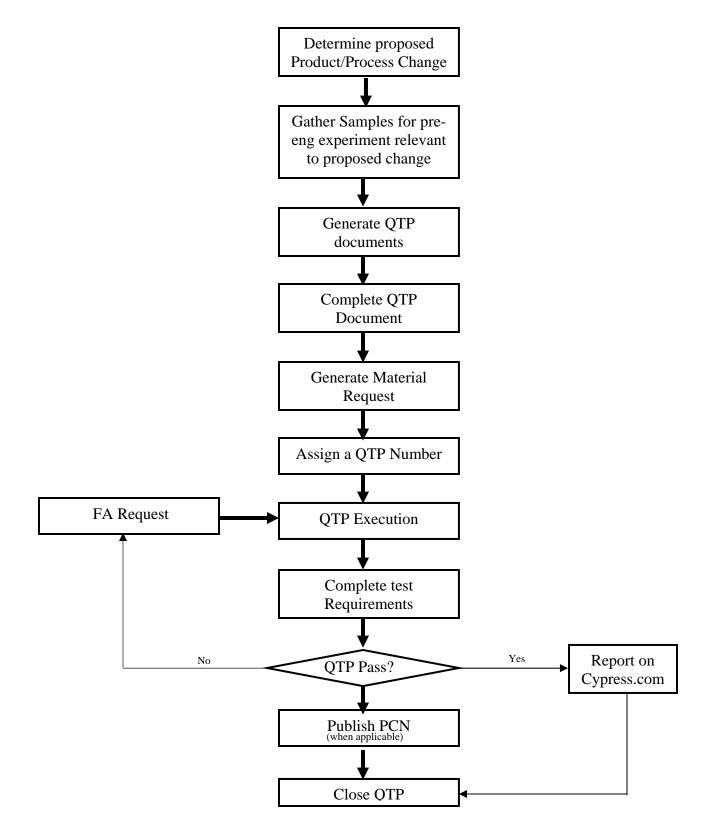


## **QUALIFICATION PROCESS FLOW**



QTP = Qualification Test Plan FA = Failure Analysis PCN = Product Change Notification



## **STRESS TESTS**

Technology, Process and Design	
Electromigration	Wafer Level Reliability testing the reliability of metal interconnects at high temperature and high current conditions over extended periods of time.
Hot Carrier Integrity (HCI)	To determine the robustness against hot carrier degradation both at the transistor level and product level. On the transistor level the gate oxide integrity in tested over extended period of time under DC stress. Low Temperature Operating Life (LTOL) studies are done to monitor HCI on a product level.
Gate Oxide Integrity	Determine the gate oxide integrity (dielectric breakdown) at high temperature conditions over extended periods of time at maximum operating voltage.
Design For Test (DFT)	Ensure that new product designs incorporate testability features such as scan, that allow a high (99.5%) degree of fault coverage at final test.
Negative Bias Temperature Instability (NBTI)	Wafer Level Reliability testing the reliability of PFET device integrity (low and high voltage) at high temperature conditions over extended periods of time under AC stress.
Product Qualification & Launch	
Early Life	To determine the reliability of devices under operation at high temperature conditions over a period corresponding to one year in the field. Also known as "infant mortality."
Long Term Life	To determine the reliability of devices under operation at high temperature conditions over an extended period of time corresponding to ten years in the field.
Electrostatic Discharge (ESD)	To establish a product's sensitivity to electrostatic discharge.
Latch-up	To assess a product's resistance to extreme voltage and current excursions.
Characterization	Comprehensive Product Characterization against Data Sheet Specifications.
Temperature Cycle	To determine the resistance of a part to high and low temperature extremes; as well as its ability to withstand cyclical stresses.
Highly Accelerated Stress Test (HAST)	To accelerate corrosion, particularly that of the die metal lines and thin film resistors on the die surface.
Pressure Cooker Test (PCT)	To assess the ability of a product to withstand severe temperature and humidity conditions; used primarily to accelerate corrosion in the metal parts of the product .
Production	
Reliability Monitoring	A program designed to validate the reliability of a product through its life cycle.