pSemi®
A Murata Company

March 2026

Quarterly Reliability Report

Document Number DOC-132144, Revision 1

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pSemi Reliability System

The Quarterly Reliability Report is a compilation of reliability stress test results that crosses the entire product & technology family of pSemi products. Data is collected on a regular basis through the efforts of product and process qualifications, standard product monitoring and lot acceptance testing. To date, a total of **186,289 devices** have been tested in HTOL with a total of **10.6 billion equivalent device hours**. The overall failure rate for the pSemi family of products is **0.09 FIT.** (Using Eaa = 0.7eV, Tj=55°C at 60% UCL)

pSemi reliability testing standards conform to industry standard qualification procedures as detailed in the JEDEC guidelines. In addition, where clear guidelines have not been established yet, pSemi has developed stringent reliability requirements to ensure consistent high reliability performance.

pSemi makes use of accelerated life testing results, along with thermal acceleration factors in the prediction of failure rates. High Temperature Operating Life (HTOL) stress testing is performed at accelerated voltage and temperature conditions which are based Jedec-JESD22-A108 standards. Resulting data collected from HTOL tests is de-rated to a typical use operating junction temperature (Tj) of 55°C. Early Life Failure Rate (ELFR) is derived after 48-hr performance.

pSemi conducts an ongoing product reliability monitoring program to evaluate sample products from high volume, major product families on a quarterly basis. The reliability monitoring process is a continuously improving system within pSemi as we strive for superior product knowledge and performance.

pSemi performs the majority of Reliability testing using an ISO17025 certified test laboratories located in San Jose, CA. Regular auditing of the laboratory is performed to ensure compliance to ISO standards.

Note: No changes to Jun 2025 QRR data due to application database turnover.

Failure Rate Calculation

Acceleration Factor (AF)

For a given failure mechanism, acceleration factor (AF), is the ratio of the time it takes for a certain fraction of the population to fail, following application of one stress or use condition, to the corresponding time at a more severe stress or use condition.

The industry uses the thermal acceleration model formula based on Arrhenius equation noted below:

$$AF\left(T_{use}, T_{stress}\right) := e^{\frac{E_{aa}}{k_B} \cdot \left(\frac{1}{T_{use}} - \frac{1}{T_{stress}}\right)}$$

where:

$E_{aa} := 0.7\ eV$,is the Apparent Activation Energy

$e = 2.718$, is the base of natural logarithm

$k_B := 8.62 \cdot 10^{-5}\ \frac{eV}{K}$, is the Boltzmann constant

T_{use} & T_{stress}, are the use and stress test temperatures, respectively, in Kelvin

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Sample Calculation

Find the Acceleration Factor (AF) with the following conditions.

(a) $T_{use} := 55\ °C$ and $T_{stress} := 125\ °C$

$$AF\left(T_{use}, T_{stress}\right) = 77.5$$

(b) $T_{use} := 55\ °C$ and $T_{stress} := 150\ °C$

$$AF\left(T_{use}, T_{stress}\right) = 258.7$$

Failure Rate Calculation (continued)

Failure in Time Calculation

Mean time to failure (M.T.T.F.) is defined as the average time it takes for a failure to occur. Failure in Time (F.I.T.) is the number of units predicted to fail in a billion ($1e^9$) device hours at a specified temperature. After the life test is completed and accelerated device hour data is calculated, the failure rate is estimated using the Chi-Square approximation (χ^2) as follows:

$$FIT = \left(\frac{\chi^{2(2r+2)}}{2 * EDH}\right) * 1e^9$$

where:

χ^2 = *chi square function*

r = number of failures

EDH = equivalent device hours (units tested x test hours x AF)

Sample Calculation

Given: Units Tested (Sample Size) = 231 devices
Test temperature = 150°C
Test duration = 500 hours
Failures = 0

EDH = (231 x 500 x 259.2) = 2.99E+7 equivalent device hours

χ^2 @ 60% confidence level and 0 failures = 1.83

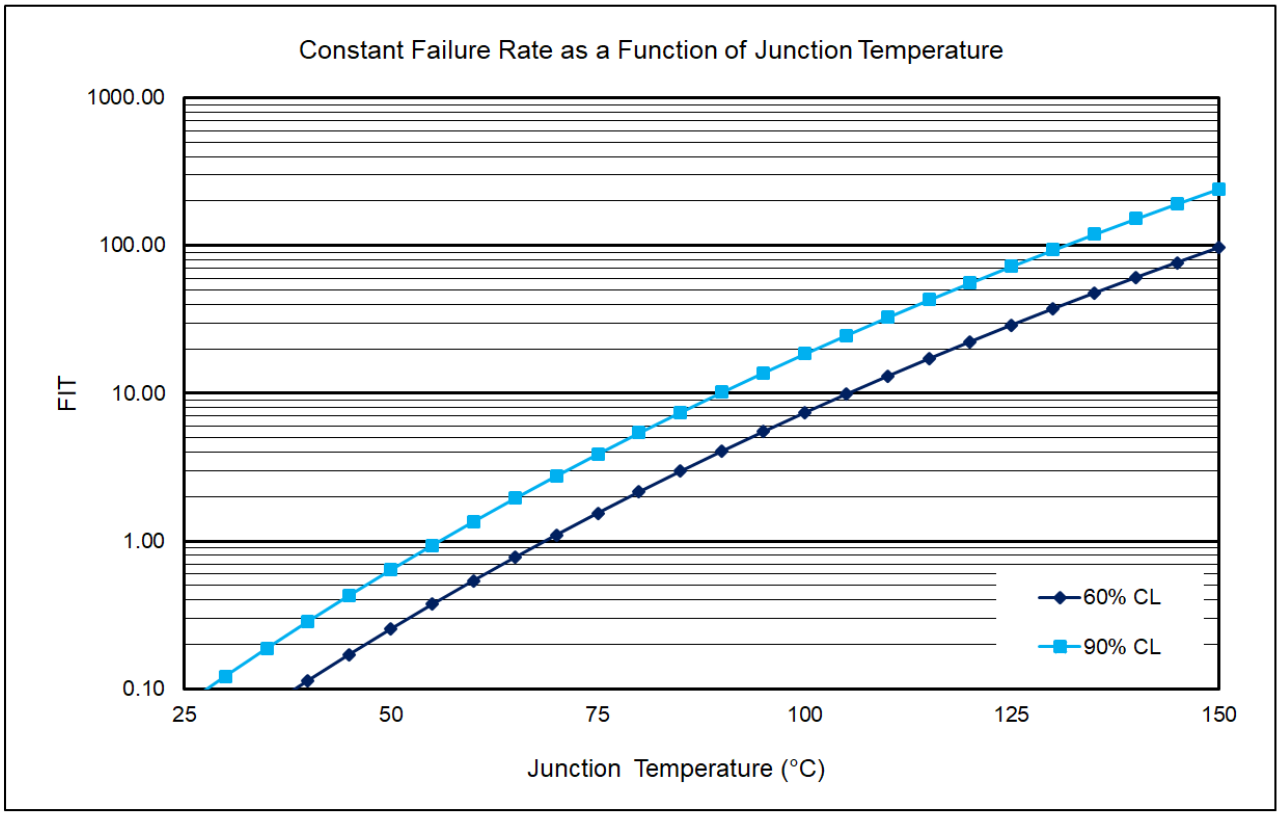
FIT (60% confidence level) = [1.83 / (2 x 2.99E+7)] x 1.0E+9 = <u>30.6 FIT</u>

Technology Classification

UltraCMOS® 2 Process Technology

Generation	:	500 nm CMOS Silicon Epi Process (U500E)
Units Tested	:	36,497
Product Family	:	DC-DC, DSA, MXR, PLL, PSR, Switch

	Standard Failure Rate Calculations at 55°C and 60% CL		
	EDH (hours)	FITs	MTTF (hours)
Early Life	2.96E+08	3.1	3.23E+08
Constant (Random)	2.46E+09	0.4	2.68E+09



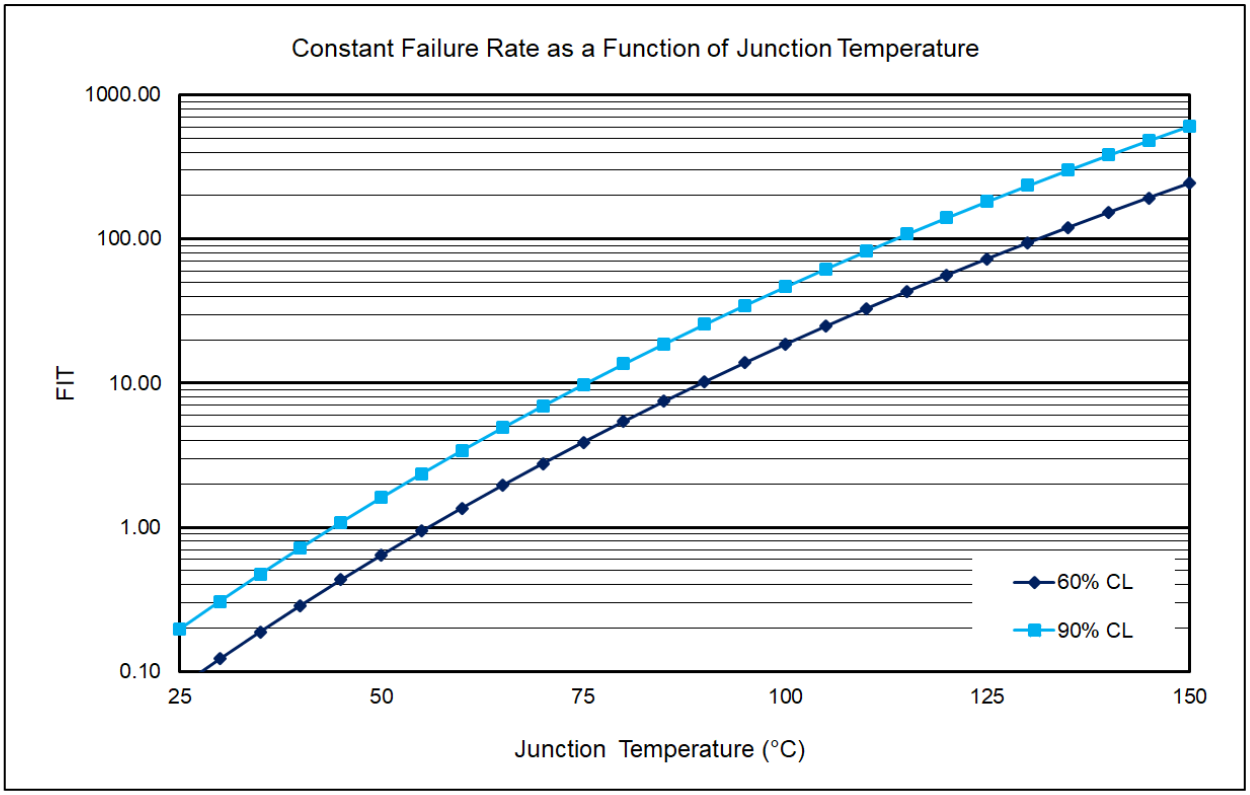
UltraCMOS® 3.5 Process Technology

Generation : 350 nm CMOS Silicon Epi Process (U350E)

Units Tested : 10,089

Product Family : DSA, DTC, Switch

	Standard Failure Rate Calculations at 55°C and 60% CL		
	EDH (hours)	FITs	MTTF (hours)
Early Life	1.22E+08	7.5	1.33E+08
Constant (Random)	9.75E+08	0.9	1.06E+09



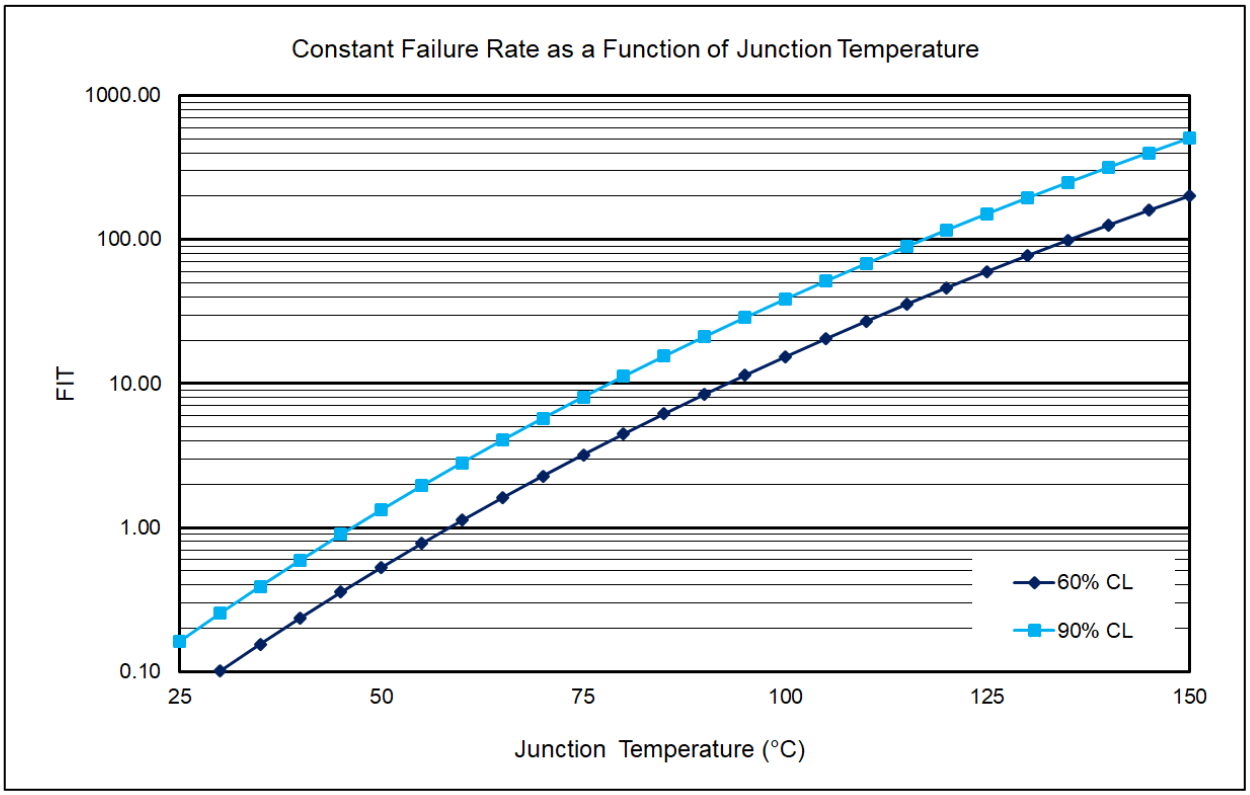
UltraCMOS® 5 Process Technology

Generation : 350 nm CMOS Bonded Silicon Process (U350B)

Units Tested : 9,216

Product Family : DSA, DTC, LMTR, MPAC, PLL, PSH, Switch

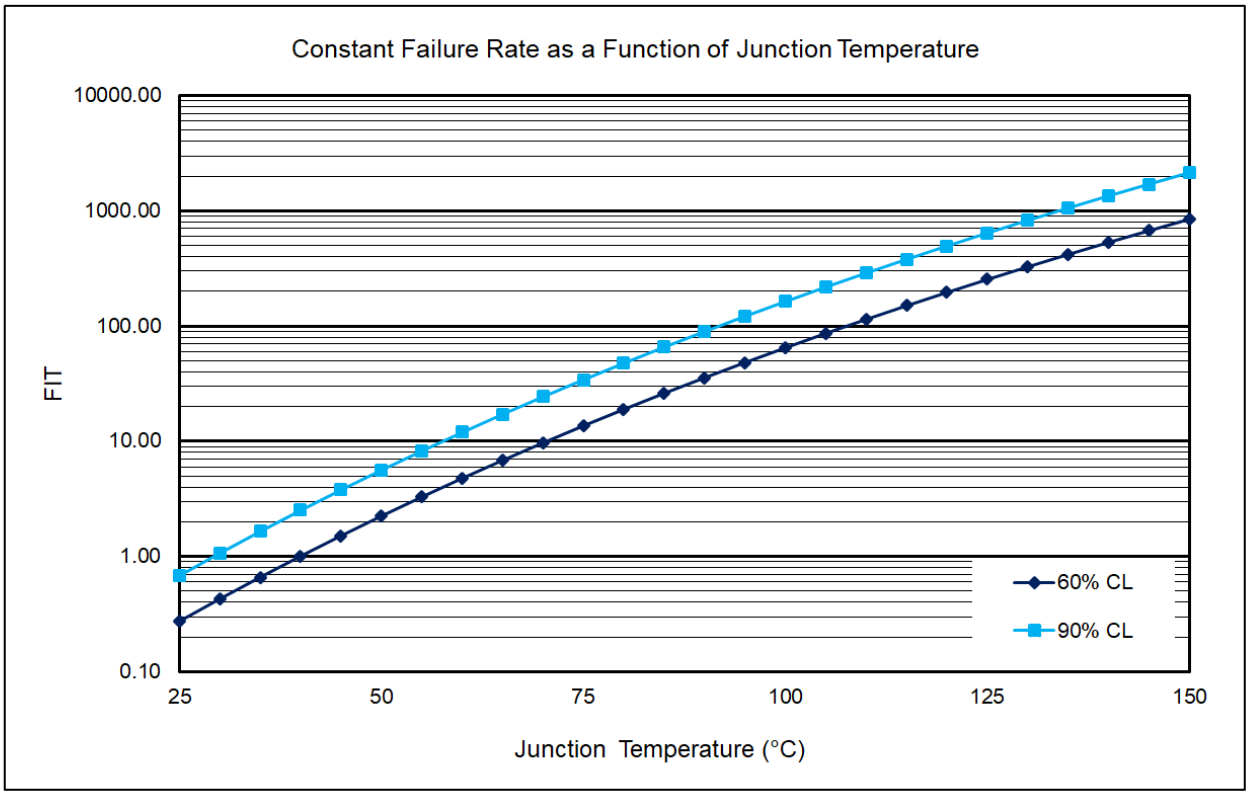
	Standard Failure Rate Calculations at 55°C and 60% CL		
	EDH (hours)	FITs	MTTF (hours)
Early Life	1.12E+08	8.2	1.23E+08
Constant (Random)	1.18E+09	0.8	1.29E+09



UltraCMOS® 6 Process Technology

Generation : 250 nm CMOS Silicon Epi Process (U250E2)
Units Tested : 2,271
Product Family : Switch

