

Automotive Qualification Report
MAX1904EAI+

| | | □ | ✓ | □ | ✓ | ✓ | ✓ | ✓ | | | | |
|---|-----------------------|--------------------------|------------------------|------------------------|----------------------|-----------------------|------------------------|----------------------|-------------|-------------|-------------|-------------|
| | | Lot # 1 (THLM1A009A) | Lot # 2 (TSD2DQ001B) | Lot # 3 (TF90HA048C) | Lot # 4 (TF90HQ001D) | Lot # 5 (TUABGQ001A) | Lot # 6 (NSD2CA971Q) | | | | | |
| 500kHz Multi-Output, Low-Noise Power-Supply Controller | Maxim Part Number | MAX1904EAI+ | MAX1632AEAI | MAX1845EEI | MAX1845EEI | MAX1715EEI+ | MAX1632EAI+ (Note 2) | | | | | |
| | Description (Note 1) | AEC-Q100 | Maxim | AEC-Q100 | Maxim | Maxim | Maxim | | | | | |
| | Operating Temperature | -40C to +85C | -40C to +85C | -40C to +85C | -40C to +85C | -40C to +85C | -40C to +85C | | | | | |
| | Temperature Grade | 3 | 3 | 3 | 3 | 3 | 3 | | | | | |
| | Fab Location | Maxim, San Antonio | Maxim, San Antonio | Maxim, San Antonio | Maxim, San Antonio | Maxim, San Antonio | Maxim, Beaverton | | | | | |
| | Fab Process | B12 (8", 1.2 um MOS) | B12 (8", 1.2 um MOS) | B12 (8", 1.2 um MOS) | B12 (8", 1.2 um MOS) | B12 (8", 1.2 um MOS) | S12 (6", 1.2 um MOS) | | | | | |
| | Die | PW57R-12Z | PW57O-2Z | PY74Y | PY74Y | PX64W-1Z | PW57O-2Z | | | | | |
| | Assembly Location | Anam/Amkor Philippines | Anam/Amkor Philippines | Anam/Amkor Philippines | NSEB Thailand | NSEB Thailand | Anam/Amkor Philippines | | | | | |
| | Die Size (mils) | 93 x 134 (die coat) | 93 x 134 (die coat) | 83 x 153 | 83 x 153 | 83 x 138 (die coat) | 93 x 134 (die coat) | | | | | |
| | Package | 28-Lead SSOP | 28-Lead SSOP | 28-Lead QSOP | 28-Lead QSOP | 28-Lead QSOP | 28-Lead SSOP | | | | | |
| | Wire Bond Material | Au .0013" | Au .0013" | Au .0013" | Au .0013" | Au .0013" | Au .0013" | | | | | |
| | Mold Compound | G600 | EME6600CS | EME6600CS | EME6600CS | G600 | G600 | | | | | |
| | Die Attach | 8290 | 84-1LMISR4 | 84-1LMISR4 | 84-1LMISR4 | 8290 | 8290 | | | | | |
| | Lead Frame | Copper | Copper | Copper | Copper | Copper | Copper | | | | | |
| | Lead Finish | 100% Matte Sn | 85/15 Sn/Pb | 85/15 Sn/Pb | 85/15 Sn/Pb | 100% Matte Sn | 100% Matte Sn | | | | | |
| Reliability Lot Number | A050030, DC 0531 | R050061C, DC 0515 | A050035, DC 0545 | R050061D, DC 0519 | R050061E, DC 0519 | R050018A/B/C, DC 0508 | | | | | | |
| | | Failures/Sample Size | | Failures/Sample Size | | Failures/Sample Size | | Failures/Sample Size | | | | |
| AEC-Q100 Rev. F Tests | | # | Conditions | +25C | +85C | -40C | +25C | +85C | -40C | +25C | +85C | -40C |
| MSL 1 - Preconditioning (PC) | A1 | 240C (Sn/Pb) | | | | | 0/405 | | | | | |
| | | 260C (100% Sn) | 0/215 | 0/215 | | | | | | 0/399 | | 0/450 |
| =>CSAM | | J-STD-020C (1 lot) | 0/22 | | | | | | | | | |
| Temperature Humidity-Bias (THB) | A2 | 85C/85%RH 1000 Hours | | | | | | | | | | |
| Biased HAST (HAST) | A2 | 130C/85%RH 96 Hours | 0/46 | 0/46 | | | 0/45 | | | 0/45 | | 0/135 |
| Autoclave (AC) | A3 | 121C/85%RH 168 Hours | | | | | 0/77 | | | 0/76 | | 0/231 |
| Unbiased HAST (UHAST) | A3 | 130C/85%RH 96 Hours | 0/80 | 0/80 | | | | | | | | |
| Temperature Cycle (TC) | A4 | -65 to +150C 1000 Cycles | 0/69 | 0/69 | | | 0/80 | | | 0/80 | | 0/231 |
| =>Wirebond Pull (WBP) | | >3 grams | Pending | | | | | | | | | |
| High Temperature Storage (HTSL) | A6 | +150C 1000 Hours | 0/79 | 0/79 | | | 0/80 | | | 0/80 | | 0/231 |
| High Temperature Op Life (HTOL) | B1 | +135C 1000 Hours | 0/79 | 0/79 | 0/79 | | 0/76 | | | 0/77 | | 0/135 |
| Early Life Failure Rate (ELFR) | B2 | +135C 48 Hours | 0/798 | 0/798 | | | | | | | | |
| Wire Bond Shear (WBS) | C1 | | (Note 3) | | | | | | | | | |
| Wire Bond Pull (WBP) | C2 | | (Note 3) | | | | | | | | | 0/600 |
| Solderability (SD) | C3 | | 0/15 | | | | | | | | | 0/45 |
| Physical Dimensions (PD) | C4 | | 0/10 | | | | | | | | | |
| Lead Integrity (LI) | C6 | | 0/5 | | | | | | | | | |
| (EM, TDDb, HCI) | D1-3 | | | | | | | | | | | |
| Pre- and Post-Stress Electrical (TEST) | E1 | | All | All | All | All | All | | | All | | All |
| Human Body Model ESD (HBM) | E2 | JESD22/A114 | 1000V | 1000V | | | | | | | | |
| Machine Model ESD (MM) | E2 | JESD22/A115 | | | | | | | | | | |
| Charged Device Model ESD (CDM) | E3 | AEC-Q100-011 | Pending | Pending | | | | | | | | |
| Latch-Up (LU) | E4 | JESD78, Class II | Pending | Pending | | | | | | | | |

(Note 1) AEC-Q100 test performed per Rev. F guidelines. Maxim tests performed to internal specification 10-3006.

(Note 2) Tests performed on three assembly lots.

(Note 3) Monitor data from assembly subcontractor.

✓ = Complete

□ = Open