

## **1 in 3 Laptops fail over 3 years: Netbooks fail 20% more than laptops; ASUS & Toshiba the most reliable**

**Synopsis:** SquareTrade analyzed failure rates for over 30,000 new laptop computers covered by SquareTrade Laptop Warranty plans and found that one-third of all laptops will fail within 3 years.

**Highlights of the study include:**

- *Looking at the first 3 years of ownership, 31% of laptop owners reported a failure to SquareTrade. Two-thirds of this failure (20.4%) came from hardware malfunctions, and one-third (10.6%) was reported as accidental damage.*
- *Netbooks are projected to have a 20% higher failure rate from hardware malfunctions than more expensive laptop computers.*
- *ASUS and Toshiba were the most reliable manufacturers, with fewer than 16% having a hardware malfunction over 3 years.*

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For media inquiries, write or call Dan Wire at [dan.wire@hornsgroup.com](mailto:dan.wire@hornsgroup.com) or (415) 685-3132.

**Prepared by:**  
Austin Sands & Vince Tseng  
SquareTrade, Inc.  
[www.squaretrade.com](http://www.squaretrade.com)  
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## Introduction: Laptop & Netbook reliability

Many consumers looking to buy electronics for their home and family will be looking at netbook computers this holiday season. Affordable and convenient, these smaller cousins of the standard laptop computer are the perfect gift for individuals who are constantly on the go. While early netbook models typically sacrificed essential functionality and components such as large hard drives and optical drives, by 2009 netbooks have achieved a feature-set maturity that has allowed them to fully compete with low-end notebook computers. Laptops have historically been among the most popular electronics gifts, and this year the netbook is especially attractive to shoppers operating on tight budgets looking for an inexpensive way to replace an aging computer.

In this laptop reliability report, SquareTrade examines the different aspects of laptop and netbook reliability. We start with an overview of laptop hardware failure rates, as well as failures caused by accidents. We then compare netbook failure rates to more expensive laptops and evaluate the relative reliability of several leading laptop brands.

This analysis examines customer reported failure data from a sample of over 30,000 new laptops purchased by SquareTrade customers over the past three years (see Appendix for sample details). SquareTrade offers warranty plans that cover accidental damage as well as standard hardware failures, and we consider malfunctions from normal usage (“malfunctions”) separate from accidents (“accidents”) in our analysis. We refer to “total failure rate” as the sum of failure rates due to malfunctions and accidents.