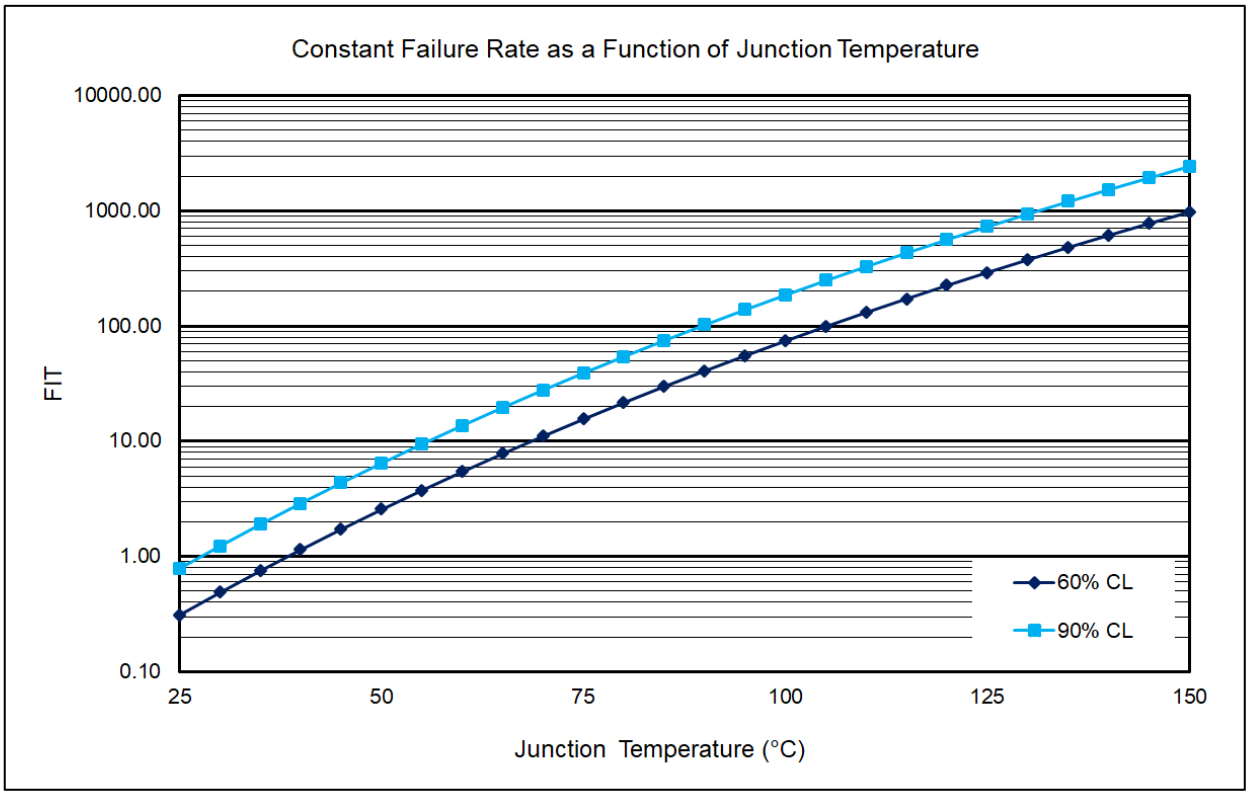
	Standard Failure Rate Calculations at 55°C and 60% CL		
	EDH (hours)	FITs	MTTF (hours)
Early Life	2.71E+07	33.8	2.96E+07
Constant (Random)	2.79E+08	3.3	3.05E+08



UltraCMOS® 6.5 Process Technology

Generation : 250 nm CMOS Silicon Epi Process (U250E4)
Units Tested : 1,946
Product Family : Driver, DSA, Switch

	Standard Failure Rate Calculations at 55°C and 60% CL		
	EDH (hours)	FITs	MTTF (hours)
Early Life	1.97E+07	46.6	2.15E+07
Constant (Random)	2.43E+08	3.8	2.66E+08



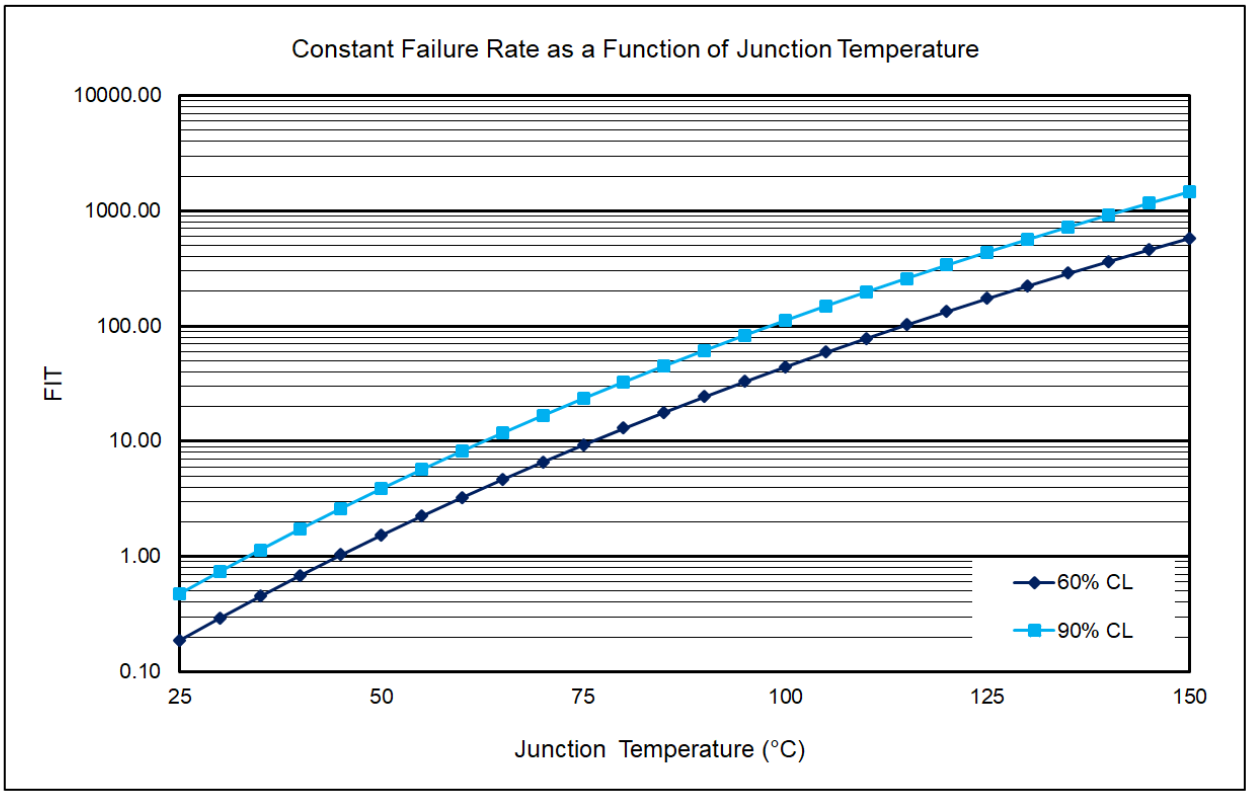
UltraCMOS® 8 Process Technology

Generation : 250 nm CMOS Bonded Silicon Process (U250B)

Units Tested : 3,203

Product Family : Driver, DSA, DTC, LMTR, MPAC, MXR, PSR, Switch

	Standard Failure Rate Calculations at 55°C and 60% CL		
	EDH (hours)	FITs	MTTF (hours)
Early Life	3.76E+07	24.4	4.10E+07
Constant (Random)	4.07E+08	2.2	4.45E+08



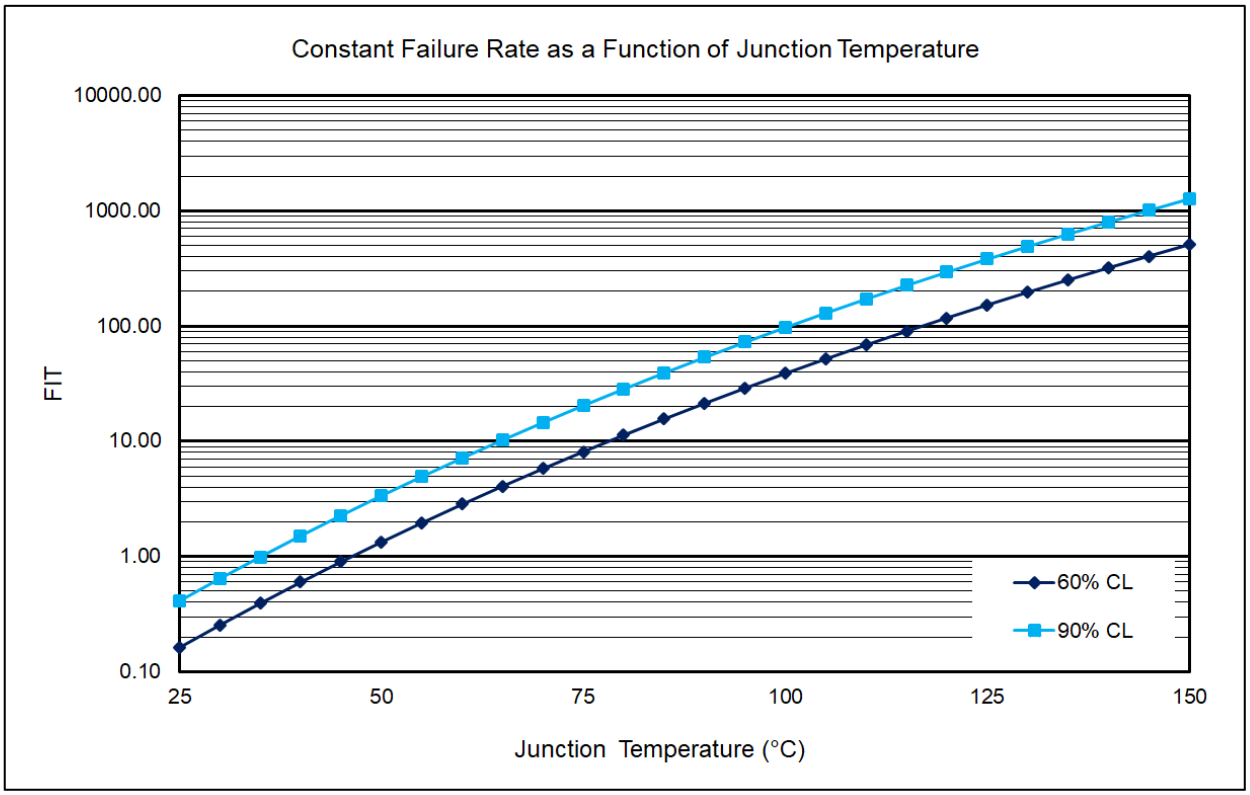
UltraCMOS® 10 Process Technology

Generation : 130nm CMOS Silicon-On-Insulator in 200mm wafer(U130S1)

Units Tested : 3,869

Product Family : Switch

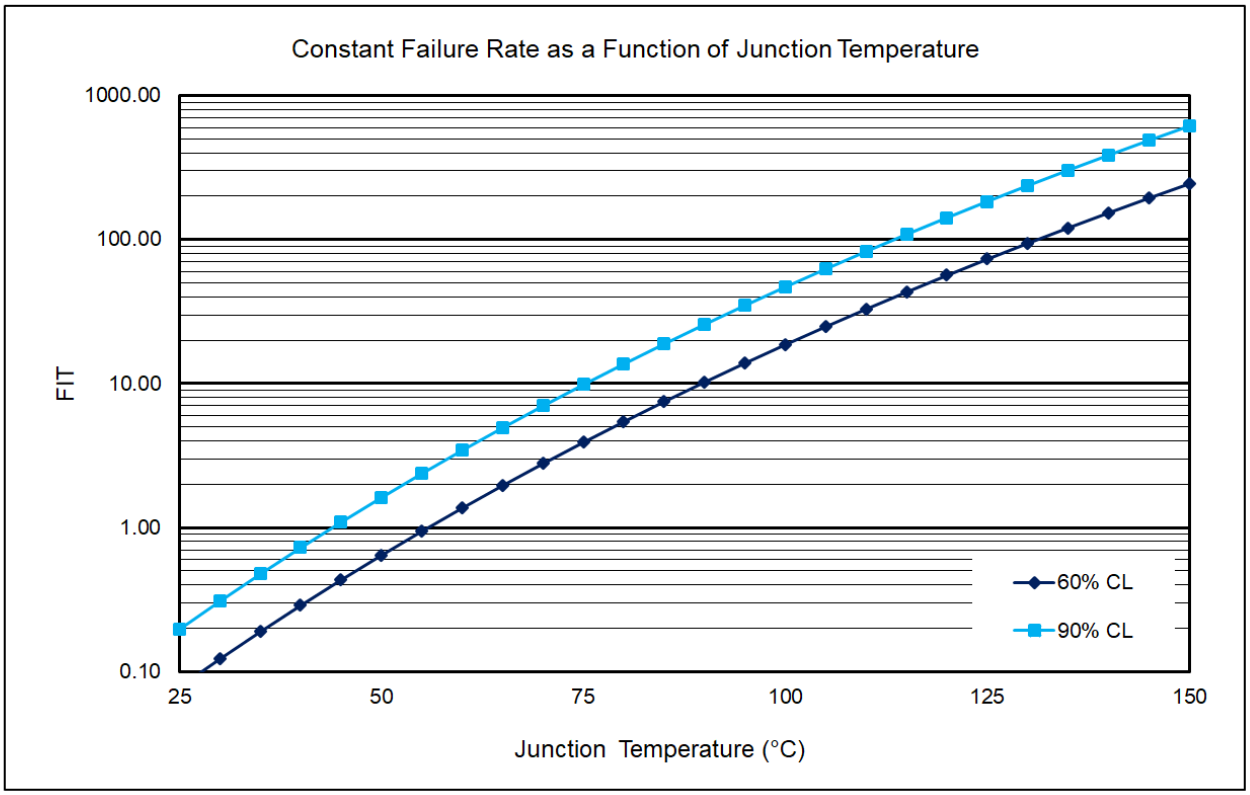
	Standard Failure Rate Calculations at 55°C and 60% CL		
	EDH (hours)	FITs	MTTF (hours)
Early Life	4.14E+07	22.1	4.52E+07
Constant (Random)	4.68E+08	2.0	5.10E+08



UltraCMOS® 11 Process Technology

Generation : 130nm CMOS Silicon-On-Insulator in 300mm wafer (U130S2)
Units Tested : 12,888
Product Family : Amplifier, DC-DC, Switch

	Standard Failure Rate Calculations at 55°C and 60% CL		
	EDH (hours)	FITs	MTTF (hours)
Early Life	7.77E+07	11.8	8.48E+07
Constant (Random)	9.69E+08	0.9	1.06E+09



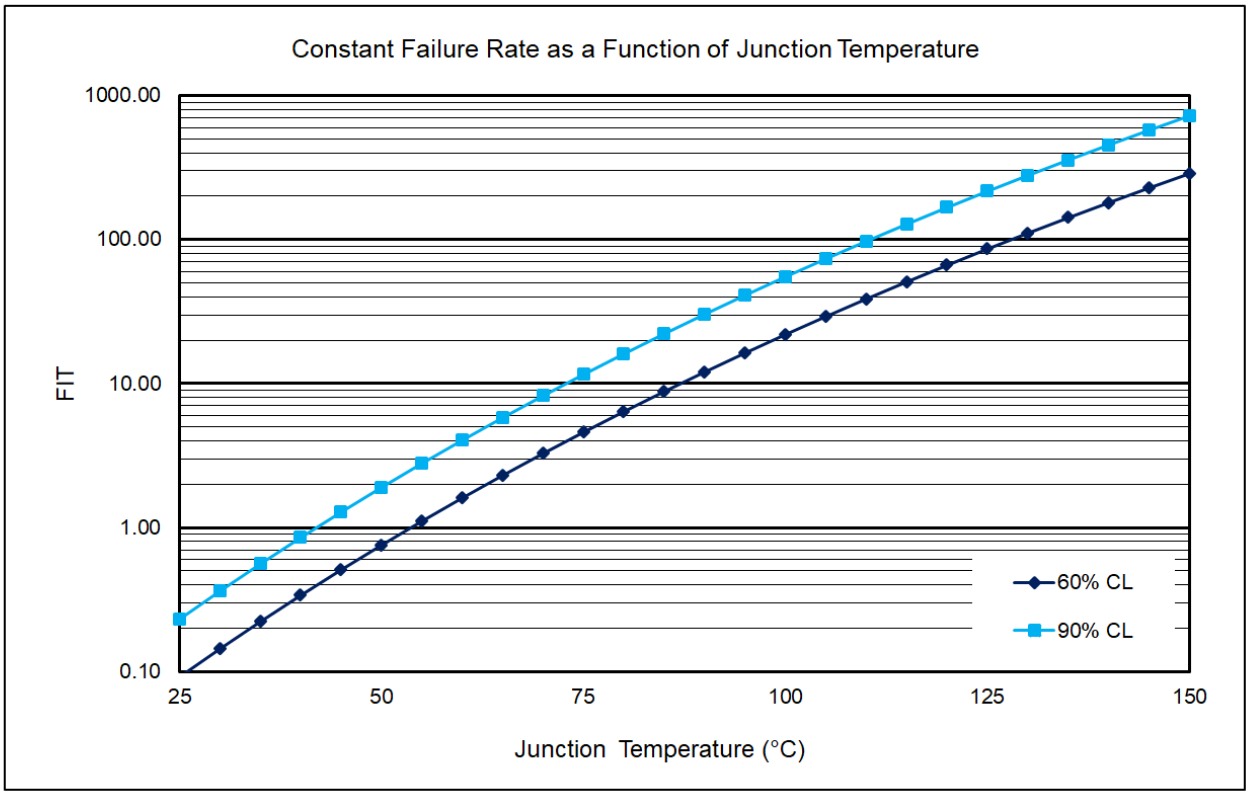
UltraCMOS® 12 Process Technology

Generation : 65nm CMOS Silicon-On-Insulator in 300mm wafer (U130S3)

Units Tested : 17,691

Product Family : Amplifier, DSA, PAC, Switch

	Standard Failure Rate Calculations at 55°C and 60% CL		
	EDH (hours)	FITs	MTTF (hours)
Early Life	8.99E+07	10.2	9.81E+07
Constant (Random)	8.23E+08	1.1	8.98E+08



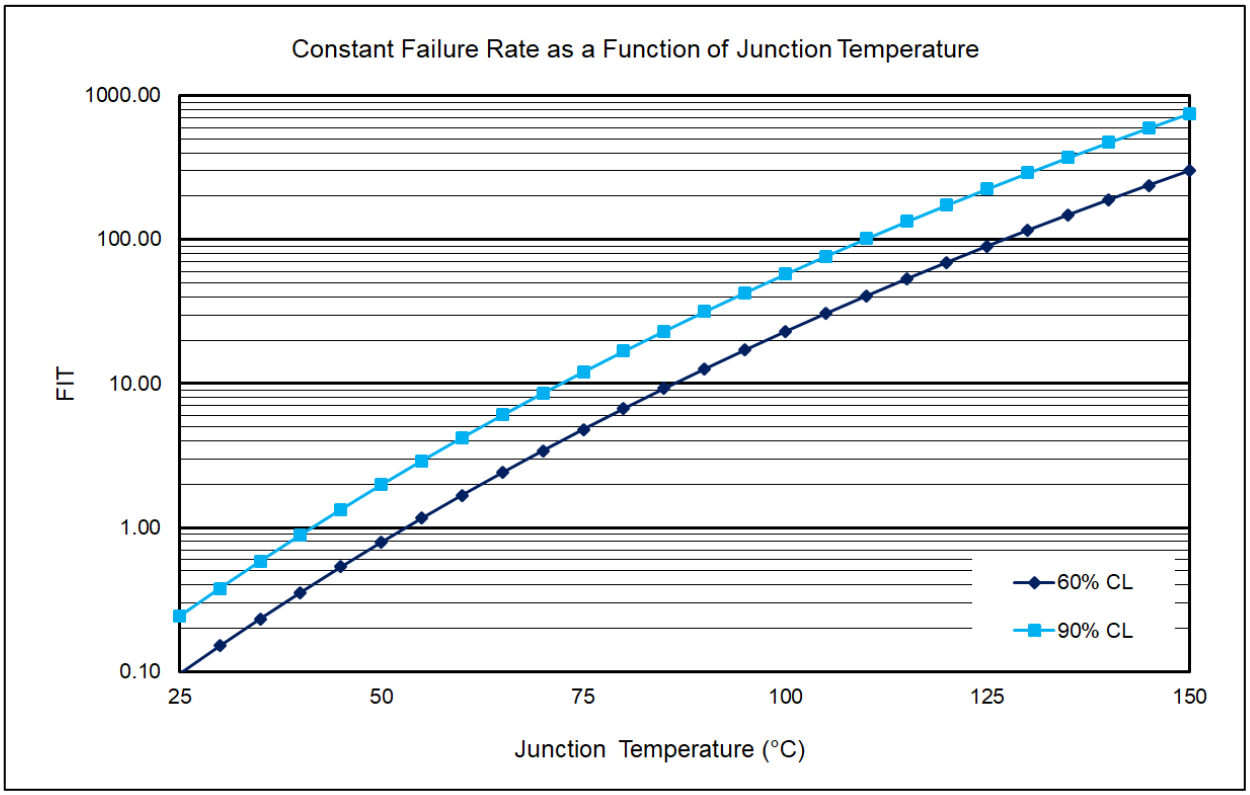
UltraCMOS® 12A Process Technology

Generation : 65nm CMOS Silicon-On-Insulator in 300mm wafer (U130S4)

