



life.augmented

STM32Fx Products Reliability Monitoring Results

January 2021

**MICROCONTROLLER DIVISION
QUALITY & RELIABILITY**

Microcontroller

Division of MDG Group

RELIABILITY MONITORING RESULTS

STM32Fx Products

❑ Results Period: Q1 2019 to Q4 2020

OPERATING LIFE TEST (125°C / 3.6V)

		Q1 2019 to Q4 2020
HTOL MONITORING (High Temp Operating Lifetest)	48HRS	0/21357
	168HRS	0/3583
	504HRS	0/3183
	1008HRS	0/3183

❑ EFR (Early Failure Rate, 60% C.L):

❑ Failure In Time $E_a=0.7\text{eV}$, 60%C.L@55°C:

2 years Rolling
43 ppm
2.8 FITs

❑ MTBF (Mean Time Between Failures) @ 25°C : 486180 Years

❑ MTBF @ 55°C : 40177 Years

❑ MTBF @ 85°C : 5042 Years

RELIABILITY MONITORING RESULTS

STM32Fx Products

During the overall reliability monitoring, the EFR result is 0 FAIL.

From STM32 customer returns analysis, the failure rate is 0,11 PPM on 1 year (Reference 2019).

The EFR result expressed in ppm in pag2 is the maximum PPM level calculated with reliability monitoring. This number is limited by the sample size. It is not a failure distribution screened by our test.

However, we can estimate that the intrinsic quality level is much better. Enlarging this calculation to our whole microcontroller family, we have :

- ✓ <28 PPM (with 0 FAIL also limited by the sample size)
- ✓ <1 FITs

IMPORTANT NOTICE – PLEASE READ CAREFULLY

STMicroelectronics International NV and its affiliates (“ST”) reserve the right to make changes corrections, enhancements, modifications, and improvements to ST products and/or to this document any time without notice.

This document is provided solely for the purpose of obtaining general information relating to an ST product. Accordingly, you hereby agree to make use of this document solely for the purpose of obtaining general information relating to the ST product. You further acknowledge and agree that this document may not be used in or in connection with any legal or administrative proceeding in any court, arbitration, agency, commission or other tribunal or in connection with any action, cause of action, litigation, claim, allegation, demand or dispute of any kind. You further acknowledge and agree that this document shall not be construed as an admission, acknowledgement or evidence of any kind, including, without limitation, as to the liability, fault or responsibility whatsoever of ST or any of its affiliates, or as to the accuracy or validity of the information contained herein, or concerning any alleged product issue, failure, or defect. ST does not promise that this document is accurate or error free and specifically disclaims all warranties, express or implied, as to the accuracy of the information contained herein. Accordingly, you agree that in no event will ST or its affiliates be liable to you for any direct, indirect, consequential, exemplary, incidental, punitive, or other damages, including lost profits, arising from or relating to your reliance upon or use of this document.

Purchasers should obtain the latest relevant information on ST products before placing orders. ST products are sold pursuant to ST’s terms and conditions of sale in place at the time of order acknowledgement, including, without limitation, the warranty provisions thereunder.

In that respect please note that ST products are not designed for use in some specific applications or environments described in above mentioned terms and conditions.

Purchasers are solely responsible for the choice, selection, and use of ST products and ST assumes no liability for application assistance or the design of Purchasers’ products.

Information furnished is believed to be accurate and reliable. However, ST assumes no responsibility for the consequences of use of such information nor for any infringement of patents or other rights of third parties which may result from its use. No license, express or implied, to any intellectual property right is granted by ST herein.

Resale of ST products with provisions different from the information set forth herein shall void any warranty granted by ST for such product.

ST and ST logo are trademarks of ST. All other product or service names are the property of their respective owners.

Information in this document supersedes and replaces information previously in any prior version of this document.

© 2020 STMicroelectronics - All rights reserved
www.st.com