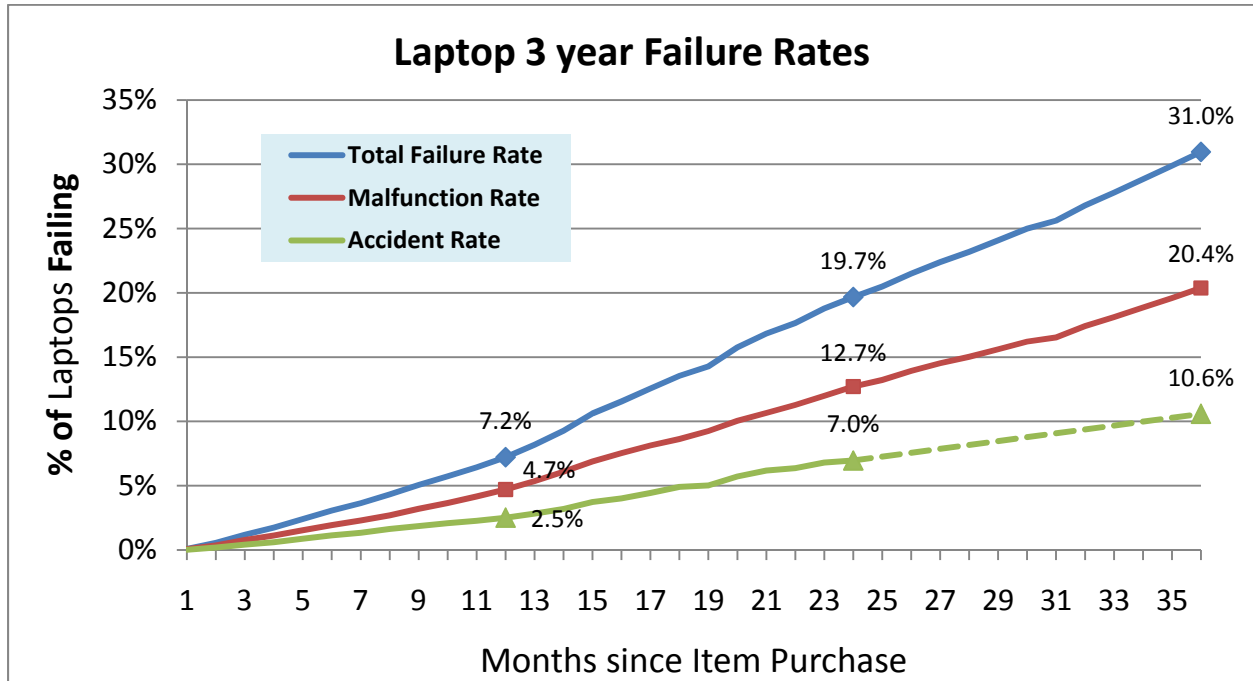
Among our conclusions, we find that the average total failure rate of laptops to be 31% over 3 years. While netbooks appear to malfunction slightly more than laptops, the lack of data on netbooks over a year old means that the results are far from conclusive. In terms of brands, ASUS & Toshiba stood out as the most reliable manufacturers; while Acer, Gateway & HP had failure rates significantly higher than the average.

Now let's delve into the data and take a look at the numbers.

## 1 in 3 laptops fail over 3 years

We first examine the total failure rate of all laptops together. In Figure 1, we show malfunctions, accidents, and the total failure rate:

Figure 1. Malfunctions, accidents, and total laptop failure rates over 3 years.



The malfunction rate alone exceeds 20% at the 3 year mark. There is also a notable acceleration of malfunctions in the second and third years. While fewer than 5% of laptops failed from malfunctions in the first year, an additional 8% fail in each subsequent year. Accidents cause a further 11% of laptops to break over 3 years<sup>i</sup>, making the total failure rate nearly one-third of all units.

In SquareTrade's experience, the 31% laptop total failure rate is higher than most consumer electronics. This comes as no surprise, given that laptops contain far more sophisticated mechanical and delicate electronic components than most other electronic devices. Keyboards, pointer devices, media drives and hard drives are all mechanical components that increasingly wear out when subjected to heavy use, while motherboard circuitry, memory and wireless devices are sensitive to heat and environmental factors.

Given that the typical laptop endures more use and abuse than nearly any other consumer electronic device (with the possible exception of cell phones), it is not surprising to see such high failure rates.

