

Automotive Qualification Report
MAX13050ASA

Industry-Standard High-Speed CAN Transceiver with ±80V Fault Protection

Grade 1

8-Lead SO (.150) Exposed Paddle

| | | Lot # 1 (MSR0AAE) | Lot # 2 (MSR1AAE) | Lot # 3 (NF11CA019C) | Lot # 4 (N6R0DA010A) | Lot # 5 (N6Y0FA039B) | | | | | |
|--|-------------------------|-------------------------------|------------------------|-----------------------------|------------------------|-----------------------------|------------------|------------------|-------------|--------------|-------------|
| Industry-Standard High-Speed CAN Transceiver with ±80V Fault Protection | Maxim Part Number | MAX13050ASA (hybrid) | MAX13050ASA (hybrid) | MAX4080TASA | MAX5023LASA | MAX5035AASA | | | | | |
| | Description (Note 1) | AEC-Q100 | AEC-Q100 | AEC-Q100 | AEC-Q100 | AEC-Q100 | | | | | |
| | Operating Temperature | -40C to +125C | -40C to +125C | -40C to +125C | -40C to +125C | -40C to +125C | | | | | |
| | Temperature Grade | 1 | 1 | 1 | 1 | 1 | | | | | |
| | Fab Location | Maxim, Beaverton | Maxim, Beaverton | Maxim, Beaverton | Maxim, Beaverton | Maxim, Beaverton | | | | | |
| | Fab Process | BCD80N (BiCMOS) | BCD80N (BiCMOS) | BCD80N (BiCMOS) | BCD80N (BiCMOS) | BCD80N (BiCMOS) | | | | | |
| | Die | RT73S-1 (RT87) | RT73S-1 (RT87) | OY07Z-1Z | NP33X | NP25V | | | | | |
| | Assembly Location | Anam/Amkor Philippines | Anam/Amkor Philippines | NSEB, Thailand | Anam/Amkor Philippines | Unisem | | | | | |
| | Die Size (mils) | 20 X 45 | 20 X 45 | 61 x 80 | 85 x 112 | 85 x 145 | | | | | |
| | Package | 8-Lead NSOIC | 8-Lead NSOIC (Note 5) | 8-Lead NSOIC | 8-Lead NSOIC (EP) | 8-Lead NSOIC | | | | | |
| | Wire Bond Material | Au .001" | Au .001" | Au .001" | Au .001" | Au .001" | | | | | |
| | Mold Compound | EME6600CS | G600 | EME6600CS | G600 | EME6300H | | | | | |
| | Die Attach | 84-3J | 84-3J | 84-1LMISR4 | 8290 | 84-1LMISR4 | | | | | |
| | Lead Frame | Copper | Copper | Copper | Copper | Copper | | | | | |
| | Lead Finish | 85/15 Sn/Pb | 100% Matte Sn | 85/15 Sn/Pb | 85/15 Sn/Pb | 85/15 Sn/Pb | | | | | |
| Reliability Lot Number | A050037, DC 0538 | R050122, DC 0521 | A050019, DC 0527 | A050018, DC 0433 | A050017, DC 0527 | | | | | | |
| | | Failures/Sample Size | | Failures/Sample Size | | Failures/Sample Size | | | | | |
| AEC-Q100 Rev. F Tests | # | Conditions | +25C | +125C | -40C | +25C | +125C | -40C | +25C | +125C | -40C |
| MSL 1 - Preconditioning (PC) | A1 | 240C (Sn/Pb) | 0/215 | | | 0/213 | | | 0/215 | | |
| | | 260C (100% Sn) | | | | 0/450 | | | | | |
| =>CSAM | | J-STD-020C (1 lot) | 0/22 | | | 0/22 | | | 0/22 | | |
| Temperature Humidity-Bias (THB) | A2 | 85C/85%RH 1000 Hours | | | | | | | | | |
| Biased HAST (HAST) | A2 | 130C/85%RH 96 Hours | 0/50 | 0/50 | | Pending | Pending | | 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 | | Pending | Pending | | 0/48 | 0/48 | |
| Temperature Cycle (TC) | A4 | -65 to +150C 1000 Cycles | 0/80 | 0/80 | | 0/231 | | | 0/80 | 0/80 | |
| =>Wirebond Pull (WBP) | | >3 grams | 0/56 | | | Pending | Pending | | 0/50 | 0/80 | |
| High Temperature Storage (HTSL) | A6 | +150C 1000 Hours | 0/80 | 0/80 | | Pending | Pending | | 0/80 | 0/80 | |
| High Temperature Op Life (HTOL) | B1 | +135C 1000 Hours | 0/46 | 0/46 | 0/46 | (Note 4) Pending | (Note 4) Pending | (Note 4) Pending | 0/45 | 0/45 | 0/45 |
| Early Life Failure Rate (ELFR) | B2 | +135C 48 Hours | | | | | | | | | |
| Maxim Infant Mortality Evaluation | | +135C 12 Hours | | | | | | | | | |
| Wire Bond Shear (WBS) | C1 | | (Note 3) | | | | | | | | |
| Wire Bond Pull (WBP) | C2 | | (Note 3) | | | | | | | | |
| Solderability (SD) | C3 | | 0/15 | | | | | | | | |
| 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 | All | All |
| Human Body Model ESD (HBM) | E2 | JESD22/A114 | 1500V | 1500V | | | | | | | |
| Machine Model ESD (MM) | E2 | JESD22/A115 | | | | | | | | | |
| Charged Device Model ESD (CDM) | E3 | AEC-Q100-011 | 1000V | 1000V | | | | | | | |
| Latch-Up (LU) | E4 | JESD78, Class II | 0/12 | 0/12 | | | | | | | |

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

(Note 2) Tests performed on three wafer lots: N490E1008C, N490E1009B, and N490E1011B.

(Note 3) Monitor data from assembly subcontractor.

(Note 4) HTOL testing performed on the MAX4081TASA (Die OY07Z-4Z), Wafer lot NF14CA004A.

(Note 5) Tests performed on three assembly lots.

✓ = Complete

□ = Open