Probe Card
Manager Option

Is probe card management just one more headache?

Probe cards are expensive and keeping track of them is time consuming. Ineffective card management methods like paper records can be very costly in terms of lost production due to unplanned tool shutdowns, invalid data from misprobing, troubleshooting time, and unnecessary preventive maintenance service. Keithley's Probe Card Manager (PCM) hardware/software package automates managing probe card inventories. Designed for S600 Series testers running the Keithley Test Environment (Version 4.2 or higher), the PCM option can be specified for new cards and testers or retro-fit on existing ones.

Wish there was an easier way to track preventive maintenance?

An EEPROM device attached to each probe card lets the tester identify individual cards and count probe touchdowns. It's simple to track each card independently because all ID information and touchdown counts are stored on this on-board chip. One counter tracks touchdowns during the current maintenance cycle; a second one records the card's lifetime touchdown count. The Probe Card Manager software running on the tester queries and updates the probe card information and saves it on the EEPROM. This information travels with the card when it is time to swap it out for a different type or remove it for cleaning, realignment, or other preventive maintenance. Using supplied software, the tester can be programmed to query a probe card automatically before starting a test plan, then stop test initiation if the wrong probe card is being used for the test plan or the probe card requires maintenance. In this way, the PCM package minimizes unplanned tool downtime and the cost of re-probing. The information it provides simplifies tailoring the card's PM schedule to the type of process or test plan. It also eliminates the cost of pulling the card out of service prematurely.

How much can Keithley's Probe Card Manager save you?

Many factors will affect your actual savings, including the number of testers and unplanned shutdowns you have now, your processes and test recipes, the cost and frequency of preventive maintenance, and the size of your probe card inventory. However, an early adopter of the package has estimated that PCM will save them more than $600,000 per year by eliminating unplanned tool downtime, foregoing unnecessary preventive maintenance, and improving tester utilization.

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PCM and S600–The Solution to your Probe Card Management Challenges

Challenge:

"Usually, the only way I can tell that a card needs to be pulled for preventive maintenance (PM) is when the test yield starts dropping. How can PCM help me keep my testers running?"

Solution:

PCM offers you the most powerful APT tool of all–information. By allowing you to schedule card changes for preventive maintenance during planned tool downtimes, PCM puts you in control of your card inventory and allows higher tool utilization. Using supplied software, APT systems can be programmed to detect automatically if the probe card needs preventive maintenance, before wafers are measured, based on customized criteria for each probe card. There's no time wasted trying to distinguish between failures due to process problems and those resulting from a card that is overdue for preventive maintenance or repair.

Challenge:

"We use both aluminum and copper processes in our fab. Can PCM help me make sure the probe cards for each are being maintained properly?"

Solution:

Copper test structures are tough on probe cards–you'll need to plan for more frequent preventive maintenance for probe tip cleaning and alignment. With PCM, you can assign different maintenance cycles for cards used for different processes–that way, you won't risk tool shutdowns or pay for unnecessary maintenance services. Also, PCM can help you avoid serious cross-contamination problems by preventing a probe card for copper wafers from being used on aluminum wafers.

Challenge:

"I'm trying to manage an inventory of about 150 probe cards with paper records. How can PCM help me?"

Solution:

Updating paper maintenance records is subject to human error and extremely time-consuming, particularly with large numbers of probe cards. Paper records can't prevent operators from loading the wrong card inadvertently. The Keithley Probe Card Manager can. PCM gives you the information you need to ensure your operators are loading the right card on the right prober running the right recipe, particularly when it's used with the Keithley Recipe Manager option (KRM). Just as important, it gives your operators a "heads up" when it's time to pull the probe card out of service for preventive maintenance–your test results won't be compromised by a dirty or out-of-alignment probe card.

Challenge:

"My fab has standardized on a single probe card configuration, so they all look alike. Can PCM identify which cards are ready to use and which ones need preventive maintenance?"

Solution:

The chip mounted on each probe card stores information on the card's model number, type, and serial number. It also stores its leakage limits, two touchdown counters, and a user comment field you can use to record other desired information, such as the date of last repair, etc. Similar-looking probe cards look unique to PCM, so this on-board ID lets you track and manage each probe card independently.
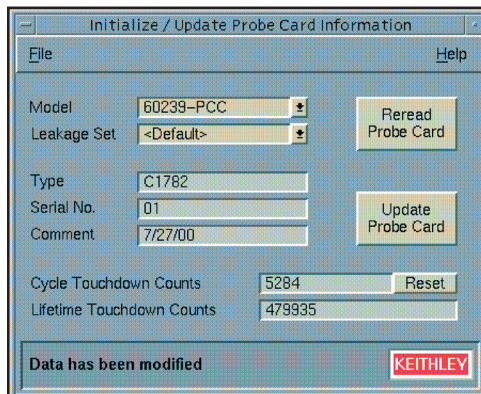
PCM's probe card initialization tool makes it easy to view and update the information stored on the probe card's on-board EEPROM.

MINIMIZES UNPLANNED TOOL DOWNTIME

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