Units Tested : 15,308

Product Family : Amplifier, mmWave, Switch

	Standard Failure Rate Calculations at 55°C and 60% CL		
	EDH (hours)	FITs	MTTF (hours)
Early Life	6.22E+07	14.7	6.79E+07
Constant (Random)	7.90E+08	1.2	8.62E+08



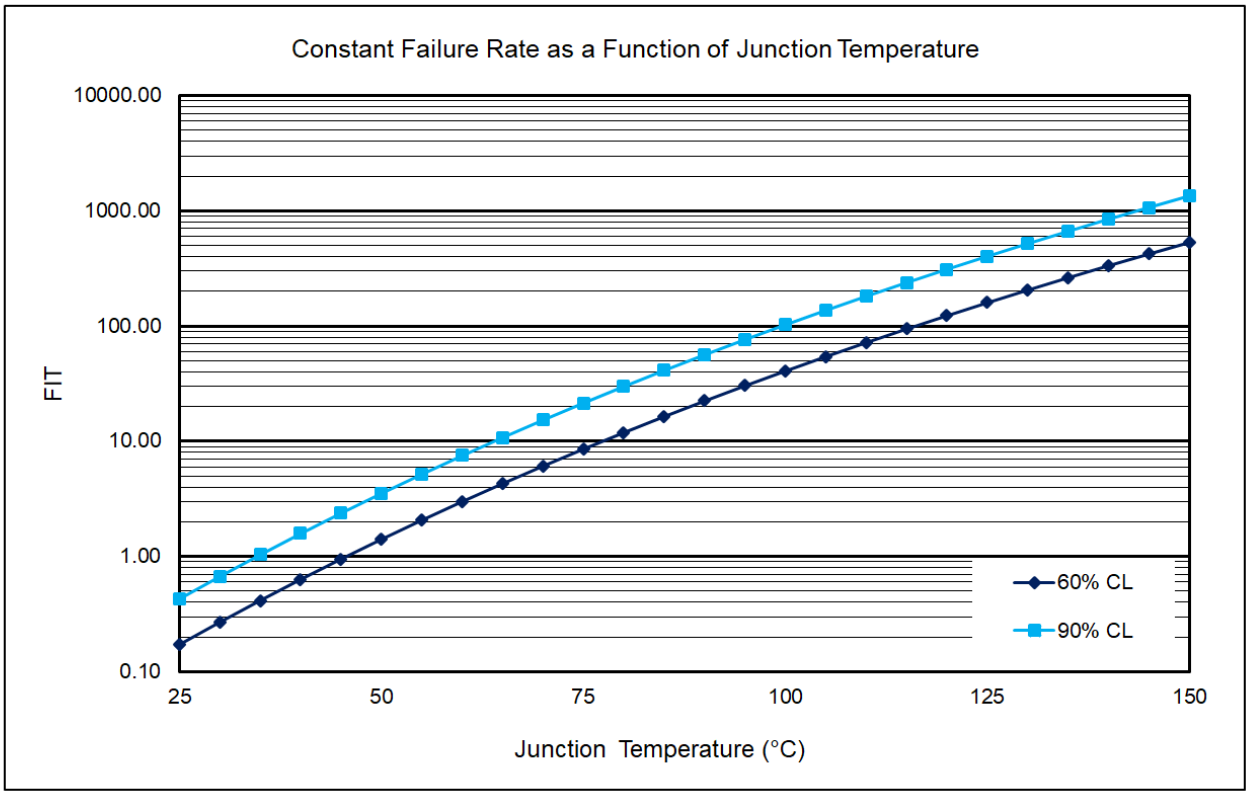
UltraCMOS® 13 Process Technology

Generation : 65nm CMOS Silicon-On-Insulator in 300mm wafer (U130S4)

Units Tested : 10,589

Product Family : Amplifier, Switch

	Standard Failure Rate Calculations at 55°C and 60% CL		
	EDH (hours)	FITs	MTTF (hours)
Early Life	4.87E+07	18.8	5.32E+07
Constant (Random)	4.44E+08	2.1	4.85E+08



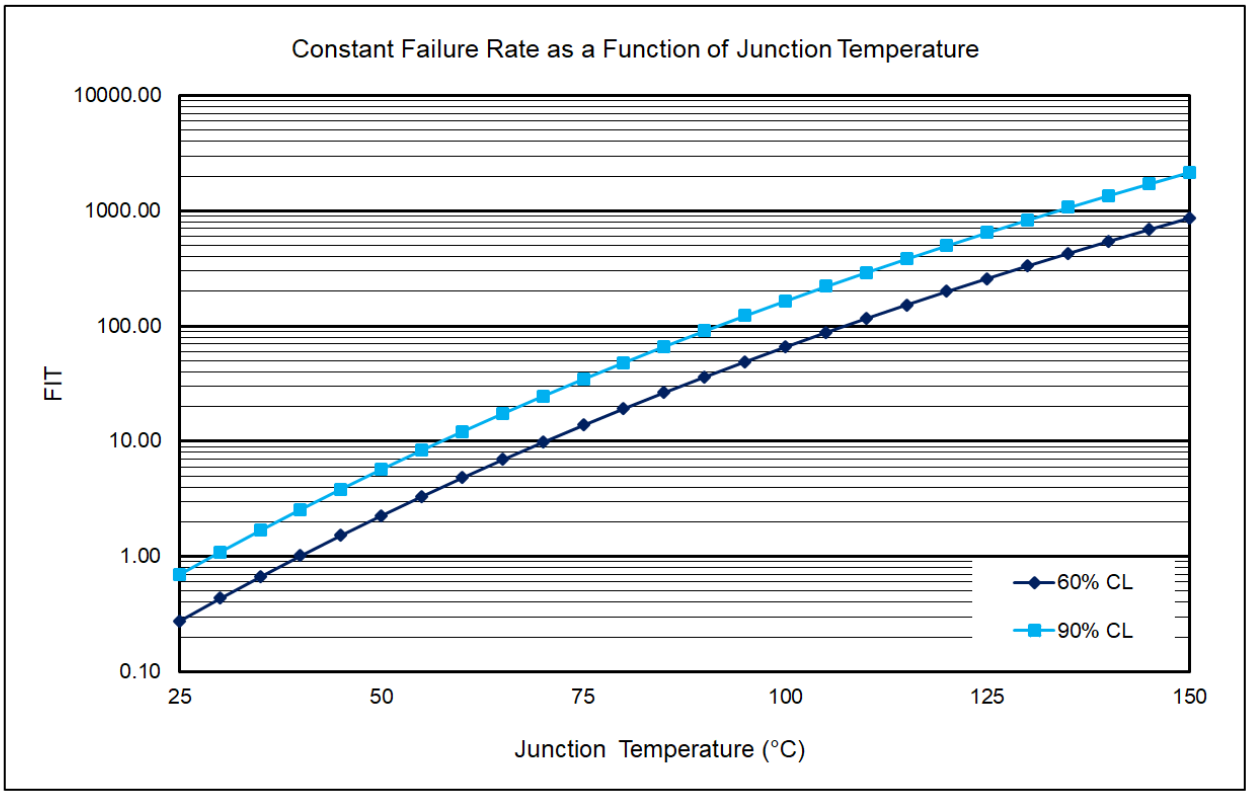
UltraCMOS® 13S Process Technology

Generation : 65nm CMOS Silicon-On-Insulator in 300mm wafer (U130S4)

Units Tested : 13,963

Product Family : Amplifier, Switch

	Standard Failure Rate Calculations at 55°C and 60% CL		
	EDH (hours)	FITs	MTTF (hours)
Early Life	5.01E+07	18.3	5.46E+07
Constant (Random)	2.75E+08	3.3	3.00E+08



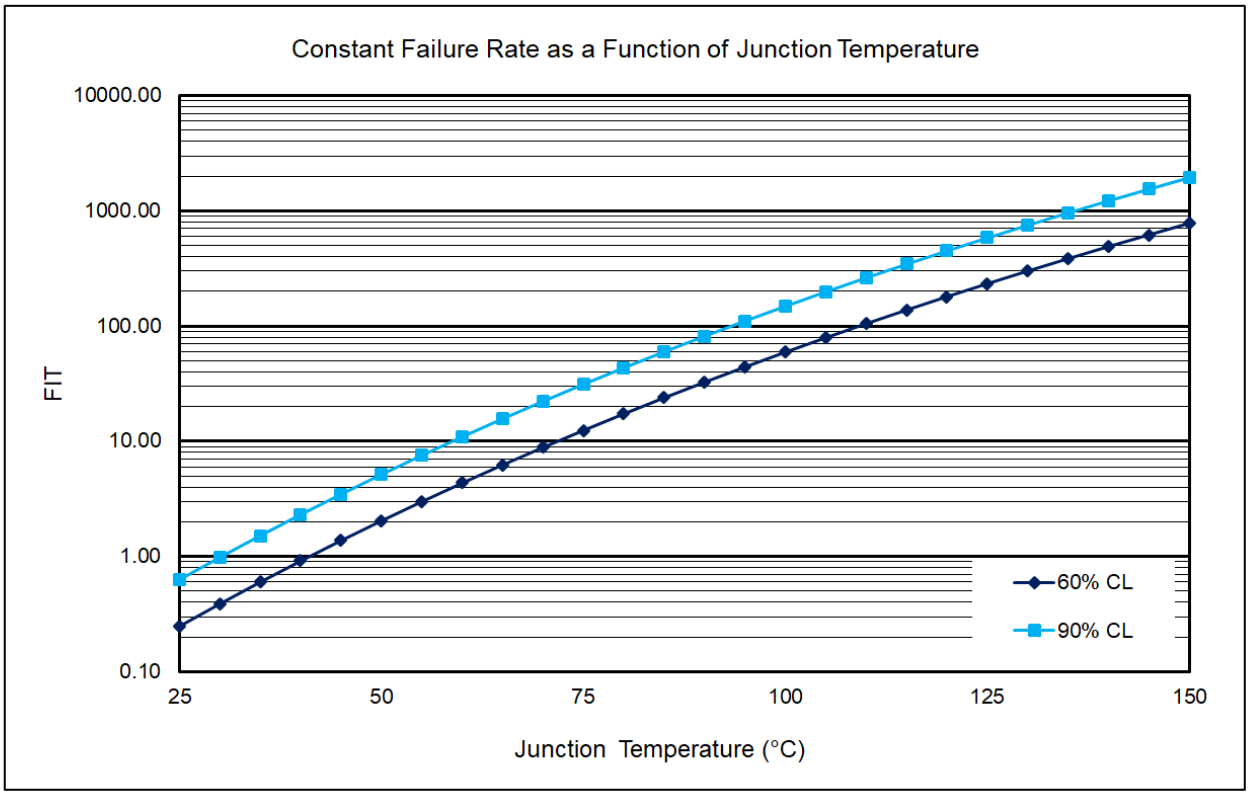
UltraCMOS® 13SA Process Technology

Generation : 65nm CMOS Silicon-On-Insulator in 300mm wafer (U130S4)

Units Tested : 11,130

Product Family : Switch

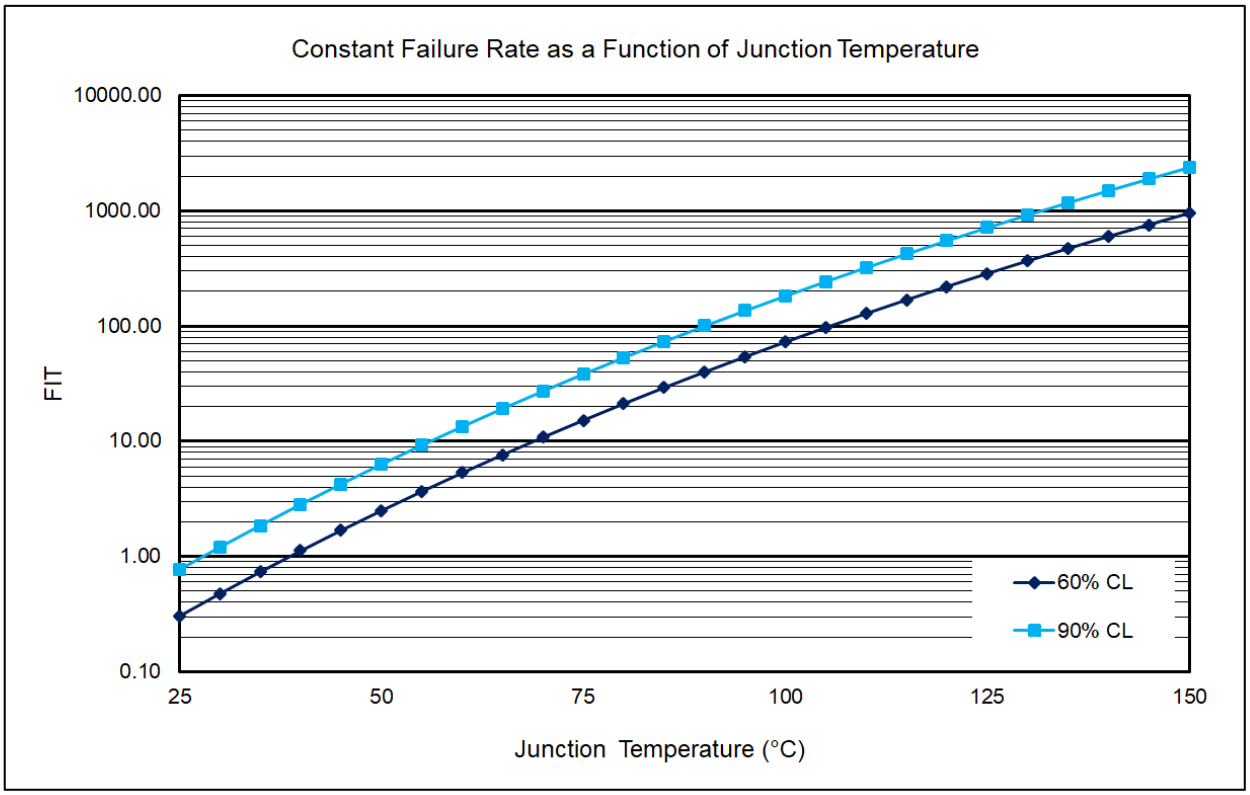
	Standard Failure Rate Calculations at 55°C and 60% CL		
	EDH (hours)	FITs	MTTF (hours)
Early Life	3.90E+07	23.5	4.25E+07
Constant (Random)	3.06E+08	3.0	3.34E+08



UltraCMOS® 14 Process Technology

Generation : 65nm CMOS Silicon-On-Insulator in 300mm wafer (U14UD)
Units Tested : 12,,993
Product Family : Switch

	Standard Failure Rate Calculations at 55°C and 60% CL		
	EDH (hours)	FITs	MTTF (hours)
Early Life	4.39E+07	20.9	4.79E+07
Constant (Random)	2.49E+08	3.7	2.72E+08



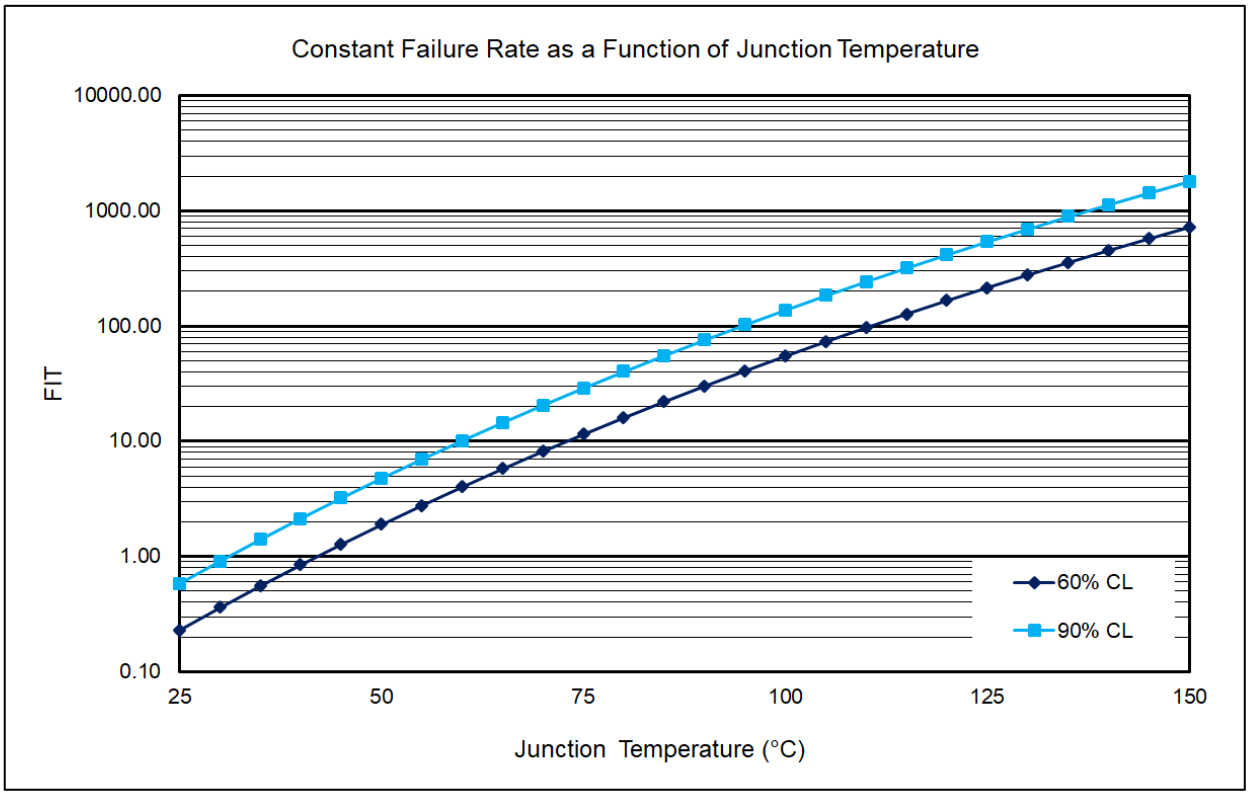
UltraCMOS® 16 Process Technology

Generation : 65nm CMOS Silicon-On-Insulator in 300mm wafer (U16UD)