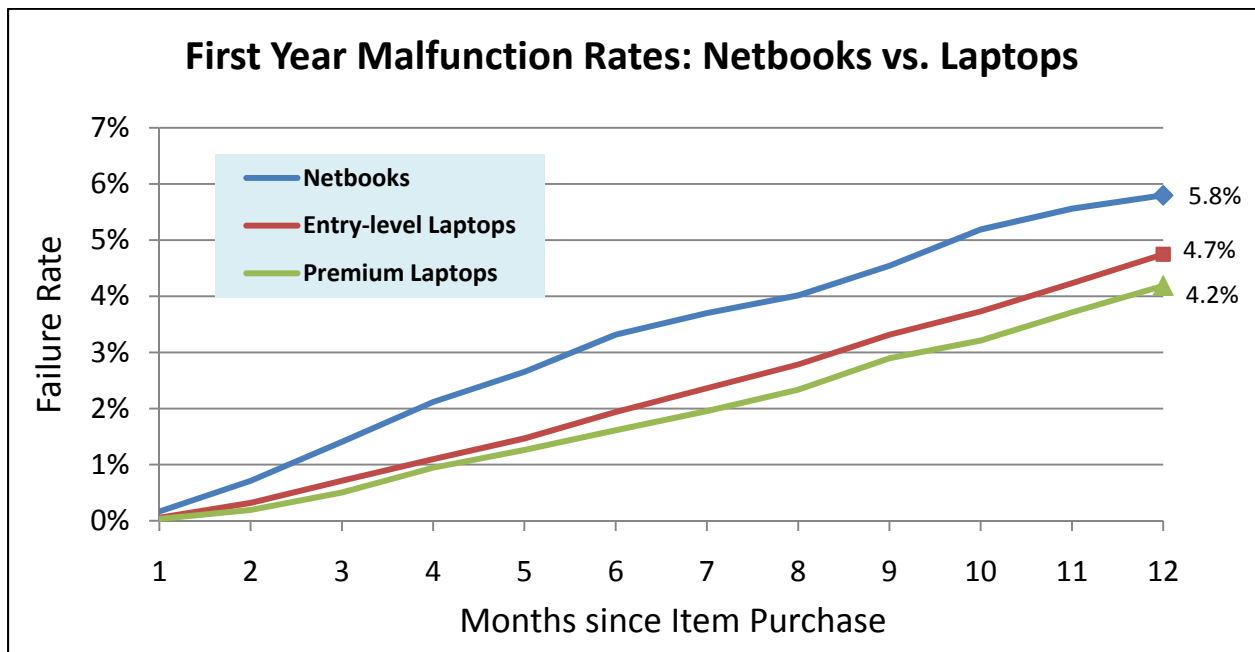
We next turn our attention to the relative reliability of Netbooks.

## One year in – netbooks fail 20% more often than laptops.

We next turn our attention to netbook reliability, relative to that of entry-level and premium laptops. There is no exact definition for netbooks, aside from “cheap and light laptops”, and the definition has changed over the past 18 months as the devices have evolved. For the purposes of this study, we have defined netbooks as laptops purchased for less than \$400, as that has been the traditional retail boundary for netbooks. We define entry-level laptops as those between \$400 and \$1000, and premium laptops as anything purchased for over \$1000.

Although first introduced in late 2007 when ASUS released the first Eee PC, netbooks did not sell in significant volumes until Q4 of 2008, when they began to exceed 10% of the total laptop market<sup>ii</sup>. Consequently, we only have 1 year of significant data for netbooks, as shown in Figure 3:

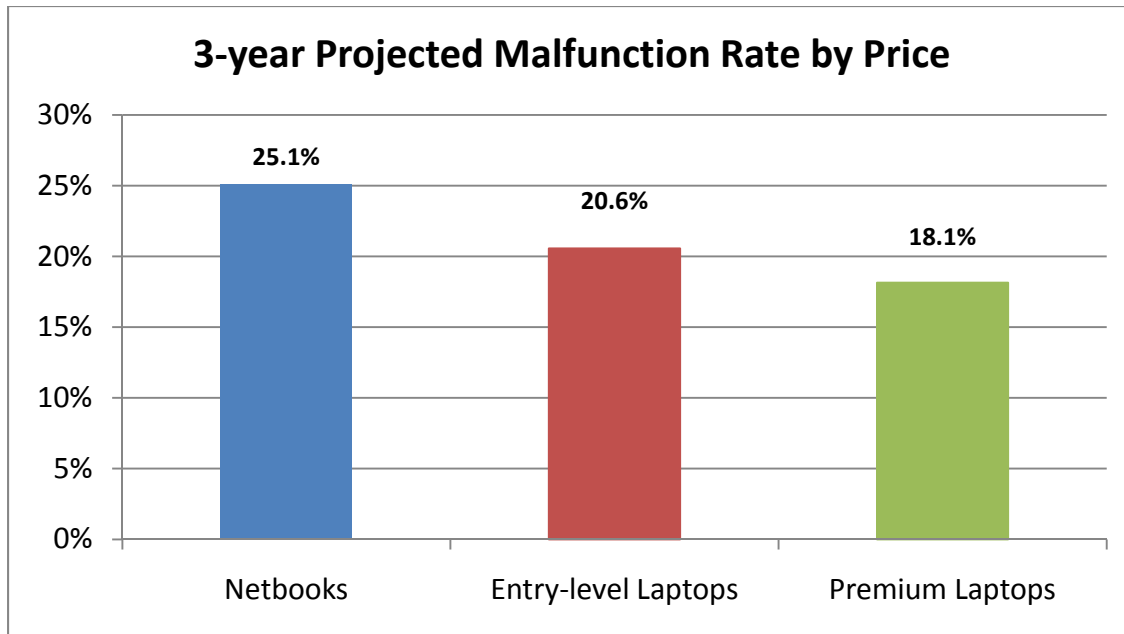
Figure 3. Relative occurrence of laptop malfunctions in the first year.



