trading to Prime
 - 2 tested & passed. Prime did not know Hong Dark had prior counterfeit incident
- Prime noticed high failure rate (141) internally November 2010 Sent parts for testing – determined counterfeit – Samsung agreed
- December 2010– Letter to customers about counterfeit but no recommendation for return. Supplier did not formally notify Air force
- 6 Month Monitoring Project data from 10/2010 to 3/2011 – multiple failures. Total elapsed time: 10 months
- 11/2011 – Samples from 20 Lots tested – All but 2 pieces counterfeit
- 84,000 Components from Hong Dark supplied to numerous manufacturers.

Case Study: Government Agency

- Supplies 80% of military spare parts & electronic supply chain
- Uses GIDEP & Product Quality Deficiency reports
- As of 2/2011 – No list of identified or suspect counterfeit parts
- When reported, testing occurs. Rarely issued GIDEP alerts
- Testing center records of 202 suspect parts from 93 companies
 - 37 provided suspect parts on more than 1 occasion
- Only 36 of 93 companies reported to Defense Contractor Review list as of 2/2012
 - Only 19 of the repeat offenders on the list
 - Some reported more than a year later
- Hundreds of weapons systems including nuclear applications
- Qualified Suppliers List of Distributors – In 2011, only 52% of awards for semiconductors & microcircuits