Units Tested : 18,142

Product Family : Switch

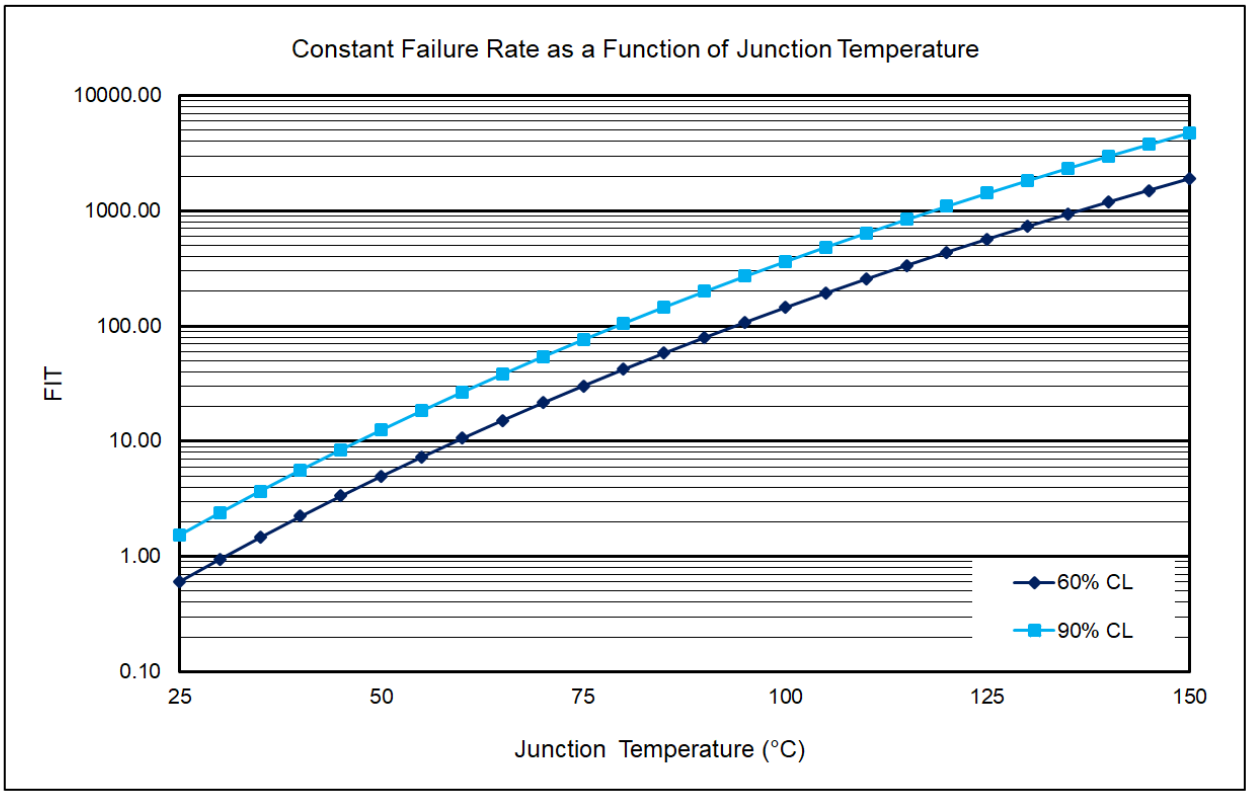
	Standard Failure Rate Calculations at 55°C and 60% CL		
	EDH (hours)	FITs	MTTF (hours)
Early Life	5.41E+07	16.9	5.91E+07
Constant (Random)	3.29E+08	2.8	3.60E+08



BCD GEN II Process Technology

Generation : 180nm BCD Gen 2 Process
Units Tested : 1,616
Product Family : DC-DC

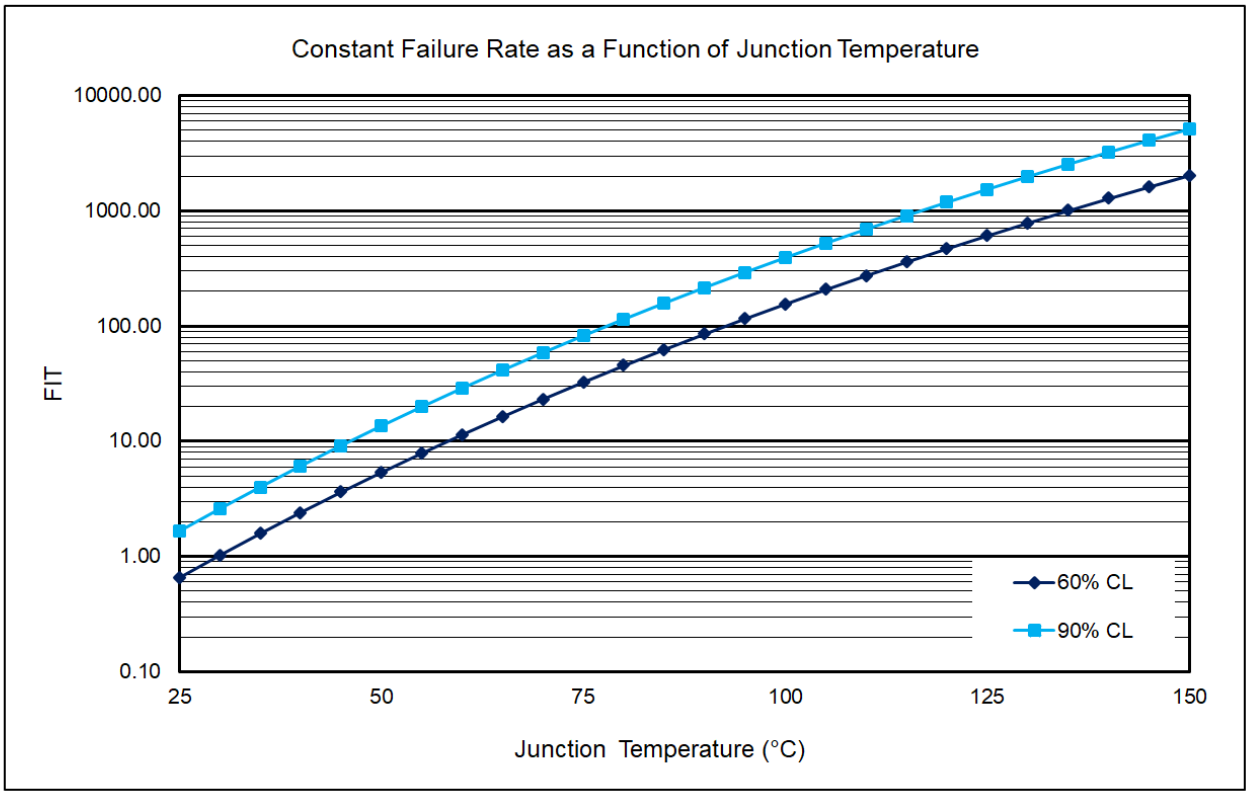
	Standard Failure Rate Calculations at 55°C and 60% CL		
	EDH (hours)	FITs	MTTF (hours)
Early Life	6.01E+06	152.3	6.56E+06
Constant (Random)	1.25E+08	7.3	1.37E+08



BCD GEN III Process Technology

Generation : 180nm BCD Gen 3 Process
Units Tested : 3,068
Product Family : DC-DC

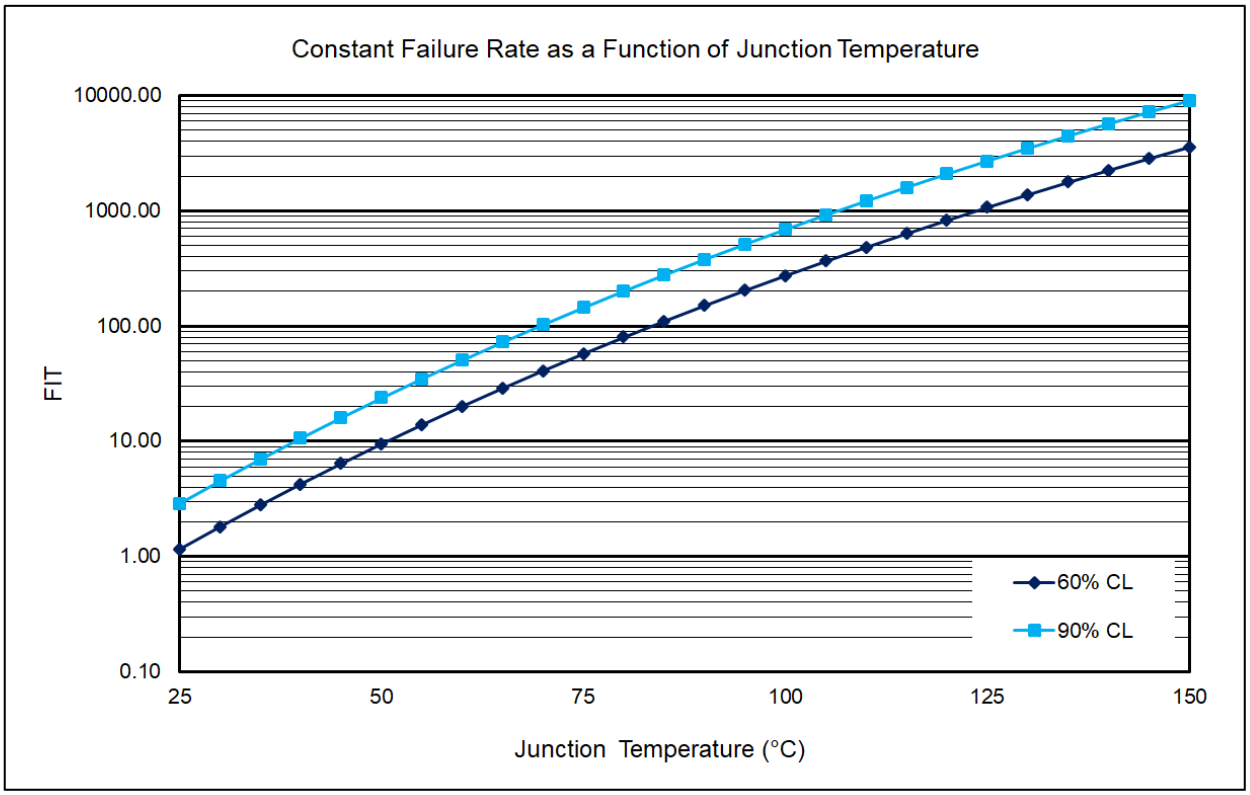
	Standard Failure Rate Calculations at 55°C and 60% CL		
	EDH (hours)	FITs	MTTF (hours)
Early Life	1.36E+07	67.4	1.48E+07
Constant (Random)	1.16E+08	7.9	1.27E+08



BCDLite Process Technology

Generation : 130nm BCDLite Process
Units Tested : 786
Product Family : DC-DC

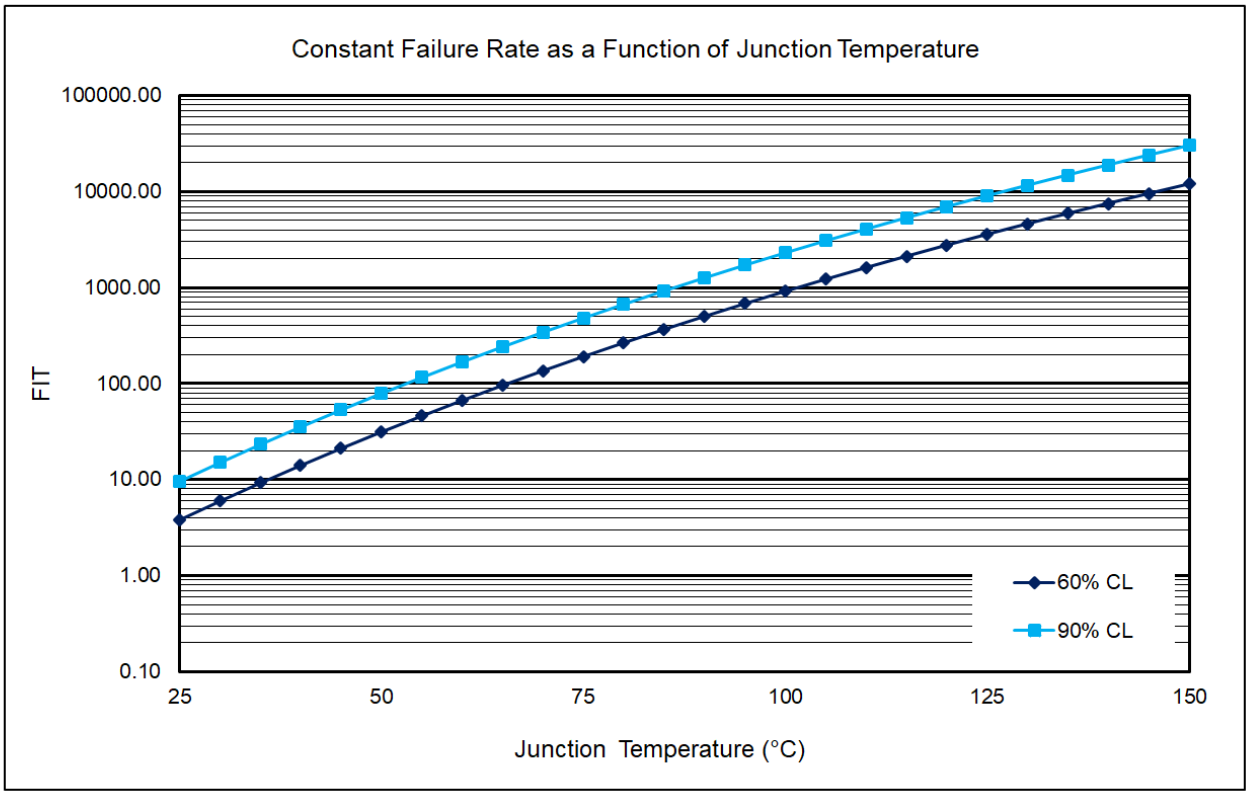
	Standard Failure Rate Calculations at 55°C and 60% CL		
	EDH (hours)	FITs	MTTF (hours)
Early Life	4.82E+06	190.0	5.26E+06
Constant (Random)	6.59E+07	13.9	7.19E+07



CM18 Process Technology

Generation : 180nm CMOS Process
Units Tested : 255
Product Family : DC-DC

	Standard Failure Rate Calculations at 55°C and 60% CL		
	EDH (hours)	FITs	MTTF (hours)
Early Life	9.49E+05	965.4	1.04E+06
Constant (Random)	1.98E+07	46.3	2.16E+07



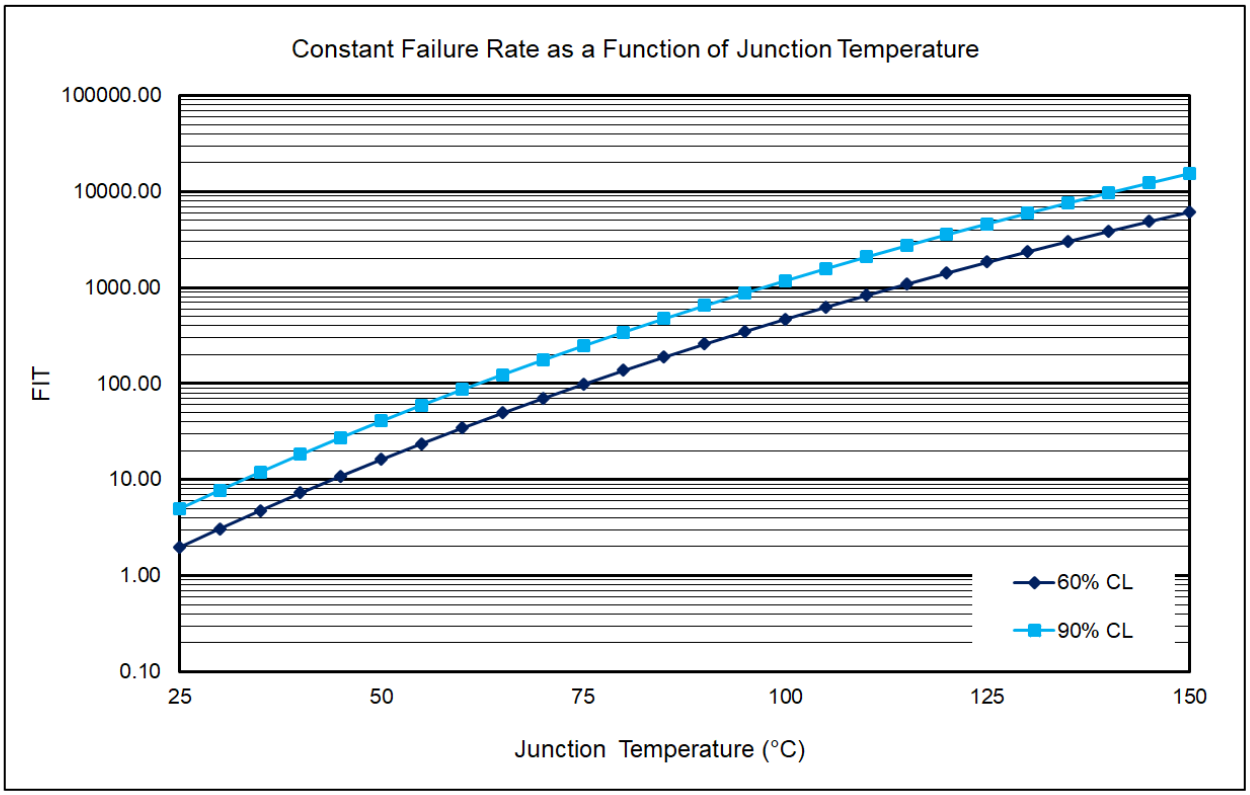
55LPx Process Technology

Generation : 55nm 300mm wafer (C055C1E6)

Units Tested : 497

Product Family : ASIC

	Standard Failure Rate Calculations at 55°C and 60% CL		
	EDH (hours)	FITs	MTTF (hours)
Early Life	1.85E+06	495.3	2.02E+06
Constant (Random)	3.85E+07	23.8	4.21E+07



