



7/20/2007

RELIABILITY MONITOR REPORT
FOR

PDIP Package

Dallas Semiconductor

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This Report was prepared by
Dallas Semiconductor Reliability Engineering

Summary:

The data in the tables that follow was generated as the result of an on-going Package Reliability Monitor. The assemblies covered by this package monitor are:

| ASSY SITE | PINS | PACKAGE | | |
|-----------------|------|----------------|----------------------|-------------------|
| Amertron | 10 | PDIP | ATP (Amkor, PI) | 14 PDIP |
| ATP (Amkor, PI) | 16 | PDIP | ATP (Amkor, PI) | 18 PDIP |
| ATP (Amkor, PI) | 20 | PDIP | ATP (Amkor, PI) | 24 PDIP |
| ATP (Amkor, PI) | 28 | PDIP | ATP (Amkor, PI) | 40 PDIP |
| ATP (Amkor, PI) | 8 | PDIP | ATP (Amkor, PI) | 14 PDIP (Pb-Free) |
| ATP (Amkor, PI) | 16 | PDIP (Pb-Free) | ATP (Amkor, PI) | 18 PDIP (Pb-Free) |
| ATP (Amkor, PI) | 20 | PDIP (Pb-Free) | ATP (Amkor, PI) | 24 PDIP (Pb-Free) |
| ATP (Amkor, PI) | 28 | PDIP (Pb-Free) | ATP (Amkor, PI) | 40 PDIP (Pb-Free) |
| ATP (Amkor, PI) | 8 | PDIP (Pb-Free) | Carsem | 14 PDIP |
| Carsem | 16 | PDIP | Carsem | 24 PDIP |
| Carsem | 14 | PDIP (Pb-Free) | CPS (ChipPac, China) | 8 PDIP |
| ISPL (ATEC, PI) | 24 | PDIP | ISPL (ATEC, PI) | 28 PDIP |
| ISPL (ATEC, PI) | 40 | PDIP | ISPL (ATEC, PI) | 0 PDIP (Pb-Free) |
| ISPL (ATEC, PI) | 24 | PDIP (Pb-Free) | ISPL (ATEC, PI) | 28 PDIP (Pb-Free) |
| ISPL (ATEC, PI) | 40 | PDIP (Pb-Free) | Omedata | 10 PDIP |
| OSEP | 14 | PDIP | OSEP | 16 PDIP |
| OSEP | 8 | PDIP | OSEP | 14 PDIP (Pb-Free) |
| OSEP | 16 | PDIP (Pb-Free) | OSEP | 8 PDIP (Pb-Free) |
| Sharp | 28 | PDIP | UTL (NSEB) UTAC | 8 PDIP |
| UTL (NSEB) UTAC | 8 | PDIP (Pb-Free) | ZMD | 28 PDIP |
| ZMD | 28 | PDIP (Pb-Free) | | |

The calculated failure rate for this assembly is:

FAILURE RATE: MTTF (YRS): 62864 FITS: 1.8

The parameters used to calculate this failure rate are as follows:

Cf: 60% Ea: 0.7 Tu: 25 °C

The reliability data follows. At the start of this data is a description of the assembly vehicle used to generate this reliability data. The next section is the detailed reliability data for each stress. The reliability data section includes the latest data available. This report covers data between 7/1/2006 and 6/30/2007.

Assembly Information:

Package Type: PDIP 300
 Flammability: UL 94-V0
 Moisture Sensitivity (JEDEC J-STD20A) NA
 Date Code Range: 0612 to 0648

OPERATING LIFE

| DESCRIPTION | DATE CODE | TEST VEHICLE | CONDITION | READPOINT | QUANTITY | FAILS | FA NO |
|-------------------|-----------|--------------|------------------|-----------|----------|----------|-------|
| HIGH TEMP OP LIFE | 0612 | DS1302 | 125C, 5.5 VOLTS | 1000 HRS | 80 | 0 | |
| HIGH TEMP OP LIFE | 0619 | DS1921 | 125C, 5.25 VOLTS | 1000 HRS | 77 | 0 | |
| HIGH TEMP OP LIFE | 0635 | DS2432 | 125C, 5.25 VOLTS | 1000 HRS | 77 | 0 | |
| HIGH TEMP OP LIFE | 0648 | DS2406 | 125C, 6.0 VOLTS | 1000 HRS | 77 | 0 | |
| Total: | | | | | | 0 | |

STORAGE LIFE

| DESCRIPTION | DATE CODE | TEST VEHICLE | CONDITION | READPOINT | QUANTITY | FAILS | FA NO |
|--------------|-----------|--------------|-----------|---------------|----------|----------|-------|
| STORAGE LIFE | 0612 | DS1302 | 150C | 1000 HRS | 80 | 0 | |
| STORAGE LIFE | 0648 | DS2406 | 150C | 1000 HRS | 77 | 0 | |
| | | | | Total: | | 0 | |

TEMPERATURE CYCLE

| DESCRIPTION | DATE CODE | TEST VEHICLE | CONDITION | READPOINT | QUANTITY | FAILS | FA NO |
|-------------|-----------|--------------|--------------|---------------|----------|----------|-------|
| TEMP CYCLE | 0612 | DS1302 | -55C TO 125C | 1000 CYS | 45 | 0 | |
| | | | | Total: | | 0 | |

TEMPERATURE HUMIDITY BIAS

| DESCRIPTION | DATE CODE | TEST VEHICLE | CONDITION | READPOINT | QUANTITY | FAILS | FA NO |
|-----------------|-----------|--------------|------------------|---------------|----------|----------|-------|
| BIASED MOISTURE | 0612 | DS1302 | 85/85, 5.5 VOLTS | 1000 HRS | 77 | 0 | |
| | | | | Total: | | 0 | |

