

LP8863-Q1 Functional Safety FIT Rate

1 Overview

This document contains information for LP8863-Q1 (HTSSOP package) to aid in a functional safety system design. Information provided are:

- Functional Safety Failure In Time (FIT) rates of the semiconductor component estimated by the application of industry reliability standards

Figure 1 shows the device functional block diagram for reference.

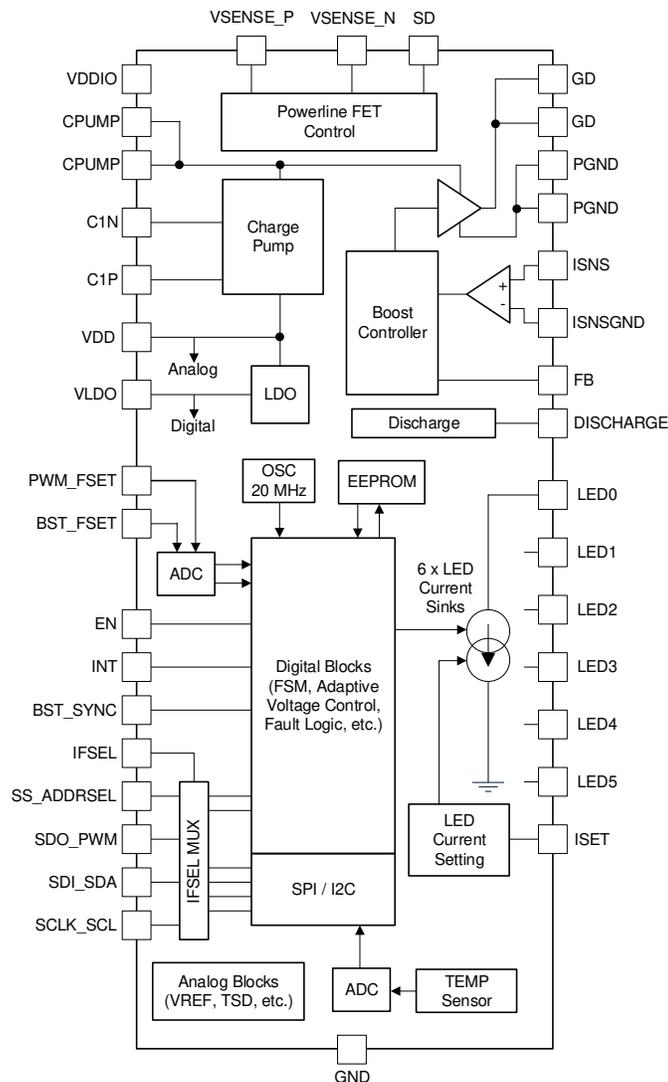


Figure 1. Functional Block Diagram

LP8863-Q1 was developed using a quality-managed development process, but was not developed in accordance with the IEC 61508 or ISO 26262 standards.

2 Functional Safety Failure In Time (FIT) Rates

This section provides Functional Safety Failure In Time (FIT) rates for LP8863-Q1 based on two different industry-wide used reliability standards:

- [Table 1](#) provides FIT rates based on IEC TR 62380 / ISO 26262 part 11
- [Table 2](#) provides FIT rates based on the Siemens Norm SN 29500-2

Table 1. Component Failure Rates per IEC TR 62380 / ISO 26262 Part 11

FIT IEC TR 62380 / ISO 26262	FIT (Failures Per 10 ⁹ Hours)
Total Component FIT Rate	25
Die FIT Rate	5
Package FIT Rate	20

The failure rate and mission profile information in [Table 1](#) comes from the Reliability data handbook IEC TR 62380 / ISO 26262 part 11:

- Mission Profile: Motor Control from Table 11
- Power dissipation: 600 mW
- Climate type: World-wide Table 8
- Package factor (λ_3): Table 17b
- Substrate Material: FR4
- EOS FIT rate assumed: 0 FIT

Table 2. Component Failure Rates per Siemens Norm SN 29500-2

Table	Category	Reference FIT Rate	Reference Virtual T _J
5	CMOS/BICMOS ASICs Analog & Mixed=<50V supply	70 FIT	70°C

The Reference FIT Rate and Reference Virtual T_J (junction temperature) in [Table 2](#) come from the Siemens Norm SN 29500-2 tables 1 through 5. Failure rates under operating conditions are calculated from the reference failure rate and virtual junction temperature using conversion information in SN 29500-2 section 4.

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