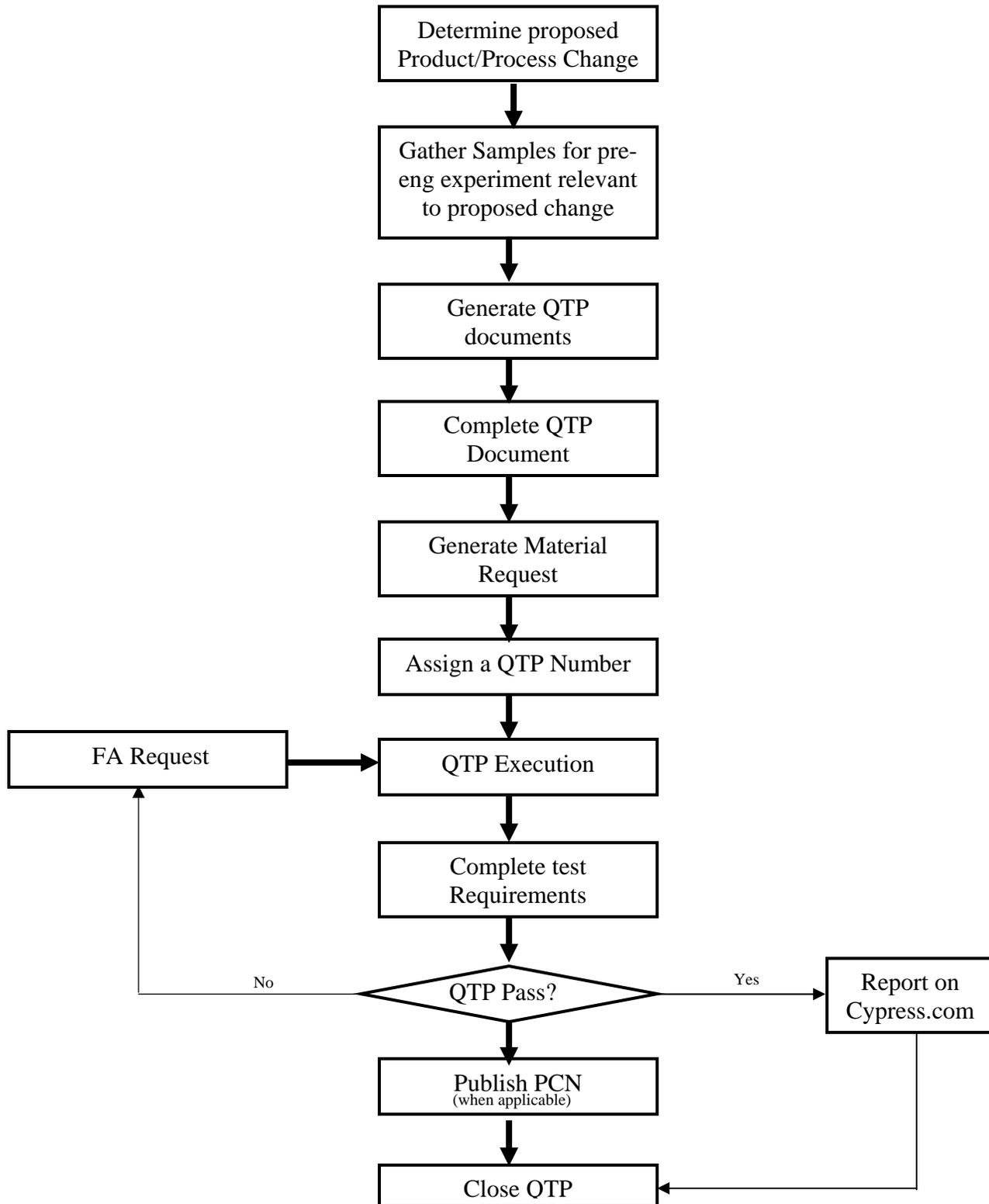




QUALIFICATION PROCESS FLOW



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



STRESS TESTS

Technology, Process and Design

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| 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 is 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

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| 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

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| Reliability Monitoring | A program designed to validate the reliability of a product through its life cycle. |
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