DALLAS SEMICONDUCTOR MAXIM

# Automotive Qualification Report

## MAX9206EAI+

***10-Bit Bus LVDS Deserializer***

***Grade 3***

***28-Lead SSOP***

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|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | Lot # 1 (Q5J0AQ001G) | | | Lot # 2 (QFE0AQ003C) | | | Lot # 3 (QWB2AQ001A) | | | Lot # 4 (QR31BQ001A) | | | Lot # 5 (Q1L0BQ001H) | | |
| | | Maxim Part Number | **MAX9205EAI** | | | MAX9209EUM | | | MAX9234EUM | | | MAX9244EUM | | | MAX9205EAI | | |
| | | Description (Note 1) | **AEC-Q100** | | | AEC-Q100 | | | AEC-Q100 | | | AEC-Q100 | | | AEC-Q100 | | |
| | | Operating Temperature | **-40C to +85C** | | | -40C to +85C | | | -40C to +85C | | | -40C to +85C | | | -40C to +85C | | |
| | | Temperature Grade | **3** | | | 3 | | | 3 | | | 3 | | | 3 | | |
| | | Fab Location | **TSMC Fab 9** | | | TSMC Fab 9 | | | TSMC Fab 9 | | | TSMC Fab 9 | | | TSMC Fab 9 | | |
| | | Fab Process | **.35um 2P4M** | | | .35um 2P4M | | | .35um 1P4M | | | .35um 1P4M | | | .35um 2P4M | | |
| | | Die | **HS05Z** | | | HS30Z | | | HS37Z-2Z | | | HS39Z-1Z | | | HS05Z | | |
| | | Assembly Location | **Anam/Amkor Philippines** | | | Anam/Amkor Philippines | | | Anam/Amkor Philippines | | | Anam/Amkor Philippines | | | Anam/Amkor Philippines | | |
| | | Die Size (mils) | **58 x 77** | | | 88 x 117 | | | 97 x 139 | | | 108 x 159 | | | 58 x 77 | | |
| | | Package | **28-Lead SSOP** | | | 48-Lead TSSOP | | | 48-Lead TSSOP | | | 48-Lead TSSOP | | | 28-Lead SSOP | | |
| | | Wire Bond Material | **Au .001"** | | | Au .001" | | | Au .001" | | | Au .001" | | | Au .001" | | |
| | | Mold Compound | **G600** | | | G700K | | | G700K | | | G700K | | | EME6600CS | | |
| | | Die Attach | **8290** | | | 8290 | | | 8290 | | | 8290 | | | 84-1LMISR4 | | |
| | | Lead Frame | **Copper** | | | Copper | | | Copper | | | Copper | | | Copper | | |
| | | Lead Finish | **100% Matte Sn** | | | 85/15 Sn/Pb | | | 85/15 Sn/Pb | | | 85/15 Sn/Pb | | | 85/15 Sn/Pb | | |
| | | Reliability Lot Number | A050041, DC 0529 | | | A050002, DC 0451 | | | A050012, DC 0534 | | | A050038, DC 0551 | | | A050042, DC 0528 | | |
| | | | **Failures/Sample Size** | | | **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** | **+25C** | **+85C** | **-40C** | **+25C** | **+85C** | **-40C** |
| MSL 1 - Preconditioning (PC) | A1 | 240C (Sn/Pb) | | | | 0/215 | | | 0/215 | | | 0/330 | | | 0/215 | | |
| | | 260C (100% Sn) | 0/210 | | | | | | | | | | | | | | |
| =>CSAM | | J-STD-020C (1 lot) | 0/22 | | | | | | | | | | | | 0/22 | | |
| Temperature Humidity-Bias (THB) | A2 | 85C/85%RH 1000 Hours | | | | | | | | | | | | | | | |
| Biased HAST (HAST) | A2 | 130C/85%RH 96 Hours | 0/35 | 0/35 | | 0/45 | 0/45 | | 0/48 | 0/48 | | 0/47 | 0/47 | | 0/47 | 0/47 | |
| Autoclave (AC) | A3 | 121C/85%RH 168 Hours | | | | | | | | | | | | | | | |
| Unbiased HAST (UHAST) | A3 | 130C/85%RH 96 Hours | 0/50 | 0/50 | | 0/45 | 0/45 | | 0/50 | 0/50 | | 0/50 | 0/50 | | 0/50 | 0/50 | |
| Temperature Cycle (TC) | A4 | -65 to +150C 1000 Cycles | 0/78 | 0/78 | | | | | | | | | | | 0/80 | 0/80 | |
| =>Wirebond Pull (WBP) | | >3 grams | 0/140 | | | | | | | | | | | | 0/140 | | |
| High Temperature Storage (HTSL) | A6 | +150C 1000 Hours | 0/80 | 0/80 | | 0/77 | 0/77 | | 0/79 | 0/79 | | 0/80 | 0/80 | | 0/80 | 0/80 | |
| High Temperature Op Life (HTOL) | B1 | +135C 1000 Hours | Pending | Pending | Pending | 0/45 | 0/45 | 0/45 | 0/47 | 0/47 | 0/47 | 0/80 | 0/80 | 0/80 | Pending /48 | Pending /48 | Pending /48 |
| Early Life Failure Rate (ELFR) | B2 | +135C 48 Hours | | | | | | | | | | Pending | Pending | | | | |
| Wire Bond Shear (WBS) | C1 | | (Note 3) | | | | | | | | | | | | (Note 3) | | |
| Wire Bond Pull (WBP) | C2 | | (Note 3) | | | | | | | | | | | | (Note 3) | | |
| Solderability (SD) | C3 | | 0/15 | | | | | | | | | | | | 0/15 | | |
| Physical Dimensions (PD) | C4 | | 0/10 | | | | | | | | | | | | Pending | | |
| Lead Integrity (LI) | C6 | | 0/5 | | | | | | | | | | | | 0/5 | | |
| (EM, TDDB, HCI) | D1-3 | | TSMC | | | TSMC | | | TSMC | | | TSMC | | | TSMC | | |
| Pre- and Post-Stress Electrical (TEST) | E1 | | All | All | All | All | All | All | All | All | All | All | All | All | All | All | All |
| Human Body Model ESD (HBM) | E2 | JESD22/A114 | 2500V | 2500V | | | | | | | | | | | | | |
| Machine Model ESD (MM) | E2 | JESD22/A115 | | | | | | | | | | | | | | | |
| Charged Device Model ESD (CDM) | E3 | AEC-Q100-011 | 1000V | 1000V | | | | | | | | | | | | | |
| Latch-Up (LU) | E4 | JESD78, Class | 0/12 | 0/12 | | | | | | | | | | | | | |
| Electrothermal Gate Leakage (GL) | E8 | | | | | | | | | | | | | | | | |

**(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