Part Acceptance

This section describes a process for part acceptance. Here is a flow chart of the process.

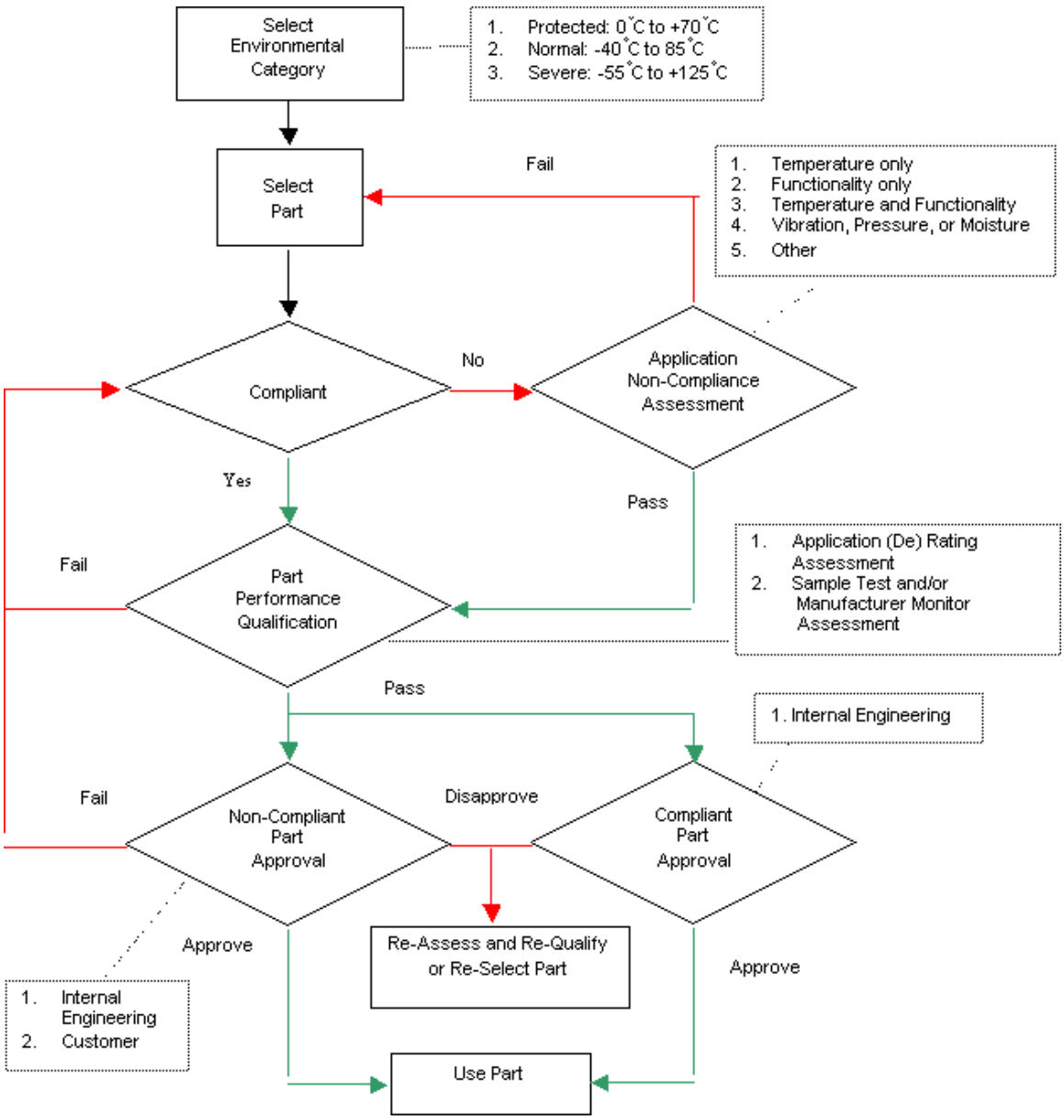

Figure 1. Part Acceptance Flow Chart

a. Select one of the three environmental categories (Protected, Normal or Severe) that best fits the application environmental requirement.

b. Select parts for the required application and environment.

c. Decide if the part is environmentally (temperature limits, vibration, pressure, moisture, etc.) and electrically compliant, and reliable for the application.

d. If the selected part is non-compliant according to the manufacturer's specifications, assess the non-compliance(s) in light of the application requirements. Examples of possible non-compliances are the part's temperature limits, functionality, and EMI, vibration, pressure, moisture and salt resistance. If the part fails the assessment, re-select another part. If the part passes the assessment, perform part qualification.

e. Qualification is an acceptance of a manufacturer's part and its process control. All parts should be qualified. There are a number of ways to qualify a part for an application. When performing part qualification, a customer should sample test-assess, not 100% screen. If a customer needs to 100% screen the part, this implies the part or process is not controlled well enough. Examples are:

1. Monitor the part manufacturer and review data. This can be accomplished by monitoring the manufacturer website and freely sharing data/ information with other system manufacturers. If the part is compliant to the application, this may be all that is needed. If the part is non-compliant to the application, an assessment of the non-compliance will also be needed, as a minimum.

2. Use QML parts. QML parts should not need further qualification than provided by the part manufacturer; that is, if the correct QML level is selected for the application.

3. Non-military parts that meet the application requirements should need no further testing beyond what the part manufacturer performs for qualification. It is suggested the part manufacturer be monitored, as a minimum, as noted in "a." above. Additional

reliability testing may be needed for new package styles or certain critical applications.

4. Non-compliant selected parts that pass the application non-compliance assessment may only need the assessment for the parts qualification.

5. Some applications require ESS (environmental stress testing). This is usually performed at the board or power supply level. ESS tests are usually a combination of thermal shock and vibration. ESS does not take the place of a non-compliance assessment but may for a part qualification.

f. The compliant part, or the part that passes the non-compliance assessment and passes the part qualification, then goes to part approval. An application compliant part should only need approval of the internal engineering department. A non-compliant part that passes the non-compliance assessment and part qualification should get approval from internal engineering, the customer (OEM), and, if used in a critical application, the application's Program Office representative. In addition, the part manufacturer's opinion is important and should be solicited, especially for critical applications. Disapproved parts should be re-assessed, re-qualified or re-selected. Approved parts can be used in the application.

Note: Non-military parts acceptance is a one-time-only acceptance. They should go through the parts acceptance process every time they are selected or re-selected for an application and any future procurements.