

General Standards Corporation

High Performance Bus Interface Solutions

MTBF (Mean Time Between Failures)

MTBF information for various General Standards products is included below. If you do not see the product you are interested in, please contact the factory.

PCIe-SIO4BX2-SYNC:

Failure rate: (FPMH) = 1,383.364130

MTBF = 722,875

Ambient temp: 30 C

Calculated at MIL-HDBK-217F

Environment: Ground Benign

VME-SIO4A:

Failure rate: (FPMH) = .457743

MTBF = 2,184,631 hrs

Ambient temp: 30 C

Calculated at MIL-HDBK-217F

Environment: Ground Benign

CPCI3U64-HVDO16MI:

Failure rate: (FPMH) = 1.9855

MTBF = 5.0365E+05hrs

Ambient temp: 30 C

Calculated at MIL-HDBK-217F

Environment: Ground Benign

OPTO32:

Failure rate: (FPMH) = 2.6725

MTBF = 3.7418E+05hrs

Ambient temp: 30 C

Calculated at MIL-HDBK-217F

Environment: Ground Benign

CPCI6U64-HVDOTP16MI:

Failure rate: (FPMH) = 3.2526

MTBF = 3.0745E+05

Ambient temp: 30 C

Calculated at MIL-HDBK-217F

Environment: Ground Benign

CCPMC-16AI32SSA:

Failure rate: (FPMH) = 4.0571

MTBF = 2.4648E+05hrs

Ambient temp: 30 C

Calculated at MIL-HDBK-217F

Environment: Ground Benign

General Standards Corporation

8302A Whitesburg Drive · Huntsville, AL 35802

Phone: (256)880-8787 or (800)653-9970

FAX: (256)880-8788

Email: sales@generalstandards.com

General Standards Corporation

High Performance Bus Interface Solutions

PMC-SIO4BX-4KLC:

Failure rate: = 1,383.364130
MTBF = 722,855
Ambient temp: 30 C
Calculated at MIL-HDBK-217F
Environment: Ground Benign

24DSI16WRC:

Failure rate: (FPMH) = 3.8986
MTBF = 2.5650E+05hrs
Ambient temp: 30 C
Calculated at MIL-HDBK-217F
Environment: Ground Benign

cPCI6U64-24DSI20C500K:

Failure rate: (FPMH) = 2.8018
MTBF = 3.5692E+05hrs
Ambient temp: 30 C
Calculated at MIL-HDBK-217F
Environment: Ground Benign

16AO20:

Failure rate: (FPMH) = 4.0571
MTBF = 2.4648E+05hrs
Ambient temp: 30 C
Calculated at MIL-HDBK-217F
Environment: Ground Benign

PCI-HPDI32A-485-256K:

Failure rate: (FPMH) = 6.909599
MTBF = 144,726 hrs
Ambient temp: 25 C
Calculated at MIL-HDBK-217F
Environment: Ground Benign

66-16AI32SSC:

Failure rate: (FPMH) = 1.9114
MTBF = 5.2318E+05 hrs
Ambient temp: 30 C
Calculated at MIL-HDBK-217F
Environment: Ground Benign

CCPMC66-16AI32SSA:

Failure rate: (FPMH) = 2.6069
MTBF = 3.8359E+05 hrs
Ambient temp: 30 C
Calculated at MIL-HDBK-217F
Environment: Ground Benign

General Standards Corporation
8302A Whitesburg Drive · Huntsville, AL 35802
Phone: (256)880-8787 or (800)653-9970
FAX: (256)880-8788
Email: sales@generalstandards.com

General Standards Corporation

High Performance Bus Interface Solutions

CPCI6U64-16AIF16MIWR:

Failure rate: (FPMH) = 4.5330
MTBF = 2.2060E+05 hrs
Ambient temp: 30 C
Calculated at MIL-HDBK-217F
Environment: Ground Benign

CPCI6U64-16AISS8AO8MI:

Failure rate: (FPMH) = 4.3820
MTBF = 2.2821E+05 hrs
Ambient temp: 30 C
Calculated at MIL-HDBK-217F
Environment: Ground Benign

CPCI6U64-16AO16MI:

Failure rate: (FPMH) = 4.7935
MTBF = 2.0861E+05 hrs
Ambient temp: 30 C
Calculated at MIL-HDBK-217F
Environment: Ground Benign

CPCI6U-24DSI32R:

Failure rate: (FPMH) = 18.7050
MTBF = 5.3462E+04 hrs
Ambient temp: 30 C
Calculated at MIL-HDBK-217F
Environment: Ground Benign

PCI SIO8BXS:

Failure rate: (FPMH) = .545100
MTBF = 1.8340E+05 hrs
Ambient temp: 30 C
Calculated at MIL-HDBK-217F
Environment: Ground Benign

PCIe4 to PMC Adapter:

Failure rate: (FPMH) = 1.289234
MTBF = 775,654 hrs
Ambient temp: 30 C
Calculated at MIL-HDBK-217F
Environment: Ground Benign

PCIe4-PMC-1:

Failure rate: (FPMH) = 2.9641
MTBF = 3.3737E+05 hrs
Ambient temp: 30 C
Calculated at MIL-HDBK-217F
Environment: Ground Benign

General Standards Corporation

High Performance Bus Interface Solutions

PCIe-16AI64SSA-64-50M-50K:

Failure rate: (FPMH) = 7.3242
MTBF = 1.3653E+05 hrs
Ambient temp: 30 C
Calculated at MIL-HDBK-217F
Environment: Ground Benign

PCIe-16HSDI6:

Failure rate: (FPMH) = 2.1410
MTBF = 4.6708E+05hrs
Ambient temp: 30 C
Calculated at MIL-HDBK-217F
Environment: Ground Benign

PCIe to PMC Adapter:

Failure rate: (FPMH) = 1.8382
MTBF = 5.4401E+05 hrs
Ambient temp: 30 C
Calculated at MIL-HDBK-217F
Ground Benign

PCIe OPTO32C-12V-Contact:

Failure rate: (FPMH) = 2.6725
MTBF = 37,418 hrs
Ambient temp: 30 C
Calculated at MIL-HDBK-217F
Environment: Ground Benign

PMC66-16AO16-12-F100-DF-49.152Mhz:

Failure rate: (FPMH) = 4.6051
MTBF = 2.1715E+05 hrs
Ambient temp: 30 C
Calculated at MIL-HDBK-217F
Environment: Ground Benign

PMC66-16AISS8AO4:

Failure rate: (FPMH) = 4.4325
MTBF = 2.2560E+05 hrs
Ambient temp: 30 C
Calculated at MIL-HDBK-217F
Environment: Ground Benign

PMC66-SIO4BXR:

Failure rate: (FPMH) = 1.2317
MTBF = 8.1190E+05 hrs
Ambient temp: 30 C
Calculated at MIL-HDBK-217F
Environment: Ground Benign

General Standards Corporation
8302A Whitesburg Drive · Huntsville, AL 35802
Phone: (256)880-8787 or (800)653-9970
FAX: (256)880-8788
Email: sales@generalstandards.com

General Standards Corporation

High Performance Bus Interface Solutions

PMC-12AISS8AO4-8-64K:

Failure rate: (FPMH) = 5.0717
MTBF = 1.9717E+05 hrs
Ambient temp: 30 C
Calculated at MIL-HDBK-217F
Environment: Ground Benign

PMC-16AIO168:

Failure rate: (FPMH) = 6.029887
MTBF = 1.6584E+05 hrs
Ambient temp: 30 C
Calculated at MIL-HDBK-217F
Environment: Ground Benign

PMC 24DSI12-8:

Failure rate: (FPMH) = .326655
MTBF = 3.06133+E05 hrs
Ambient temp: 30 C
Calculated at MIL-HDBK-217F
Environment: Ground Benign

XMC-SIO4BX:

Failure rate: (FPMH) = 58.3878
MTBF = 1.7127+E05 hrs
Ambient temp: 30 C
Calculated at MIL-HDBK-217F
Environment: Ground Benign

CPCI-16AO16:

Failure rate: (FPMH) = 3.5160
MTBF = 284,399 hrs
Ambient temp: 25 C
Calculated at MIL-HDBK-217F
Environment: Ground Benign

PC104P-24DSI12:

Failure rate: (FPMH) = 4.2880
MTBF = 233,201 hrs
Ambient temp: 25 C
Calculated at MIL-HDBK-217F
Environment: Ground Benign

PCI-12AIO:

Failure rate: (FPMH) = 1.3917
MTBF = 718,504 hrs
Ambient temp: 25 C
Calculated at MIL-HDBK-217F
Environment: Ground Benign

General Standards Corporation

High Performance Bus Interface Solutions

PCI-16AIO-41:

Failure rate: (FPMH) = 5.9328
MTBF = 168,553 hrs
Ambient temp: 25 C
Calculated at MIL-HDBK-217F
Environment: Ground Benign

PCI-16AO12:

Failure rate: (FPMH) = 3.5161
MTBF = 284,399 hrs
Ambient temp: 25 C
Calculated at MIL-HDBK-217F
Environment: Ground Benign

PCI-16HSDI:

Failure rate: (FPMH) = 5.3212
MTBF = 187,926 hrs
Ambient temp: 25 C
Calculated at MIL-HDBK-217F
Environment: Ground Benign

PCI-SIO4B-SYNC:

Failure rate: (FPMH) = 3.2374
MTBF = 308,890 hrs
Ambient temp: 30 C
Calculated at MIL-HDBK-217F
Environment: Ground Benign

PMC-16AO4MF:

Failure rate: (FPMH) = 2.7237
MTBF = 367,145 hrs
Ambient temp: 30 C
Calculated at MIL-HDBK-217F
Environment: Ground Benign

PMC-SIO4BX:

Failure rate: (FPMH) = 1.3833
MTBF = 722,875 hrs
Ambient temp: 30 C
Calculated at MIL-HDBK-217F
Environment: Ground Benign

PCIe-16AI64SSC:

Failure rate: (FPMH) = 1.9114
MTBF = 5.2318E+05 hrs
Ambient temp: 30 C
Calculated at MIL-HDBK-217F
Environment: Ground Benign