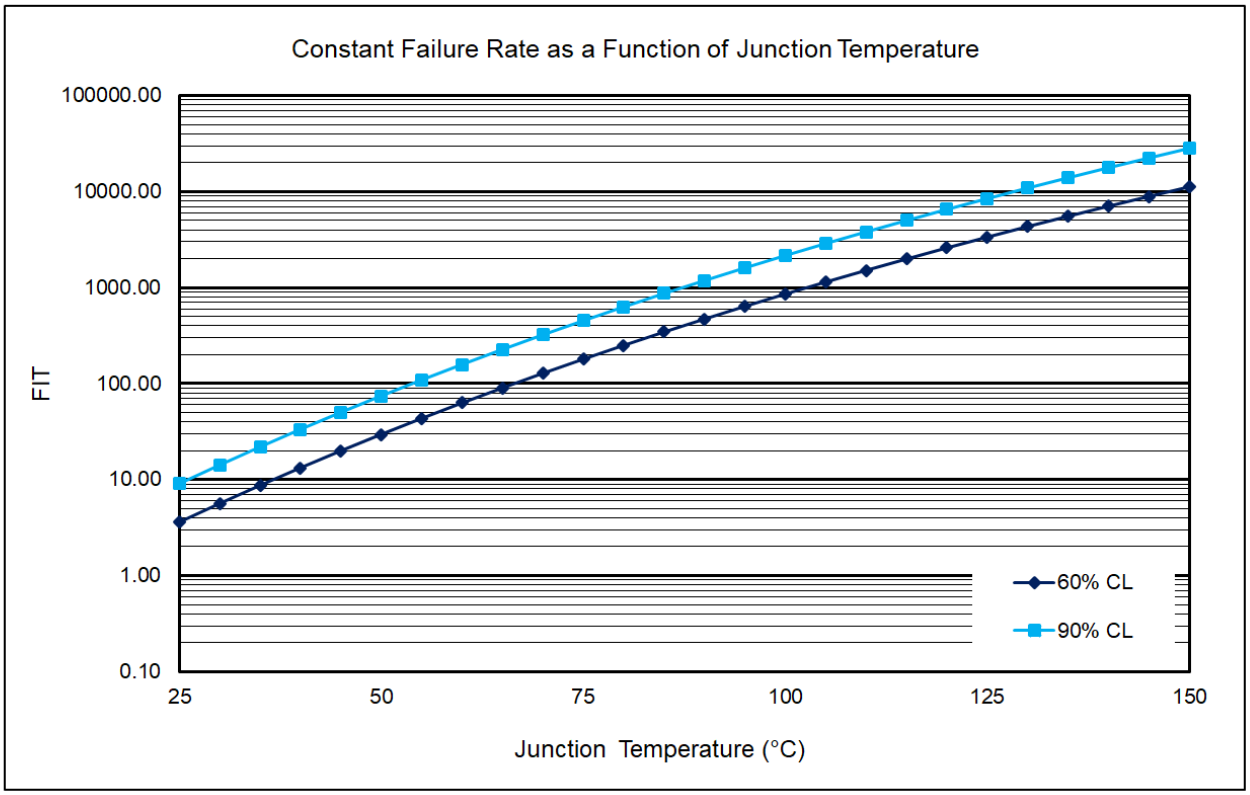
45RFSOI Process Technology

Generation : 55nm 300mm wafer (C045S1E8)

Units Tested : 272

Product Family : mmWave

	Standard Failure Rate Calculations at 55°C and 60% CL		
	EDH (hours)	FITs	MTTF (hours)
Early Life	1.01E+06	905.1	1.10E+06
Constant (Random)	2.11E+07	43.4	2.30E+07

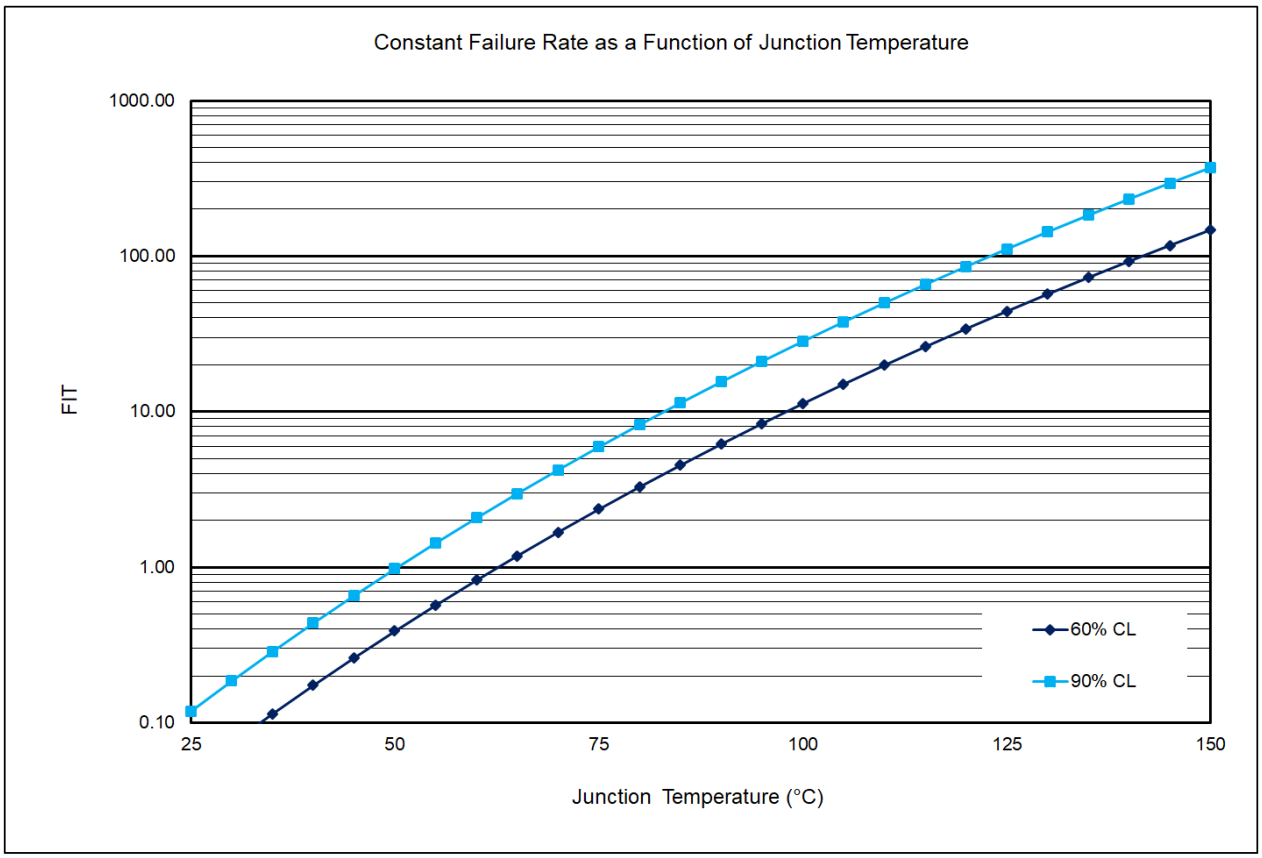


Product Family Classification

Amplifiers (LNA & PA)

Description	:	UltraCMOS Low-Noise Amplifiers (LNA) and Power Amplifiers (PA)
Products in Family	:	See Appendix A (page 51)
Process Technology	:	UltraCMOS® 11, UltraCMOS® 12, UltraCMOS® 12A, UltraCMOS® 13, UltraCMOS® 13S
Units Tested	:	34,056

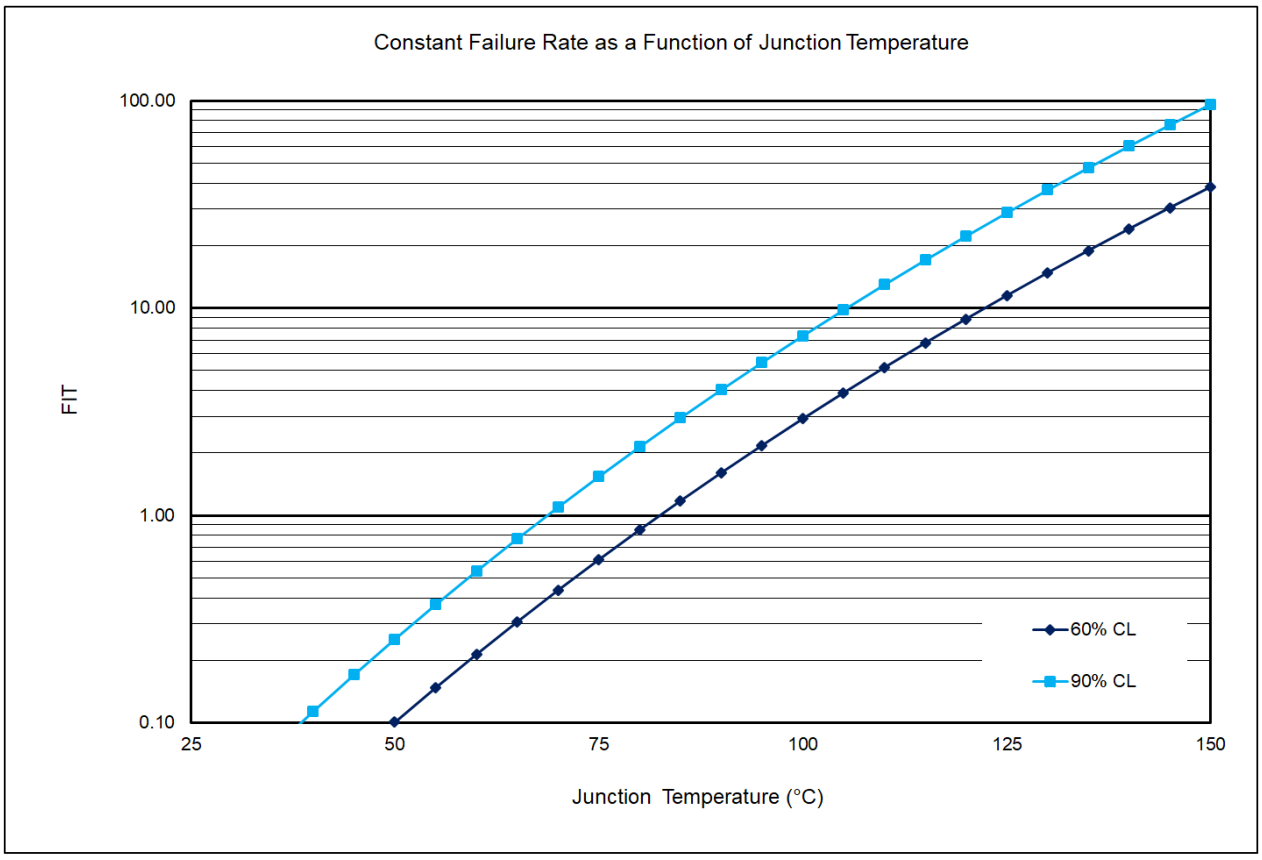
	Standard Failure Rate Calculations at 55°C and 60% CL		
	EDH (hours)	FITs	MTTF (hours)
Early Life	1.42E+08	6.4	1.55E+08
Constant (Random)	1.61E+09	0.6	1.75E+09



Switches (ASW, HPSW, ATS & BSW)

Description	:	Multi-pole & multi-throw high power handling antenna switch products for Mobile Wireless RF, broadband infrastructure, and Test Equipment /ATE applications.
Products in Family	:	See Appendix B (page 53)
Process Technology	:	UltraCMOS® 2, UltraCMOS® 3.5, UltraCMOS® 5, UltraCMOS® 6, UltraCMOS® 6.5, UltraCMOS® 8, UltraCMOS® 10, UltraCMOS® 11, UltraCMOS® 12, UltraCMOS® 12A, UltraCMOS® 13, UltraCMOS® 13S, UltraCMOS® 13SA, UltraCMOS® 14, UltraCMOS® 16
Units Tested	:	110,072

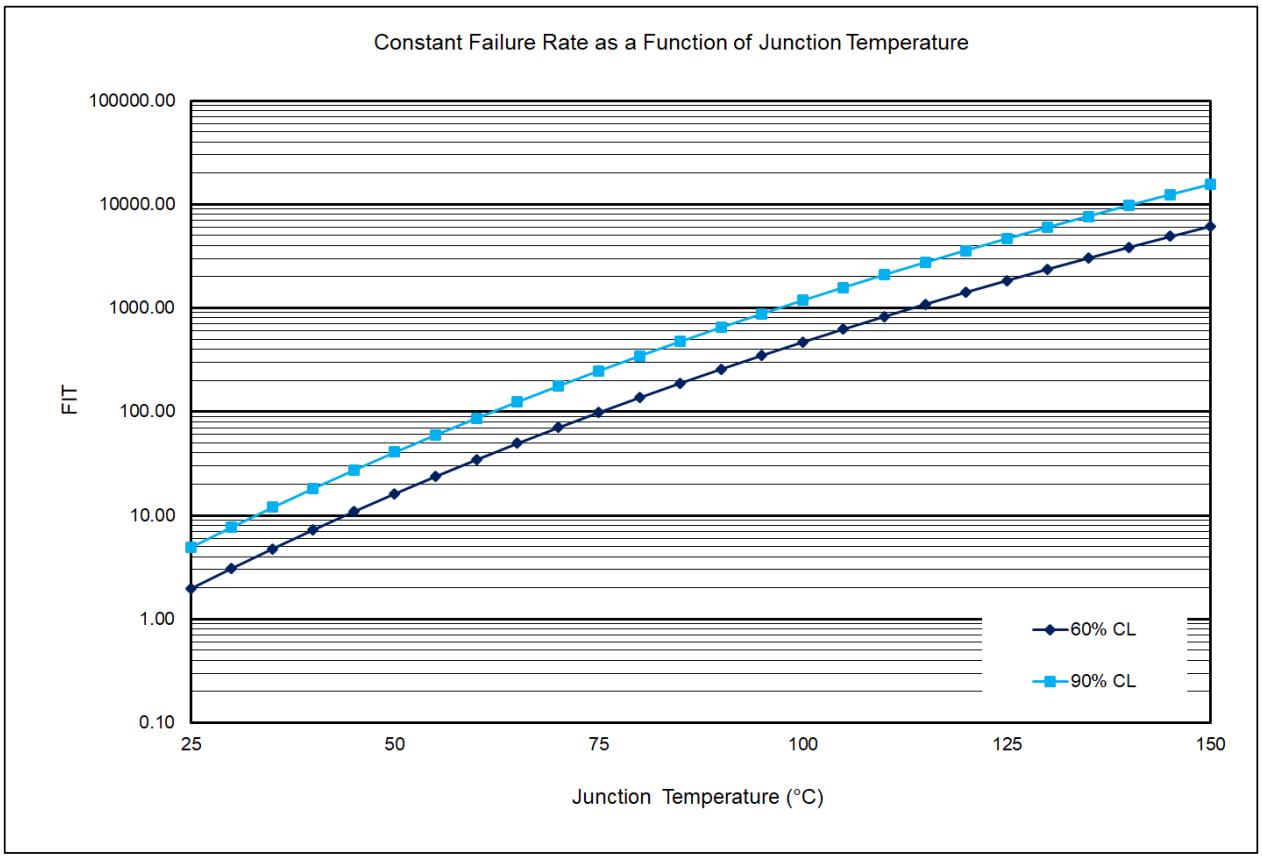
	Standard Failure Rate Calculations at 55°C and 60% CL		
	EDH (hours)	FITs	MTTF (hours)
Early Life	7.55E+08	1.2	8.24E+08
Constant (Random)	6.20E+09	0.1	6.77E+09



ASIC

Description	:	These ICs have high precision ADCs for sensing MEMS capacitance and high accuracy temperature sensors to support high conversion rates and low latency.
Products in Family	:	PE71910, WP71900, WP71901, WP71902
Process Technology	:	55LPx
Units Tested	:	497

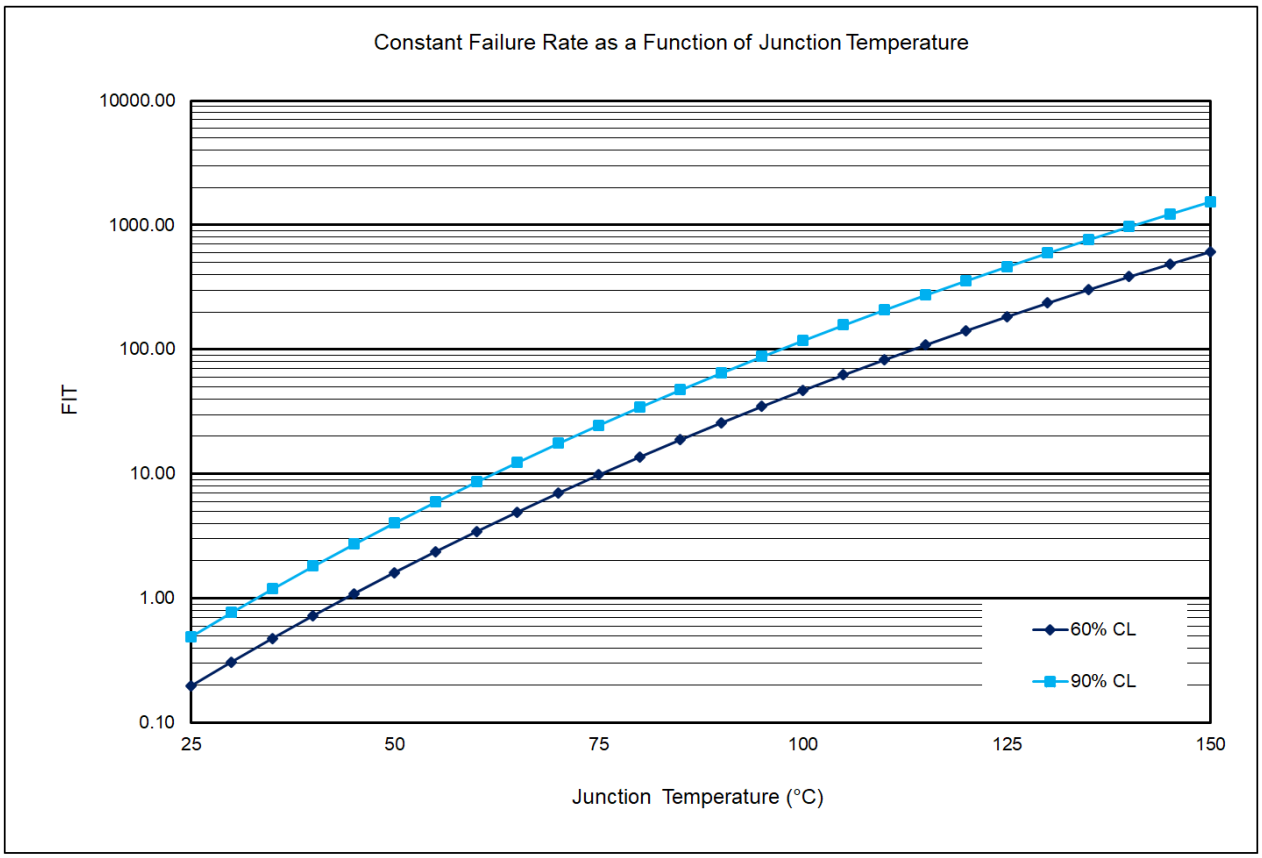
	Standard Failure Rate Calculations at 55°C and 60% CL		
	EDH (hours)	FITs	MTTF (hours)
Early Life	1.85E+06	495.3	2.02E+06
Constant (Random)	3.85E+07	23.8	4.21E+07



DC-DC

Description	:	These devices are ultra-high efficiency DC/DC converter solution with integrated programmable current sinks that drive strings of LEDs.
Products in Family	:	PE22100, PE23100, PE23102, PE23108, PE23261, PE23363, PE24101, PE24102, PE24103, PE24108, PE25200, PE25201, PE25204, PE25208, PE25213, PE26100, PE27100, PE27500, PE99151, PE99151-11, PE99153, PE99153-11, PE99155, PE99155-11
Process Technology	:	BCD GEN II, BCD GEN III, BCDLite, CM18, UltraCMOS® 2, UltraCMOS® 11
Units Tested	:	7,011