We find 5.8% of netbooks to have a malfunction in the first 12 months, over 20% more than entry-level laptops and nearly 40% more than premium laptops. Note that this data excludes failures from accidents.

Using our overall 3 year trends shown in Figure 1 as a forecasting guideline, we show a rough estimate of failure rates at the 3 year mark in Figure 4:

Figure 4. Forecast 3 year malfunction rates, by laptop category.



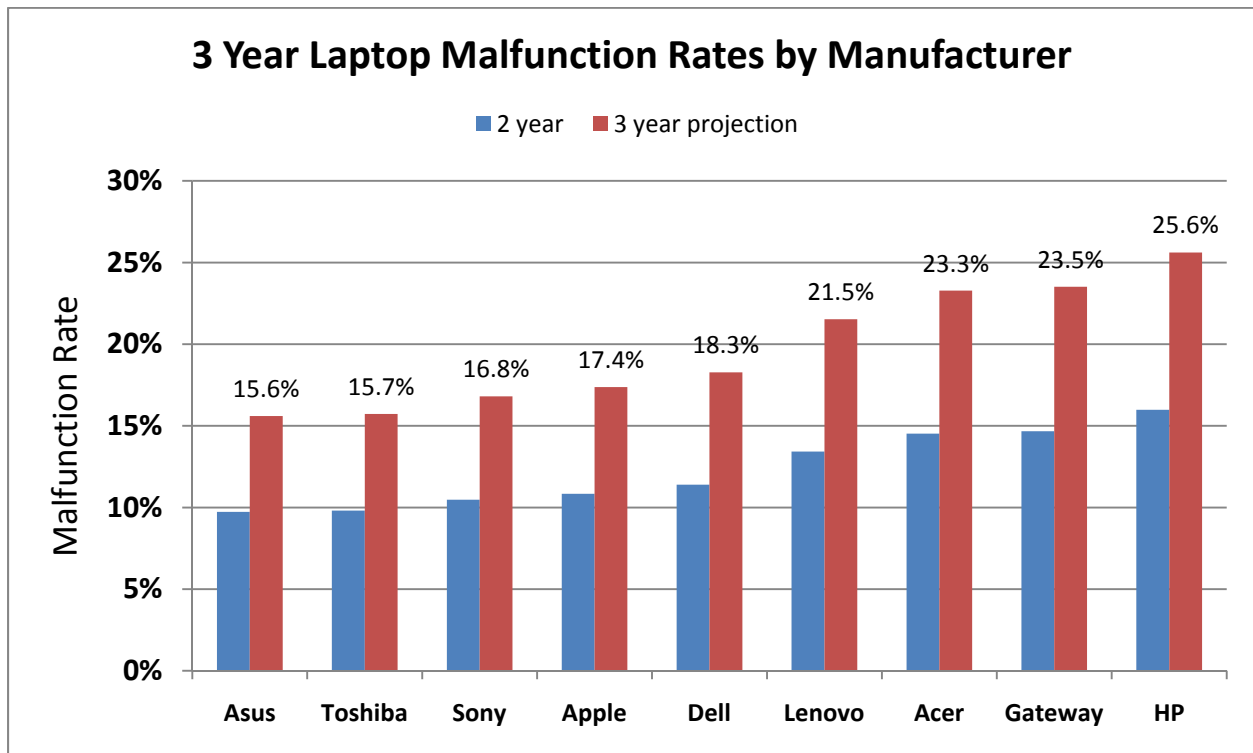
In this rough projection, we expect netbooks to have a 25.1% malfunction rate, entry-level laptops to have a rate of 20.6%, and premium laptops to have the lowest rate at 18.1%.