General Standards Corporation

High Performance Bus Interface Solutions

PMC to cPCI Adapter

Failure rate: (FPMH) = .3740

MTBF = 2.6736E+06 hrs

Ambient temp : 30 C

Calculated at MIL-HDBK-217F

Environment: Ground Benign

PMC SIO4-64K

Failure rate: (FPMH) = 2.9868

MTBF = 334,801 hrs

Ambient temp : 30 C

Calculated at MIL-HDBK-217F

Environment: Ground Benign

CCPMC-24DSI8R-8-SF-RUG

Failure rate: (FPMH) = 4.4396

MTBF = 2.2525E+05 hrs

Ambient temp : 30 C

Calculated at MIL-HDBK-217F

Environment: Ground Benign

PNL-BNC-2x16AO16-SE

Failure rate: (FPMH) = .1535

MTBF = 6.5156E+06 hrs

Ambient temp : 30 C

Calculated at MIL-HDBK-217F

Environment: Ground Benign

PNL-BNC-2x16AI64SSC-DF

Failure rate: (FPMH) = .0347

MTBF = 2.8823E+06 hrs

Ambient temp : 30 C

Calculated at MIL-HDBK-217F

Environment: Ground Benign

PCIe 20AO8C500K

Failure rate: (FPMH) = 4.2764

MTBF = 2.3384E+05 hrs

Ambient temp : 30 C

Calculated at MIL-HDBK-217F

Environment: Ground Benign

General Standards Corporation

8302A Whitesburg Drive · Huntsville, AL 35802

Phone: (256)880-8787 or (800)653-9970

FAX: (256)880-8788

Email: sales@generalstandards.com

General Standards Corporation

High Performance Bus Interface Solutions

PCIe 24DSI32

Failure rate: (FPMH) = 12.9861

MTBF = 7.7005E+04 hrs

Ambient temp : 30 C

Calculated at MIL-HDBK-217F

Environment: Ground Benign

PCIe 24DSI6LN

Failure rate: (FPMH) = 1.5440

MTBF = 6.4767E+05 hrs

Ambient temp : 30 C

Calculated at MIL-HDBK-217F

Environment: Ground Benign

SIO4BX

Failure rate: (FPMH) = 1.3833

MTBF = 722,875 hrs

Ambient temp : 30 C

Calculated at MIL-HDBK-217F

Environment: Ground Benign

HPDI32A-COS

Failure rate: (FPMH) = 1.2792

MTBF = 7.8176E+05 hrs

Ambient temp : 30 C

Calculated at MIL-HDBK-217F

Environment: Ground Benign

PMC66-16LI8CLO4

Failure rate: (FPMH) = 1.5167

MTBF = 6.5931E+05 hrs

Ambient temp: 30 C

Calculated at MIL-HDBK-217F

Environment: Ground Benign

PMC to PCI Adapter

Failure rate: (FPMH) = 1.5723

MTBF = 4.5501E+05 hrs

Ambient temp : 30 C

Calculated at MIL-HDBK-217F

Environment: Ground Benign

General Standards Corporation

8302A Whitesburg Drive · Huntsville, AL 35802

Phone: (256)880-8787 or (800)653-9970

FAX: (256)880-8788

Email: sales@generalstandards.com

General Standards Corporation

High Performance Bus Interface Solutions

PMC OPTO32D

Failure rate: (FPMH) = 2.3163

MTBF = 4.3172E+05 hrs

Ambient temp : 30 C

Calculated at MIL-HDBK-217F

Environment: Ground Benign

OPTO32A

Failure rate: (FPMH) = .4998

MTBF = 2.0009E+06 hrs

Ambient temp: 30 C

Calculated at MIL-HDBK-217F

Environment: Ground Benign

PMC66-16AO16-12-F100-DF-49.152Mhz:

Failure rate: (FPMH) = 4.6051

MTBF = 2.1715E+05 hrs

Ambient temp: 30 C

Calculated at MIL-HDBK-217F

Environment: Ground Benign

66-18AI32SSC1M:

Failure rate: (FPMH) = 1.7519

MTBF = 5.7082E+05 hrs

Ambient temp: 30 C

Calculated at MIL-HDBK-217F

Environment: Ground Benign

PMC66-16AO16

Failure rate: (FPMH) = 4.6051

MTBF = 2.1715E+05 hrs

Ambient temp: 30 C

Calculated at MIL-HDBK-217F

Environment: Ground Benign

PMC-24CDS16LN

Failure rate: (FPMH) = 3.2265

MTBF = 3.1613E+05 hrs

Ambient temp: 30 C

Calculated at MIL-HDBK-217F

Environment: Ground Benign

General Standards Corporation

8302A Whitesburg Drive · Huntsville, AL 35802

Phone: (256)880-8787 or (800)653-9970

FAX: (256)880-8788

Email: sales@generalstandards.com

General Standards Corporation

High Performance Bus Interface Solutions

PCIe-16A064C-32D-BP-F3-49.152M-0-0|

Failure rate: (FPMH) = 4.6640

MTBF = 2.1441E+05 hrs

Ambient temp: 30 C

Calculated at MIL-HDBK-217F

Environment: Ground Benign

PMC66-24DSI6C500k

Failure rate: (FPMH) = 1.1599

MTBF = 8.6214E+05 hrs

Ambient temp: 30 C

Calculated at MIL-HDBK-217F

Environment: Ground Benign

PMC66-16AI64SSC-64-50.000M-LL

Failure rate: (FPMH) = 1.8534

MTBF = 5.3581E+05 hrs

Ambient temp: 30 C

Calculated at MIL-HDBK-217F

Environment: Ground Benign

PCI OPTO32B-12V-CONTACT:

Failure rate: (FPMH) = 2.6725

MTBF = 37,418 hrs

Ambient temp: 30 C

Calculated at MIL-HDBK-217F

Environment: Ground Benign

PCI OPTO32B-12V-CONTACT-8x28:

Failure rate: (FPMH) = 2.8257

MTBF = 35,209 hrs

Ambient temp: 30C

Calculated at MIL-HDBK-217F

Environment: Ground Benign

PCI 16SDI HS4:

Failure rate: (FPMH) = 5.321

MTBF = 1.8792E+05 hrs

Ambient temp : 30 C

Calculated at MIL-HDBK-217F

Environment: Ground Benign

General Standards Corporation

8302A Whitesburg Drive · Huntsville, AL 35802

Phone: (256)880-8787 or (800)653-9970

FAX: (256)880-8788

Email: sales@generalstandards.com

General Standards Corporation

High Performance Bus Interface Solutions

PMC-DIO24:

Failure rate: (FPMH) = 2.5989

MTBF = 3.8477E+05 hrs

Ambient temp: 30 C

Calculated at MIL-HDBK-217F

Environment: Ground Benign

PCI-DIO24:

Failure rate: (FPMH) = 2.5989

MTBF = 3.8477E+05 hrs

Ambient temp: 30 C

Calculated at MIL-HDBK-217F

Environment: Ground Benign

PCI-16SDI-HS4:

Failure rate: (FPMH) = 5.1322

MTBF = 2.8972E+05hrs

Ambient temp: 30 C

Calculated at MIL-HDBK-217F

Environment: Ground Benign

66-16HSDI4AO4:

Failure rate: (FPMH) = 4.9926

MTBF = 2.0030E+05hrs

Ambient temp: 30 C

Calculated at MIL-HDBK-217F

Environment: Ground Benign

General Standards Corporation

8302A Whitesburg Drive · Huntsville, AL 35802

Phone: (256)880-8787 or (800)653-9970

FAX: (256)880-8788

Email: sales@generalstandards.com

General Standards Corporation

High Performance Bus Interface Solutions

Development of MTBF Values:

The most widely known and used reliability prediction handbook is Mil-217. It is used by both commercial companies and the defense industry, and is accepted and known world-wide. The most recent revision is "Military Handbook, Reliability Prediction of Electronic Equipment", MIL-HDBK-217, Revision F, Notice 2, which was released in February of 1995. It contains failure rate models for numerous electronic components such as integrated circuits, transistors, diodes, resistors, capacitors, relays, switches, and connectors, to name a few. MIL-217 requires a greater amount data entered into the model. It also is a little harsher in the calculation of failure rate data than the Bellcore standard. Typically, but not always, MIL-217 calculated results will show a higher failure rate than Bellcore standard for the same system. This difference in the standards obviously stems from the original intended use of the MIL-217 standard for aerospace and military, or mission critical applications.

Maintaining reliability and providing reliability engineering is an essential need with modern electronic systems. Reliability engineering for electronic equipment requires a means for a quantitative baseline, or a reliability prediction analysis. The MIL-217 standard was developed for military and aerospace applications; however, it has become widely used for industrial and commercial electronic equipment applications throughout the world. Using the Mil-217 standard for reliability prediction produces calculated Failure Rate and Mean Time Between Failures (MTBF) numbers for the individual components, equipment and the overall system. The final calculated prediction results are based on the roll-up, or summation, of all the individual component failure rates.