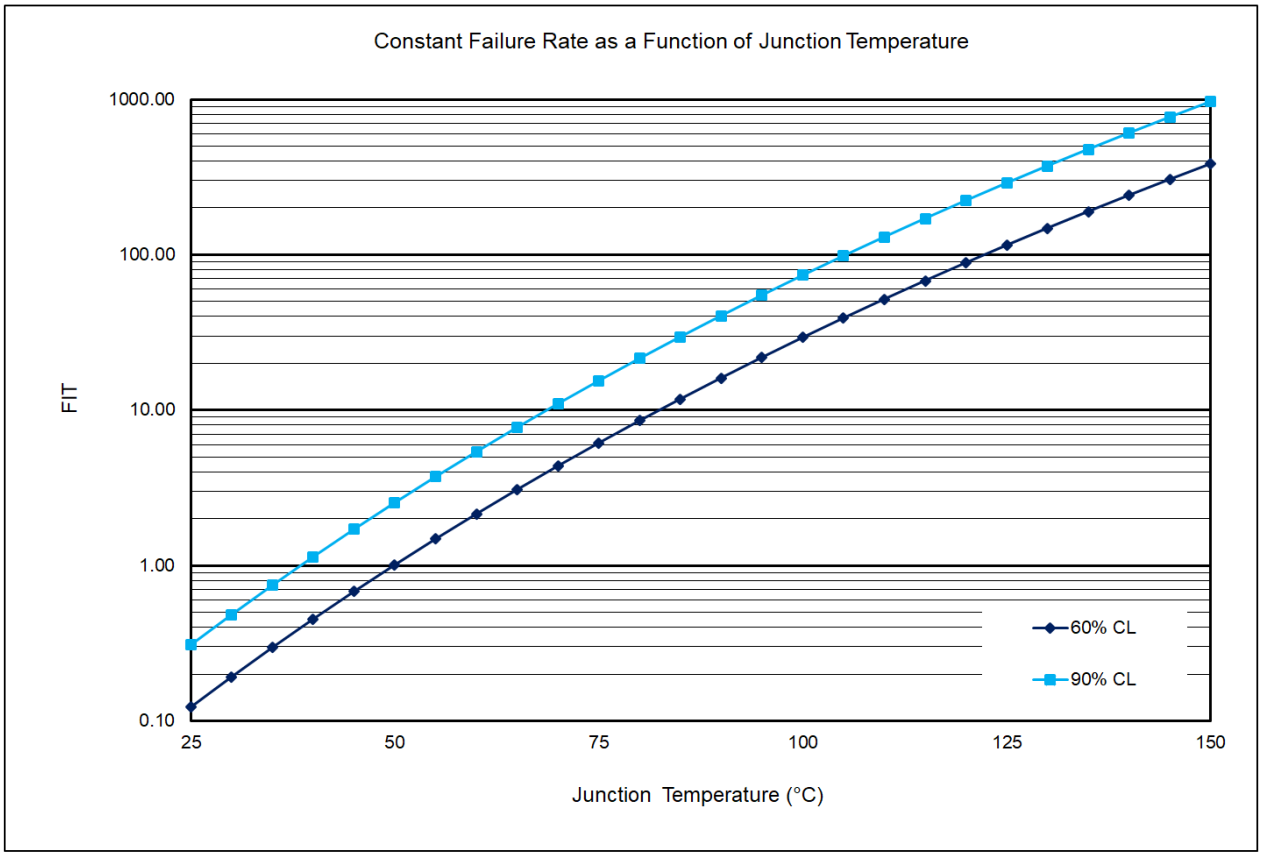
	Standard Failure Rate Calculations at 55°C and 60% CL		
	EDH (hours)	FITs	MTTF (hours)
Early Life	3.06E+07	30.0	3.34E+07
Constant (Random)	3.87E+08	2.4	4.22E+08



Digital Step Attenuators (DSA)

Description	:	50Ω and 75Ω Digital Step Attenuators for wireless infrastructure, microwave, test equipment and high reliability space applications.
Products in Family	:	PE4302, PE4306, PE4308, PE4309, PE4312, PE4314, PE43204, PE43205, PE43508, PE43610, PE43614, PE43620, PE43650, PE43665, PE43670, PE43701, PE43702, PE43703, PE43704, PE43705, PE43711, PE43712, PE43713, PE94302
Process Technology	:	UltraCMOS® 2, UltraCMOS® 3.5, UltraCMOS® 5, UltraCMOS® 6.5, UltraCMOS® 8, UltraCMOS® 12
Units Tested	:	6,935

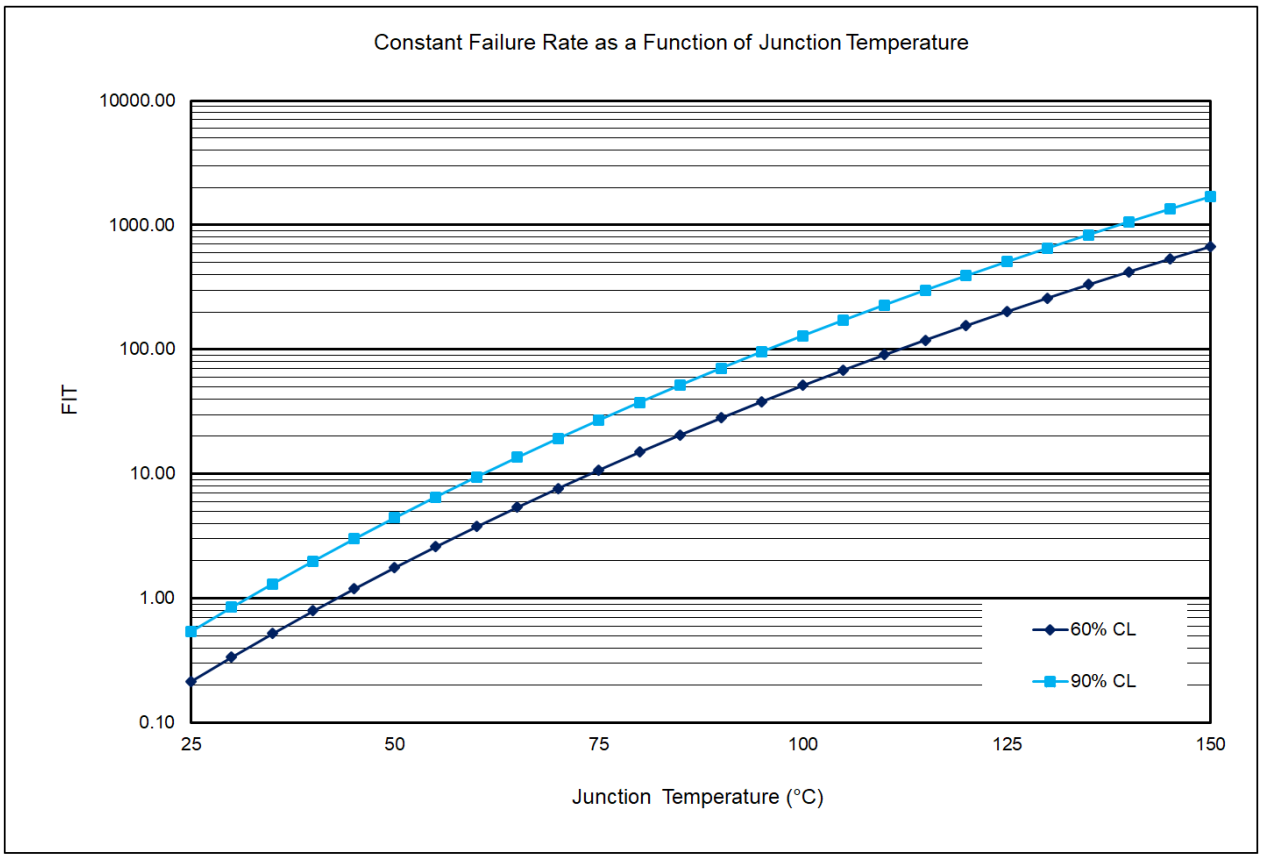
	Standard Failure Rate Calculations at 55°C and 60% CL		
	EDH (hours)	FITs	MTTF (hours)
Early Life	5.76E+07	15.9	6.29E+07
Constant (Random)	6.18E+08	1.5	6.75E+08



Digitally Tunable Capacitors (DTC)

Description	:	Supports a wide range of tuning applications, from tuning the center frequency of mobile-TV and antennas, to tunable impedance matching and filters.
Products in Family	:	PE613040, PE613050, PE62304, PE62305, PE623060, PE623090, PE64102, PE64904, PE64906, PE64907, PE64909
Process Technology	:	UltraCMOS® 3.5, UltraCMOS® 5, UltraCMOS® 8
Units Tested	:	2,885

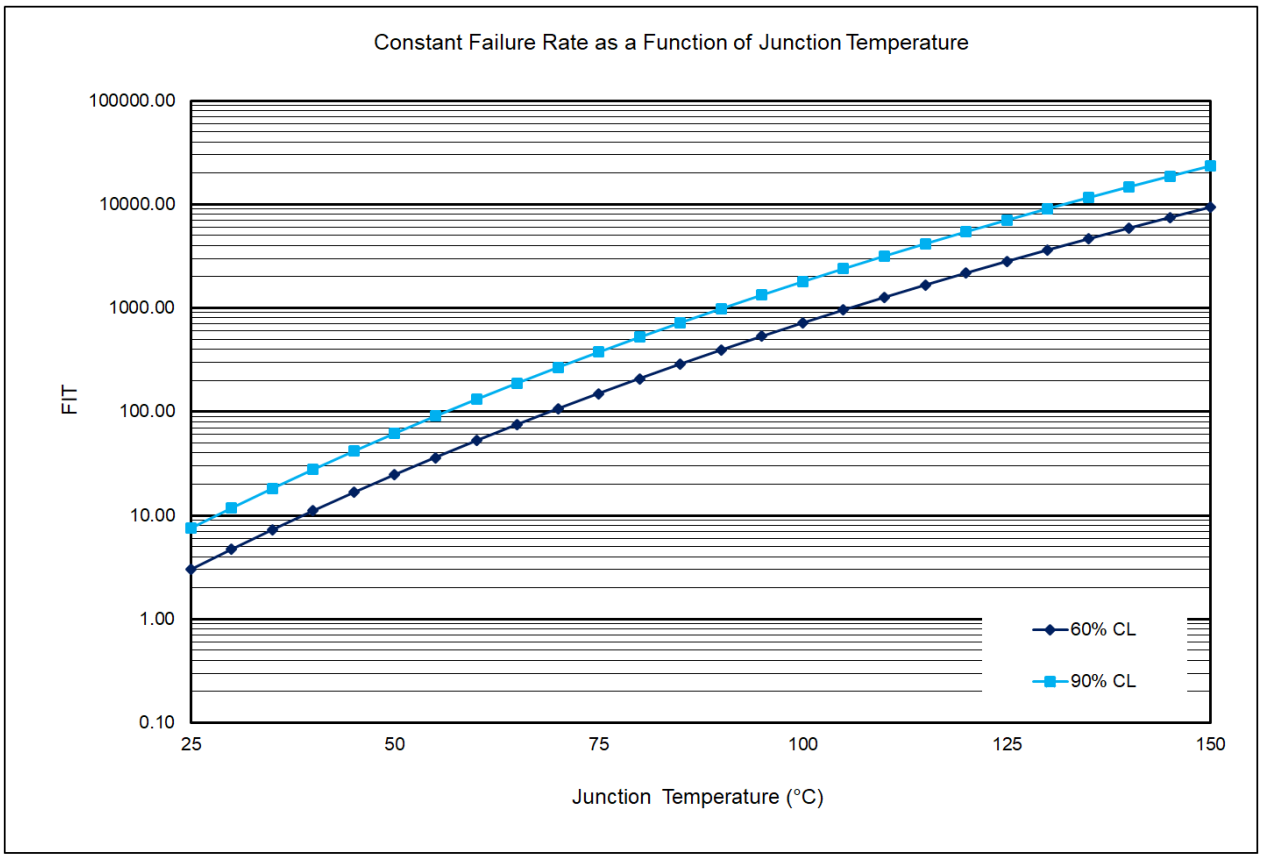
	Standard Failure Rate Calculations at 55°C and 60% CL		
	EDH (hours)	FITs	MTTF (hours)
Early Life	3.38E+07	27.1	3.68E+07
Constant (Random)	3.53E+08	2.6	3.85E+08



GaN Driver Product Family

Description	:	High-speed FET Driver
Products in Family	:	PE29100, PE29101, PE29102
Process Technology	:	UltraCMOS® 6.5, UltraCMOS® 8
Units Tested	:	327

	Standard Failure Rate Calculations at 55°C and 60% CL		
	EDH (hours)	FITs	MTTF (hours)
Early Life	1.22E+06	752.9	1.33E+06
Constant (Random)	2.54E+07	36.1	2.77E+07



Power Limiters (LMTR)

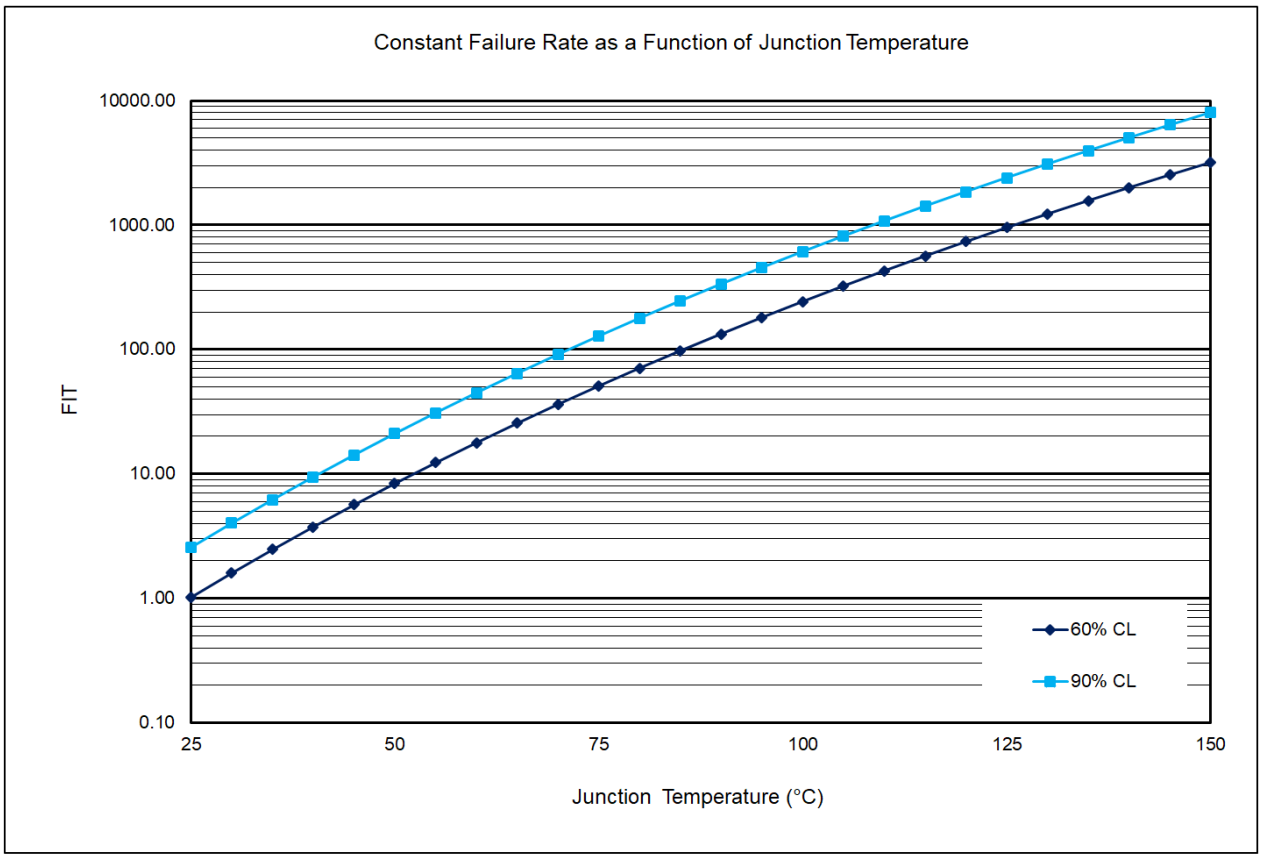
Description : UltraCMOS Power Limiters.

