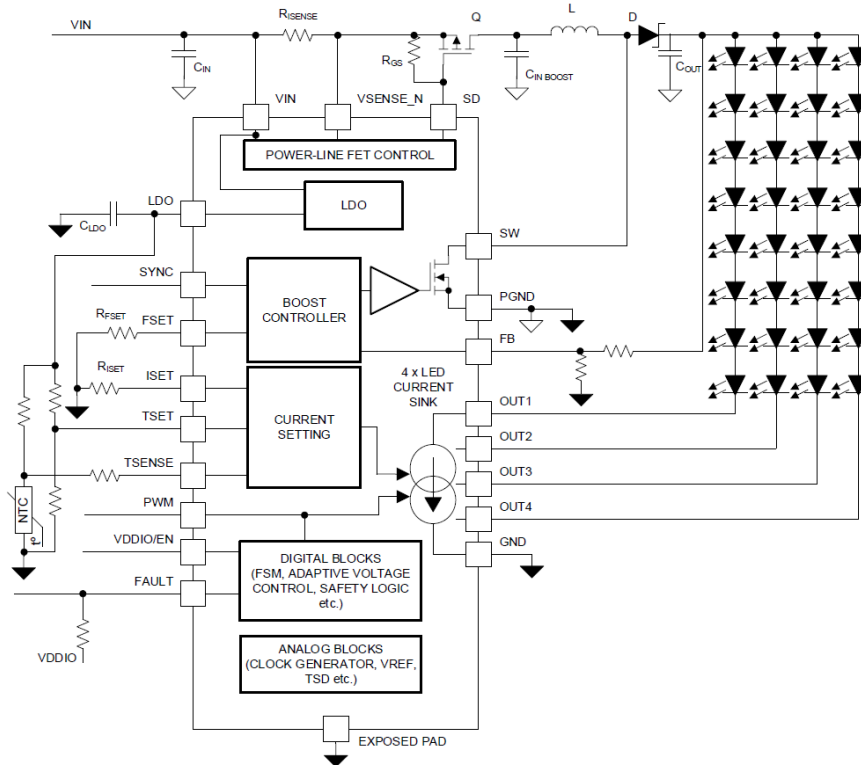


Functional Safety FIT Rate, Failure Mode Distribution LP8867-Q1 LP8869-Q1

Low EMI Automotive LED Driver with 4-, 3- Channels

Functional Block Diagram



FIT IEC TR 62380 / ISO 26262 (1)		Per 10 ⁹ Hours (FIT)
Total FIT Rate		20
Die FIT Rate		7
Package FIT Rate		13

FIT Siemens Norm SN29500 (2)			
Table	Category	Ref FIT λ_{ref}	Ref Virtual Tj $\theta_{vj,1}$
5	Digital, Analog, Mixed	60 FIT	70 C

Failure Modes	Failure Mode Distribution (%)
OUTn output out of specification, current or timing	30%
OUTn stuck off	40%
OUTn stuck on	15%
FAULT fails to trip or false trip	10%
Short circuit any two pins	5%

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

The failure rate and mission profile information come from reliability modeling for Integrated circuits from Reliability data handbook IEC TR 62380 / ISO 26262 Part 11

Mission Profile: Motor Control from Table 11

Power dissipation 750 mW

Climate type: World-wide Table 8

Package factor lambda 3 Table 17b

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.

LP8867-Q1 LP8869-Q1 are a catalog product and not compliant to ISO-26262 standards.

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