To many consumers, an extra 1 in 20 chance of having a netbook fail is probably not going to be a deal breaker, as there are many factors other than reliability that should be considered. But it is something to think about, especially given the lack of concrete data on netbook reliability beyond the first 12 months.

## ASUS and Toshiba, reliability winners

We next turn our attention to the relative reliability of different laptop manufacturers. Our study data includes 9 brands with a minimum of 1000 units, which is enough to give us a statistically significant look at the 2 year failure rates. Figure 5 shows the 3 year forecasted malfunction rates for the 9 brands (excluding accidental damage):

Figure 5. Laptop reliability, by manufacturer.



ASUS and Toshiba come out on top. With 3 year malfunction rates forecast to be under 16%, laptops from these two manufacturers are nearly 40% more reliable than Hewlett-Packard, the worst performer in our study. Sony and Apple also performed better than the average.

The industry leader HP, which shipped nearly 16 million laptops in the past year according to IDC<sup>iii</sup>, ranked dead last in our reliability study with over one-fourth of laptops expected to malfunction in 3 years. Gateway and Acer, the #2 maker of laptops, were also nearly as unreliable as HP, with an expected malfunction rate of over 23%.

## Conclusions on laptop reliability

Given the high overall failure rates of laptops and sizeable difference in reliability by brand, reliability should be a concern for consumers shopping around for the best holiday deals.

While our study found netbook malfunction rates to be trending 20% higher than more expensive laptops, the variance between manufacturer is far greater and should be a bigger factor in making a buying decision. ASUS and Toshiba laptops failed just over half as frequently as HP, which makes them a solid bet in terms of reliability.

Given that netbooks have only really been around in volume for about 12 months, it will be interesting to see how their reliability plays out over the course of the next 12 months. SquareTrade will continue to monitor the progress and publish an update of laptop and netbook failure rates in 2010.

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## Appendix: Notes about the Data and Methodology Used

SquareTrade randomly selected over 30,000 laptop and netbook computers for this analysis. We included only items that were purchased brand new (i.e. not refurbished or used).

The following disclaimers apply to our data and analysis:

- As there is no sharp line that divides the definition of a netbook and laptop computer, SquareTrade has used the price point of under \$400 to define the netbook category in this analysis.
- Only malfunctions reported directly to SquareTrade are included in the data. Other malfunctions, including software issues handled directly by the retailer, problems associated with product recalls, and those fixed by software/firmware updates, may not be represented in this data.
- We did not take into consideration purchase location.

### Limitations:

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### References

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<sup>i</sup> 3 Year laptop accident rates are based on projections from 2 years of accidental damage data using a straight-line projection.

<sup>ii</sup> See “Consumer Behavior Report: Netbook Trends and Solid State Technology Forecast.” PriceGrabber, January 2009. [https://mr.pricegrabber.com/Netbook Trends and SolidState Technology January 2009 CBR.pdf](https://mr.pricegrabber.com/Netbook_Trends_and_SolidState_Technology_January_2009_CBR.pdf)

<sup>iii</sup> Oct 15, 2009. <http://www.allbusiness.com/company-activities-management/financial-performance/13226249-1.html>