Products in Family : PE45140, PE45361, PE45450

Process Technology : UltraCMOS® 5, UltraCMOS® 8

Units Tested : 589

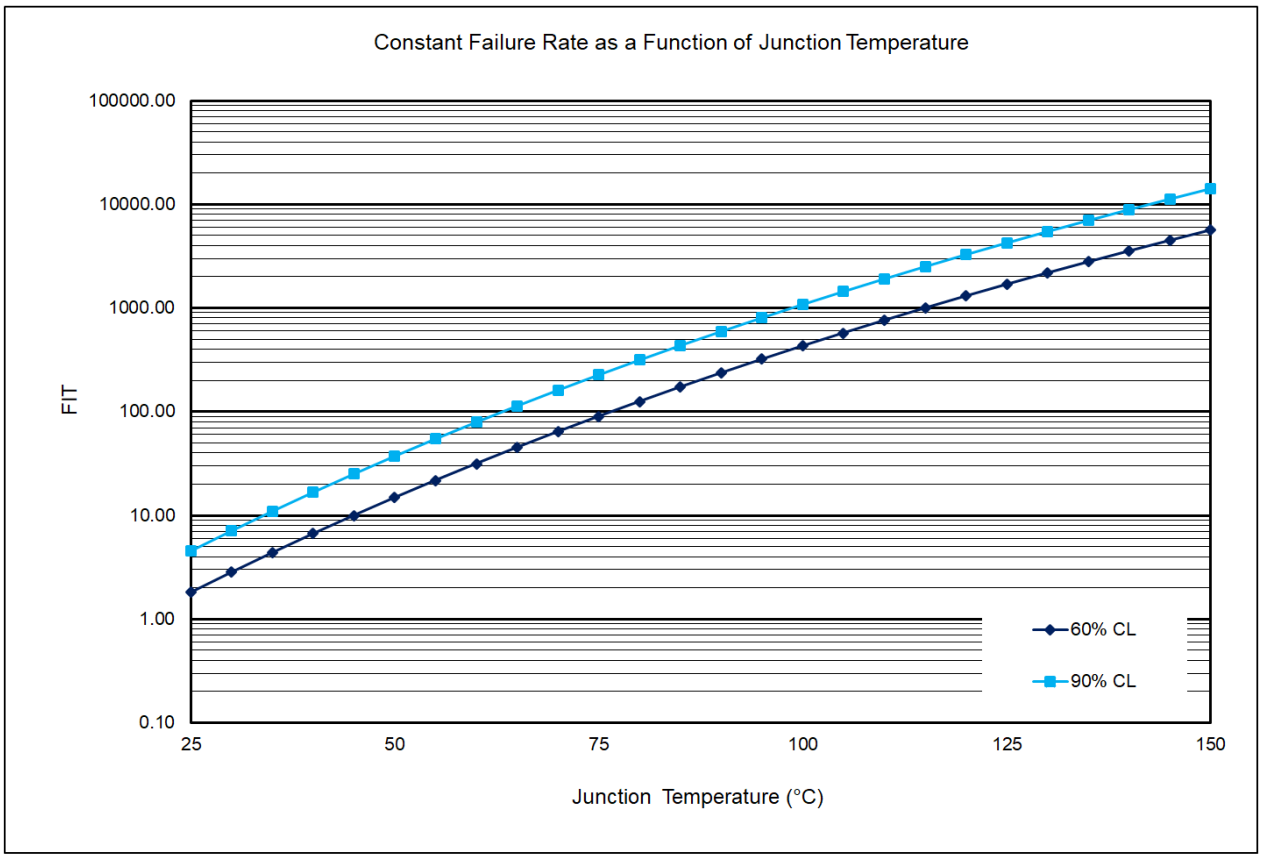
	Standard Failure Rate Calculations at 55°C and 60% CL		
	EDH (hours)	FITs	MTTF (hours)
Early Life	7.04E+06	130.2	7.68E+06
Constant (Random)	7.45E+07	12.3	8.13E+07



mmWave

Description	:	mmWave FEM
Products in Family	:	PE188200, PE1283x0
Process Technology	:	UltraCMOS® 12A, 45RFSOI
Units Tested	:	543

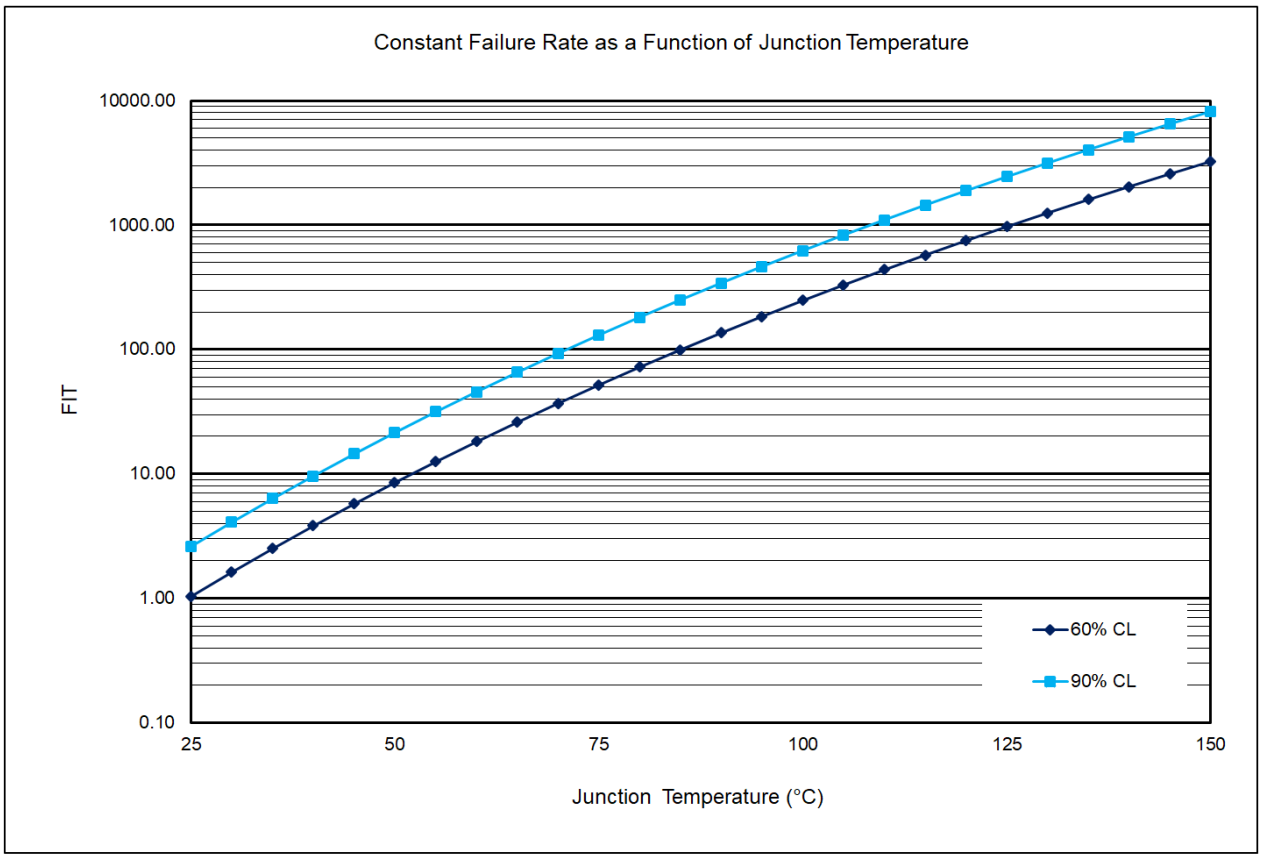
	Standard Failure Rate Calculations at 55°C and 60% CL		
	EDH (hours)	FITs	MTTF (hours)
Early Life	2.02E+06	453.4	2.21E+06
Constant (Random)	4.21E+07	21.8	4.60E+07



Monolithic Phase & Amplitude Controller (MPAC)

Description	:	UltraCMOS RF MPACs.
Products in Family	:	PE19601, PE46120, PE46130, PE46140
Process Technology	:	UltraCMOS® 5, UltraCMOS® 8
Units Tested	:	565

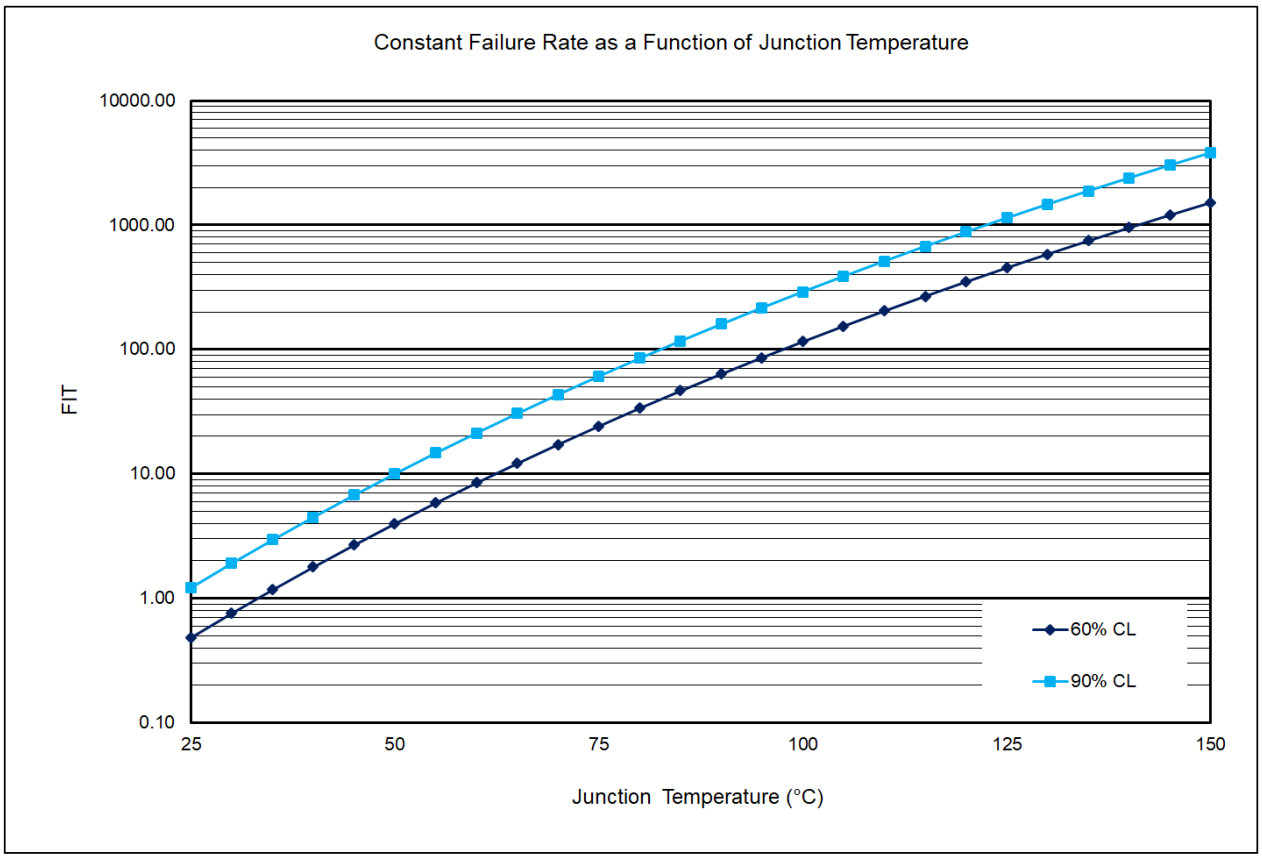
	Standard Failure Rate Calculations at 55°C and 60% CL		
	EDH (hours)	FITs	MTTF (hours)
Early Life	7.02E+06	130.6	7.66E+06
Constant (Random)	7.31E+07	12.5	7.98E+07



Mixers (MXR)

Description	:	UltraCMOS MOSFET quad array broadband and tuned mixers.
Products in Family	:	PE4120, PE4122, PE4126, PE4134, PE4140, PE4141, PE4150, PE4151, PE4152, PE41901
Process Technology	:	UltraCMOS® 2, UltraCMOS® 8
Units Tested	:	1,136

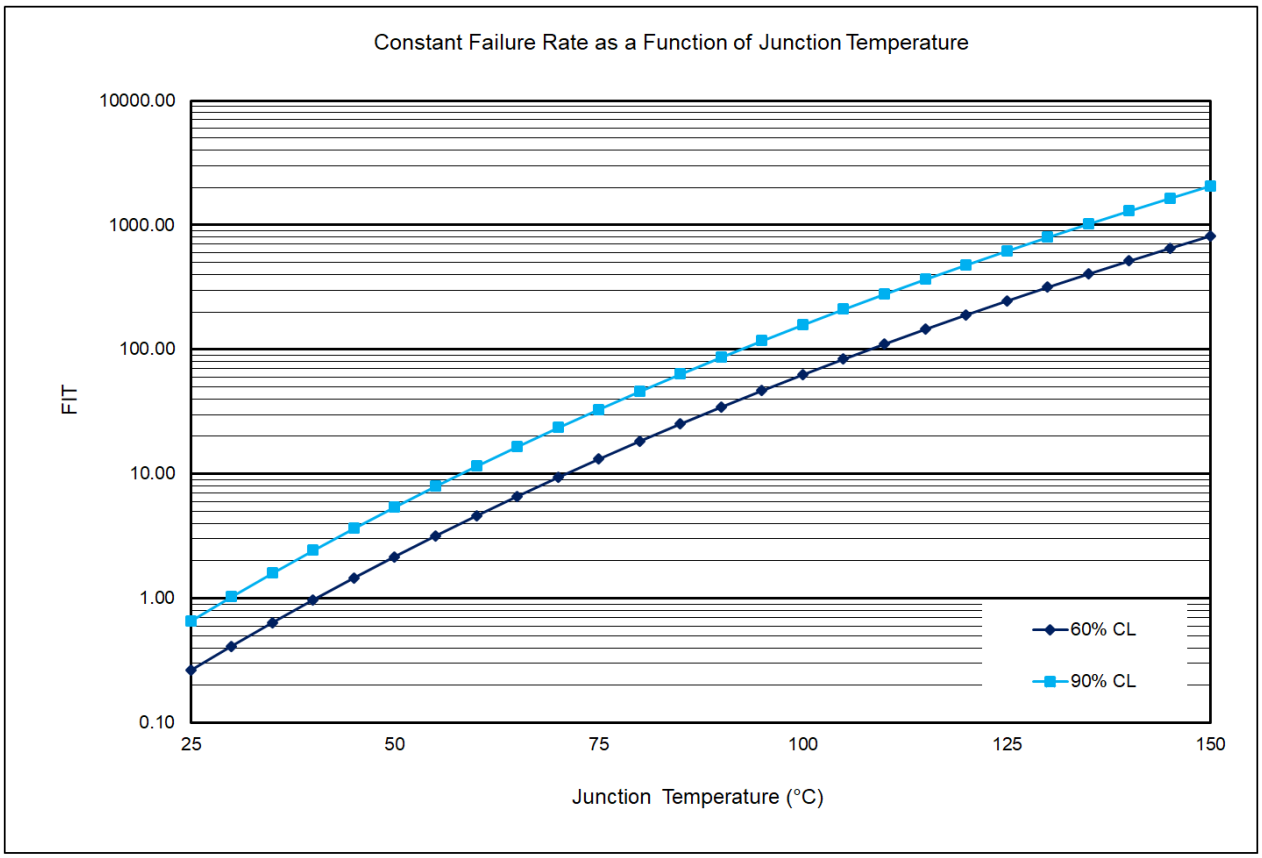
	Standard Failure Rate Calculations at 55°C and 60% CL		
	EDH (hours)	FITs	MTTF (hours)
Early Life	9.15E+06	100.1	9.99E+06
Constant (Random)	1.57E+08	5.9	1.71E+08



PA Controller (PAC)

Description	:	PA Controller controls the PA bias current in PAD modules for RF Front Ends
Products in Family	:	PE510021, PE515131, PE515190, PE515200, PE515211, PE51522x, PE519011
Process Technology	:	UltraCMOS® 12
Units Tested	:	9,275

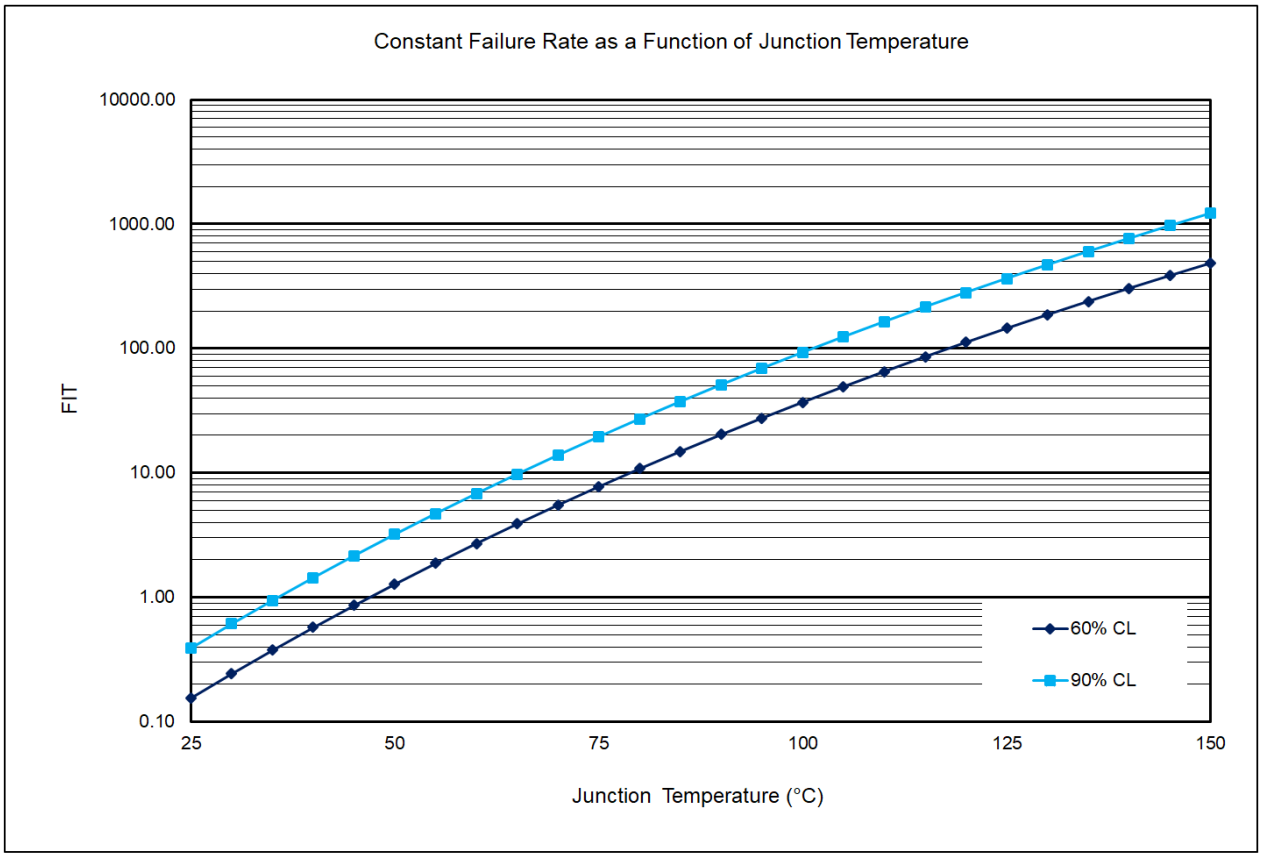
	Standard Failure Rate Calculations at 55°C and 60% CL		
	EDH (hours)	FITs	MTTF (hours)
Early Life	3.75E+07	24.4	4.09E+07
Constant (Random)	2.89E+08	3.2	3.15E+08



Phase Locked-Loop Synthesizers (PLL)

Description	:	Integer-N, Fractional-N and Delta Sigma Modulated frequency synthesizers for base station, mobile wireless and high reliability space applications.
Products in Family	:	PE3236, PE33241, PE3335, PE3336, PE33361, PE3341, PE3342, PE34641, PE83336-21, PE9601, PE9701, PE9702, PE97022, PE9704, PE97042, PE97240, PE9763, PE9763-14, PE97632, PE97640
Process Technology	:	UltraCMOS® 2, UltraCMOS® 5
Units Tested	:	9,269

