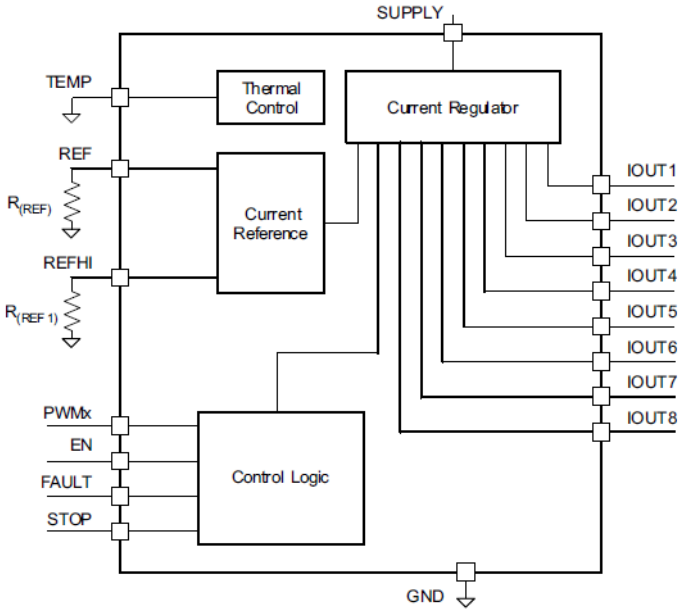
FIT Rate, Failure Mode Distribution TPS92638-Q1

8-Channel Linear LED Driver With PWM Dimming

Functional Block Diagram



Failure Rate Mission Profile (1)	Per 10^9 Hours (FIT)
Total FIT Rate	18
Die FIT Rate	6
Package FIT Rate	12

Failure Modes	Failure Mode Distribution (%)
IOUTn No Output	45%
IOUTn out of specification, current or timing	35%
IOUTn Stuck On	5%
STOP mode false trip, fails to trip	5%
FAULT false trip, fails to trip	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 with automotive motor control mission profiles
Mission Profile: Motor Control from Table 11
Power dissipation 750mW
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 TPS9238-Q1 is a catalog product and not compliant to ISO-26262 standards.