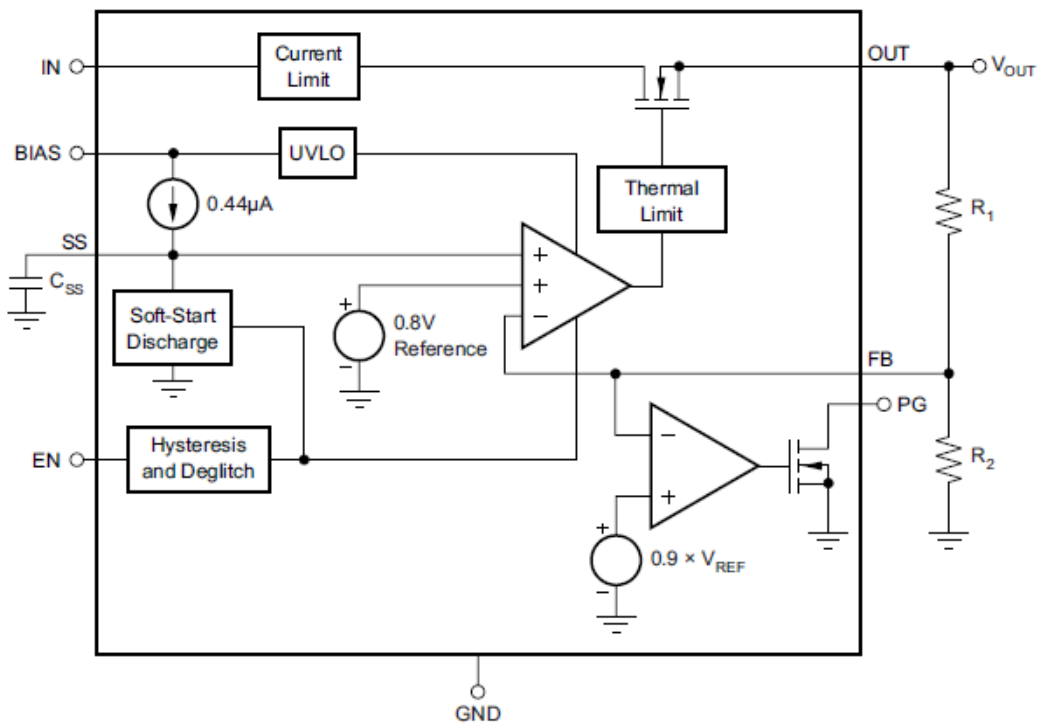


# Functional Safety FIT Rate, Failure Mode Distribution TPS74701-Q1

500-mA Low-Dropout Linear Regulator With Programmable Soft Start

**Functional Block Diagram**



| Failure Rate Mission Profile (1) | Per 10 <sup>9</sup> Hours (FIT) |
|----------------------------------|---------------------------------|
| Total FIT Rate                   | 11                              |
| Die FIT Rate                     | 4                               |
| Package FIT Rate                 | 7                               |

| Failure Modes                               | Failure Mode Distribution (%) |
|---------------------------------------------|-------------------------------|
| VOUT No output (HIZ)                        | 45%                           |
| VOUT High (Following Input)                 | 10%                           |
| VOUT not in specification voltage or timing | 35%                           |
| PG false trip, fails to trp                 | 5%                            |
| Short circuit any two pins                  | 5%                            |

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

The failure rate and mission profile information comes from the Reliability data handbook IEC TR 62380 using the reliability modeling for Integrated circuits.

Mission Profile Automotive Control IEC TR 62380

Power dissipation 600mW

Climate type: World-wide Table 8

Package factor lambda 3 Table 17b

Substrate Material: FR4

EOS FIT rate assumed = 0

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.

The TPS74701-Q1 is a catalog product and not compliant to ISO-26262 standards.