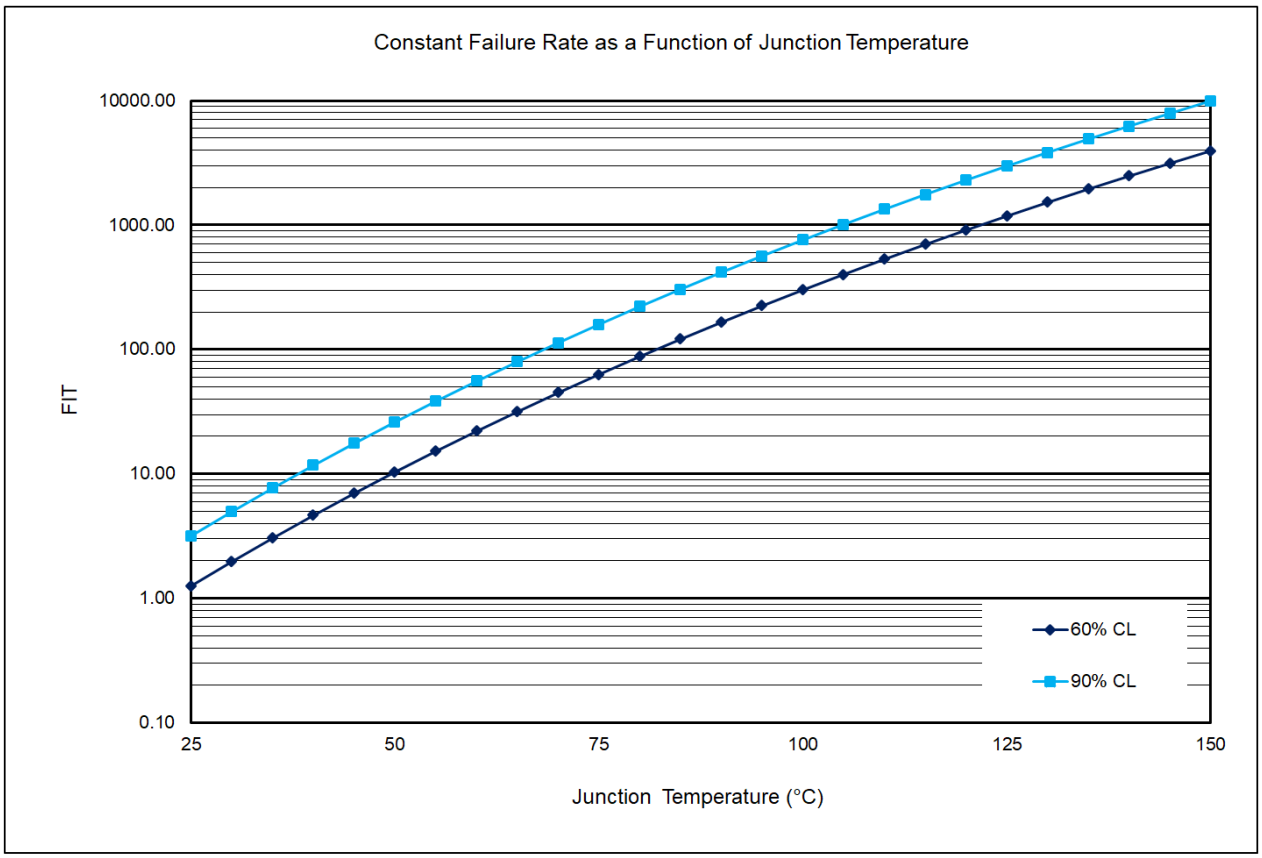
	Standard Failure Rate Calculations at 55°C and 60% CL		
	EDH (hours)	FITs	MTTF (hours)
Early Life	4.54E+07	20.2	4.95E+07
Constant (Random)	4.89E+08	1.9	5.34E+08



Phase Shifters (PSH)

Description	:	UltraCMOS RF Phase Shifters.
Products in Family	:	PE44820
Process Technology	:	UltraCMOS® 5
Units Tested	:	432

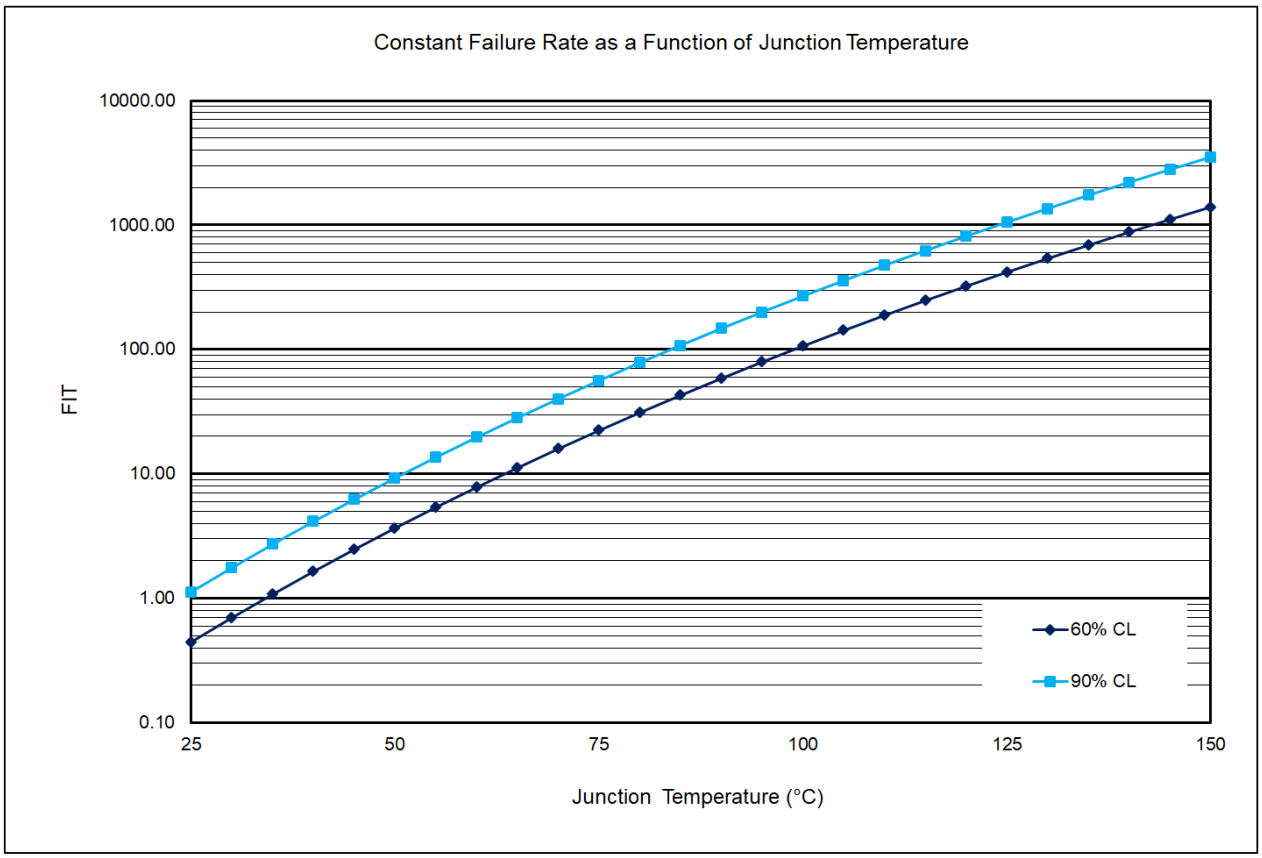
	Standard Failure Rate Calculations at 55°C and 60% CL		
	EDH (hours)	FITs	MTTF (hours)
Early Life	5.37E+06	170.8	5.86E+06
Constant (Random)	6.00E+07	15.3	6.55E+07



Prescalers (PSR)

Description	:	UltraCMOS RF Prescalers.
Products in Family	:	PE3501, PE3503, PE3511, PE3512, PE35400, PE83512, PE9301, PE9303, PE9304, PE9308, PE9309, PE9311, PE9312, PE9313
Process Technology	:	UltraCMOS® 2, UltraCMOS® 8
Units Tested	:	2,697

	Standard Failure Rate Calculations at 55°C and 60% CL		
	EDH (hours)	FITs	MTTF (hours)
Early Life	1.35E+07	68.1	1.47E+07
Constant (Random)	1.69E+08	5.4	1.85E+08



Reliability Data

(Periodic Testing for the last 8 Quarters)

High Temperature Operating Life (HTOL)

Reference Standards : JESD22-A108

Test Conditions : T_A = 125°C (A) or 150°C (B)

: V_{bias} = max operating voltage

Test Duration (typical) : HTOL: 1,000 hrs. at (A) or 500 hrs. at (B)
ELFR: 48 hrs. at (A) or 24 hrs. at (B)

HTOL & ELFR	2024	2024	2024	2025	2025	2025	2025	2026
Process Technology	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1
UltraCMOS® 2	-	-	0/80	0/80	0/162	0/80	-	-
UltraCMOS® 16	0/3,231	0/616	0/544	0/1,465	0/4,046	0/90	0/570	0/2,213
UltraCMOS® 12	-	0/341	-	0/90	-	-	-	-
UltraCMOS® 12A	0/87	0/1,560	0/2,274	0/244	0/89	-	-	0/765
UltraCMOS® 13S	-	-	-	-	-	-	-	-
UltraCMOS® 14	0/464	0/350	0/280	0/115	-	0/140	0/335	0/315
UltraCMOS® 11	-	-	-	-	-	-	-	-
UltraCMOS® 13SA	-	-	-	-	-	-	-	-
UltraCMOS® 13	0/79	0/264	0/2,813	-	0/162	0/175	0/77	0/698
UltraCMOS® 3.5	-	0/80	-	0/80	0/80	0/77	-	0/80
UltraCMOS® 5	-	-	-	-	-	-	-	-
UltraCMOS® 10	-	-	-	-	-	-	-	-
UltraCMOS® 8	-	-	-	-	-	-	-	-
BCD Gen III	-	0/320	-	-	0/2,153	-	-	-
UltraCMOS® 6	-	-	-	-	-	-	-	-
UltraCMOS® 6.5	-	-	-	-	-	-	-	-
BCD Gen II	-	-	-	-	-	-	-	-
BCD Lite	-	-	-	-	-	-	-	-
55LPx	-	-	-	0/77	-	-	-	-
Total	0/3,861	0/3,531	0/5,991	0/2,016	0/2,481	0/562	0/982	0/4,071

HTOL & ELFR	2024	2024	2024	2025	2025	2025	2025	2026
Product Group	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1
Switch	0/3,695	0/1,136	0/3,717	0/1,740	0/4,450	0/562	0/982	0/2,685
Amplifier	0/166	0/2,075	0/2,274	0/334	0/89	-	-	0/1,386
PAC	-	-	-	-	-	-	-	-
PLL	-	-	-	-	-	-	-	-
DC-DC	-	0/320	-	-	0/2,153	-	-	-
DSA	-	-	-	-	-	-	-	-
DTC	-	-	-	-	-	-	-	-
PSR	-	-	-	-	-	-	-	-
MXR	-	-	-	-	-	-	-	-
LMTR	-	-	-	-	-	-	-	-
MPAC	-	-	-	-	-	-	-	-
mmWave	-	-	-	-	-	-	-	-
ASIC	-	-	-	0/77	-	-	-	-
PSH	-	-	-	-	-	-	-	-
Driver	-	-	-	-	-	-	-	-
Total	0/3,861	0/3,531	0/5,991	0/2,016	0/2,481	0/562	0/982	0/4,071

Temperature Cycle (TC)

Reference Standards : JESD22-A104
Test Conditions : -55°C to +125°C (B)
: -65°C to +150°C (C)
Test Duration (typical) : 1,000 cyc. at (B) or 500 cyc. at (C)

TC	2024	2024	2024	2025	2025	2025	2025	2026
Package Family	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1
WLCSP	0/710	0/1,100	0/617	0/721	0/899	0/265	0/1,212	0/603
32L 5x5 QFN	-	-	-	0/45	-	-	-	-
20L 4x4 QFN	-	-	-	-	-	-	-	-
6L SC70	-	-	-	0/50	-	-	0/49	-
12L 2x2 QFN	-	0/50	-	0/50	-	-	-	-
16L 3x3 QFN	-	-	-	-	-	-	-	-
Flip Chip Die	-	-	-	0/90	-	-	0/130	0/288
32L 5x5 FCLGA	-	-	-	-	-	-	-	-
24L 4x4 QFN	-	-	-	-	-	-	-	-
12L 3x3 QFN	-	-	-	-	-	-	-	-
6L 1.5x1.5 UDFN	-	-	-	-	-	-	-	-
20L 4x4 FCLGA	-	-	-	-	-	-	-	-
10L 2x2 FCETSLP	-	-	-	-	-	-	-	-
15L 1.8x1.8 FCLGA	0/84	0/269	0/165	-	-	-	-	-
FCLGA	-	-	-	-	0/185	1/86	-	0/90
Total	0/794	0/1,619	0/1,171	0/1,004	0/1,333	1/446	0/1,451	0/1,121

Note

n/a - Reliability data not available. Package (family) not yet qualified at the specified period.

dash (-) - Test not performed at the specified period.

* Plastic encapsulated packages had undergone MSL Preconditioning prior to test.

Highly Accelerated Stress Test (HAST)

Reference Standards : JESD22-A110
Test Conditions : 130°C, 85% RH, 2.27 atm. (A)
: 110°C, 85% RH, 1.20 atm. (B)
Test Duration (typical) : 96 hrs. at (A) or 264 hrs. at (B)

HAST	2024	2024	2024	2025	2025	2025	2025	2026
Package Family	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1
WLCSP	0/1,031	0/77	0/150	0/385	0/880	-	0/78	0/288
32L 5x5 QFN	-	-	-	0/45	-	-	-	-
20L 4x4 QFN	-	-	-	-	-	-	-	-
6L SC70	-	-	0/50	0/50	-	-	-	-
12L 2x2 QFN	-	0/50	-	0/50	-	-	-	-
16L 3x3 QFN	-	-	-	-	-	-	-	-
Flip Chip Die	-	-	-	-	-	-	0/77	0/45
32L 5x5 FCLGA	-	-	-	-	-	-	-	-
24L 4x4 QFN	-	-	-	-	-	-	-	-
12L 3x3 QFN	-	-	-	-	-	-	-	-
6L 1.5x1.5 UDFN	-	-	-	-	-	-	-	-
20L 4x4 FCLGA	-	-	-	-	-	-	-	-
10L 2x2 FCETSLP	-	-	-	-	-	-	-	-
15L 1.8x1.8 FCLGA	0/180	0/176	0/240	-	-	-	-	-
FCLGA	-	-	-	-	-	0/90	-	0/95
Total	0/1,211	0/353	0/200	0/578	0/1,075	0/195	0/155	0/568

Note

n/a - Reliability data not available. Package (family) not yet qualified at the specified period.

dash (-) - Test not performed at the specified period. HAST may not apply to hermetic packages.

* Plastic encapsulated packages had undergone MSL Preconditioning prior to test.

High Temperature Storage (HTS)

Reference Standards : JESD22-A103
Test Conditions : Ta = 150°C
Test Duration (typical) : 1,000 hrs.

HTS	2024	2024	2024	2025	2025	2025	2025	2026
Package Family	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1
WLCSP	0/471	-	0/77	0/462	0/566	-	-	0/100
32L 5x5 QFN	-	-	-	0/45	-	-	-	-
20L 4x4 QFN	-	-	-	-	-	-	-	-
6L SC70	-	-	0/50	0/50	-	-	-	-
12L 2x2 QFN	-	0/50	-	0/50	-	-	-	-
16L 3x3 QFN	-	-	-	-	-	-	-	-
Flip Chip Die	-	-	-	0/77	0/90	-	-	0/100
32L 5x5 FCLGA	-	-	-	-	-	-	-	-
24L 4x4 QFN	-	-	-	-	-	-	-	-
12L 3x3 QFN	-	-	-	-	-	-	-	-
6L 1.5x1.5 UDFN	-	-	-	-	-	-	-	-
20L 4x4 FCLGA	-	-	-	-	-	-	-	-
10L 2x2 FCETSLP	-	-	-	-	-	-	-	-
15L 1.8x1.8 FCLGA	0/83	0/255	0/238	-	-	-	-	-
FCLGA	-	-	-	-	0/150	0/90	0/50	0/280
Total	0/698	0/355	0/425	0/731	0/55	0/230	0/150	0/570

Note

n/a - Reliability data not available. Package (family) not yet qualified at the specified period.

dash (-) - Test not performed at the specified period.

Appendix A

(RF Amplifiers Products List)

Amplifiers (LNA &PA)

Description	:	UltraCMOS Low-Noise Amplifiers (LNA) and Power Amplifiers (PA)
Products in Family	:	PE470021, PE47004X, PE470081, PE47051X, PE47066X, PE470681, PE471000, PE471110, PE471112, PE47164X, PE47165X, PE47166X, PE474061, PE474140, PE474180, PE471741, PE472110, PE473560, PE475561, PE477180, PE477181, PE478011, PE478021, PE478031, PE478041, PE478051, PE478070, PE478090, PE478091, PE478100, PE478110, PE478130, PE478140, PE478180, PE478190, PE478201, PE478211, PE47822x, PE47823x, PE478240, PE479011, PE479021,PE479041, PE479050, PE479070, PE479081, PE479091, PE479381, PE479641, PE521200, PE521221, PE523211, PE523212, PE523231, PE523241, PE523261, PE523271, PE523272, PE523241, PE525211, PE53110, PE53210, PE53231, PE562211, PE562212
Process Technology	:	UltraCMOS® 11, UltraCMOS® 12, UltraCMOS® 12A, UltraCMOS® 13, UltraCMOS® 13S
Units Tested	:	34,056

Appendix B

(RF Switch Products List)

Switches (ASW, HPSW, ATS & BSW)

Description	:	Multi-pole & multi-throw high power handling antenna switch products for Mobile Wireless RF, broadband infrastructure, and Test Equipment / ATE applications.
Products in Family	:	PE420011, PE420021, PE42020, PE420540, PE420551, PE420560, PE4210, PE421080, PE42111x, PE42112, PE421130, PE421141, PE421160, PE421230, PE421240, PE421261, PE421281, PE421292, PE421293, PE421294, PE421321, PE421422, PE421450, PE421451, PE421453, PE421454, PE421460, PE421510, PE421550, PE421592, PE421603, PE421628, PE42164x, PE42165X, PE42166X, PE421690, PE421711, PE42171X, PE421729, PE421752, PE421812, PE42181x, PE421821, PE421841, PE421880, PE421890B, PE421941, PE421951, PE421959, PE421979, PE422020, PE4230, PE4231, PE423150, PE4232, PE423211, PE423422, PE423424, PE4235, PE423560, PE42359, PE423641, PE4237, PE4239, PE424061, PE42412, PE42420, PE42421, PE42422, PE42423, PE42424, PE42426, PE42427, PE42430, PE4244, PE42440, PE42441, PE42442, PE42443, PE42444, PE42445, PE42446, PE42447, PE4245, PE42450, PE42451, PE42452, PE42462, PE424650, PE424810, PE42482, PE4250, PE4251, PE42510, PE42512, PE42520, PE42521, PE42522, PE42524, PE42525, PE42540, PE42542, PE42543, PE42545, PE42546, PE42548, PE42552, PE42553, PE42556, PE4256, PE42562, PE4257, PE4259, PE426021, PE426022, PE426061, PE426062, PE4261, PE426140, PE42615, PE4263, PE42633, PE426331, PE42641, PE426412, PE426462, PE426482, PE42650, PE42660, PE42672, PE426810, PE42682, PE426823, PE426850, PE426860, PE426880, PE426882, PE42691, PE426911, PE42695, PE42696, PE426960, PE426970, PE4270, PE42721, PE42722, PE42723, PE42724, PE42726, PE42742, PE42750, PE4280, PE42820, PE42821, PE42822, PE42823, PE42850, PE42851, PE429001, PE429002, PE429011, PE429560, PE429561, PE429562, PE429563, PE429564, PE429565, PE429566, PE429570, PE4314, PE43705, PE43711, PE610033, PE612030, PE612033, PE612034, PE612934, PE612935, PE61293x, PE613010, PE613020, PE613030, PE613032, PE614030, PE614035, PE614036, PE614910, PE614912, PE614932, PE61493x, PE615030, PE61503x, PE615110, PE616010, PE616040, PE616050, PE616051, PE636030, PE636040, PE84140, PE84244, PE926C31, PE926C32, PE9354, PE94257, PE95420, PE95421
Process Technology	:	UltraCMOS® 2, UltraCMOS® 3.5, UltraCMOS® 5, UltraCMOS® 6, UltraCMOS® 6.5, UltraCMOS® 8, UltraCMOS® 10, UltraCMOS® 11, UltraCMOS® 12, UltraCMOS® 12A, UltraCMOS® 13, UltraCMOS® 13S, UltraCMOS® 13SA, UltraCMOS® 14, UltraCMOS® 16
Units Tested	:	110,072