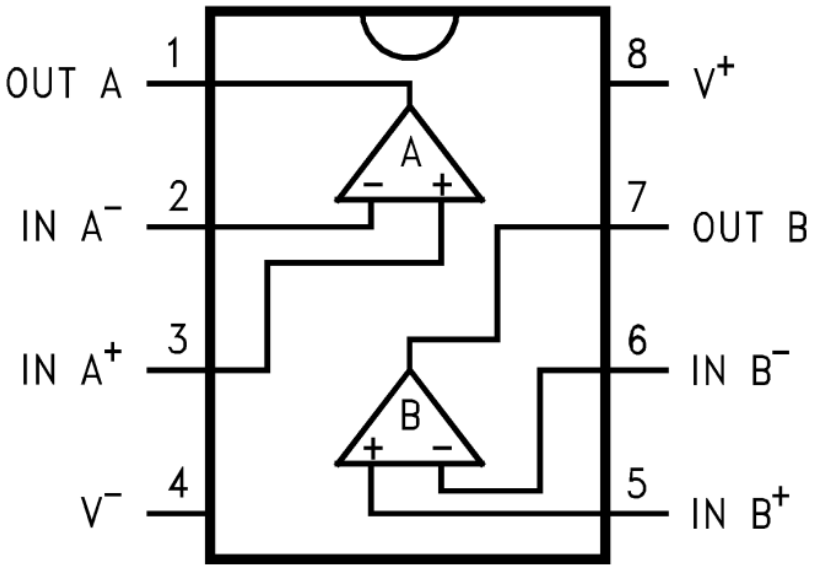
FIT Rate, Failure Mode Distribution LMV772QMMX/NOPB (VSSOP)

Automotive Low Offset, Low Noise, RRO Dual Operational Amplifier



Failure Rate Mission Profile (1)	Per 10^9 Hours (FIT) VSSOP
Total FIT Rate	6
Die FIT Rate	2
Package FIT Rate	4

FIT Siemens Norm SN29500 (2)			
Table	Category	Ref FIT λ_{ref}	Ref Virtual Tj $\theta_{vj,1}$
4	CMOS Operational Amp, Comparators and Voltage monitors	6 FIT	55 C

Failure Modes	Failure Mode Distribution (%)
Out open (HIZ)	20%
Out saturate high	25%
Out saturate low	25%
Out functional not in specification	30%

(1) Failure Rate, Mission Profile and Failure Mode Distribution

The failure rate and mission profile information come from the Reliability data handbook IEC TR 62380 using the reliability modeling for Integrated circuits.
Mission Profile Automotive Control IEC TR 62380
Power dissipation 6 mW
Climate type: World-wide Table 8 IEC TR 62380
Package factor lambda 3 Table 17b IEC TR 62380
Substrate Material: FR4
EOS FIT rate assumed = 0

(2) Reference failure rate, Virtual (equivalent) junction temperature

The reference failure rate and virtual junction temperature come from Siemens Norm SN29500-2 tables 1-5. Failure rate under operating conditions are calculated from the reference failure rate and virtual junction temperature using conversion information in SN29500-2 section 4.

The failure mode distribution estimation comes from the combination of common failure modes listed in standards such as IEC 61508 and ISO 26262, the ratio of sub-circuit function size and complexity and from best engineering judgment. The failure rates listed reflect random failure events and do not include failures due to misuse or over stress.