UNBIASED MOISTURE RESISTANCE

| DESCRIPTION | DATE CODE | TEST VEHICLE | CONDITION | READPOINT | QUANTITY | FAILS | FA NO |
|-------------|-----------|--------------|-----------------------------|---------------|----------|----------|-------|
| AUTOCLAVE | 0612 | DS1302 | 121C, 2 ATM STEAM, UNBIASED | 168 HRS | 45 | 0 | |
| | | | | Total: | | 0 | |

Assembly Information:

Package Type: PDIP 600
Flammability: UL 94-V0
Moisture Sensitivity (JEDEC J-STD20A) NA
Date Code Range: 0613 to 0613

OPERATING LIFE

| DESCRIPTION | DATE CODE | TEST VEHICLE | CONDITION | READPOINT | QUANTITY | FAILS | FA NO |
|-------------------|-----------|--------------|-----------------|---------------|----------|----------|-------|
| HIGH TEMP OP LIFE | 0613 | DS80C320 | 125C, 5.5 VOLTS | 1000 HRS | 70 | 0 | |
| | | | | Total: | | 0 | |

STORAGE LIFE

| DESCRIPTION | DATE CODE | TEST VEHICLE | CONDITION | READPOINT | QUANTITY | FAILS | FA NO |
|--------------|-----------|--------------|-----------|---------------|----------|----------|-------|
| STORAGE LIFE | 0613 | DS80C320 | 150C | 1000 HRS | 77 | 0 | |
| | | | | Total: | | 0 | |

TEMPERATURE CYCLE

| DESCRIPTION | DATE CODE | TEST VEHICLE | CONDITION | READPOINT | QUANTITY | FAILS | FA NO |
|-------------|-----------|--------------|--------------|---------------|----------|----------|-------|
| TEMP CYCLE | 0613 | DS80C320 | -55C TO 125C | 1000 CYS | 45 | 0 | |
| | | | | Total: | | 0 | |

TEMPERATURE HUMIDITY BIAS

| DESCRIPTION | DATE CODE | TEST VEHICLE | CONDITION | READPOINT | QUANTITY | FAILS | FA NO |
|-----------------|-----------|--------------|------------------|---------------|----------|----------|-------|
| BIASED MOISTURE | 0613 | DS80C320 | 85/85, 5.5 VOLTS | 1000 HRS | 45 | 0 | |
| | | | | Total: | | 0 | |

UNBIASED MOISTURE RESISTANCE

| DESCRIPTION | DATE CODE | TEST VEHICLE | CONDITION | READPOINT | QUANTITY | FAILS | FA NO |
|---------------|-----------|--------------|-----------------------------|-----------|----------|----------|-------|
| AUTOCLAVE | 0613 | DS80C320 | 121C, 2 ATM STEAM, UNBIASED | 168 HRS | 45 | 0 | |
| Total: | | | | | | 0 | |

Assembly Information:

Package Type: PDIP (Pb-Free) 300
Flammability: UL 94-V0
Moisture Sensitivity (JEDEC J-STD20A) NA
Date Code Range: 0636 to 0636

OPERATING LIFE

| DESCRIPTION | DATE CODE | TEST VEHICLE | CONDITION | READPOINT | QUANTITY | FAILS | FA NO |
|-------------------|-----------|--------------|-----------------|-----------|----------|----------|-------|
| HIGH TEMP OP LIFE | 0636 | DS1302 | 125C, 5.5 VOLTS | 1000 HRS | 77 | 0 | |
| Total: | | | | | | 0 | |

TEMPERATURE CYCLE

| DESCRIPTION | DATE CODE | TEST VEHICLE | CONDITION | READPOINT | QUANTITY | FAILS | FA NO |
|---------------|-----------|--------------|--------------|-----------|----------|----------|-------|
| TEMP CYCLE | 0636 | DS1302 | -55C TO 125C | 1000 CYS | 77 | 0 | |
| Total: | | | | | | 0 | |

TEMPERATURE HUMIDITY BIAS

| DESCRIPTION | DATE CODE | TEST VEHICLE | CONDITION | READPOINT | QUANTITY | FAILS | FA NO |
|-----------------|-----------|--------------|------------------|-----------|----------|----------|-------|
| BIASED MOISTURE | 0636 | DS1302 | 85/85, 5.5 VOLTS | 1000 HRS | 77 | 0 | |
| Total: | | | | | | 0 | |

UNBIASED MOISTURE RESISTANCE

| DESCRIPTION | DATE CODE | TEST VEHICLE | CONDITION | READPOINT | QUANTITY | FAILS | FA NO |
|---------------|-----------|--------------|-----------------------------|-----------|----------|----------|-------|
| AUTOCLAVE | 0636 | DS1302 | 121C, 2 ATM STEAM, UNBIASED | 168 HRS | 77 | 0 | |
| Total: | | | | | | 0 | |

Assembly Information:

Package Type: PDIP (Pb-Free) 600
Flammability: UL 94-V0
Moisture Sensitivity (JEDEC J-STD20A) NA
Date Code Range: 0627 to 0627

OPERATING LIFE

| DESCRIPTION | DATE CODE | TEST VEHICLE | CONDITION | READPOINT | QUANTITY | FAILS | FA NO |
|-------------------|-----------|--------------|-----------------|-----------|----------|----------|-------|
| HIGH TEMP OP LIFE | 0627 | DS7865 | 125C, 5.5 VOLTS | 1000 HRS | 77 | 0 | |
| Total: | | | | | | 0 | |

FAILURE RATE: MTTF (YRS): 62864 FITS: 1.8