

## Product reliability

Quality and reliability are built into the culture at Texas Instruments with the goal of providing high-quality products to customers. TI periodically monitors the reliability of its products, wafer fab processes, and package technologies, through its Ongoing Reliability Monitor (ORM) program. The ORM program involves collecting environmental reliability stress data on representative sets of devices, processes and packages. The results from the ORM program are updated quarterly in this report.

TI builds simulations, accelerated testing, and robustness evaluations into the product development process. During this process, TI carefully assesses silicon process and package reliability, and silicon/package interaction. TI also evaluates manufacturability of the device to verify a robust silicon and assembly flow to enable continuity of supply to customers.

Non-automotive devices are qualified with Joint Electron Devices Engineering Council (JEDEC) industry standard test methodologies. TI qualifies new devices, significant changes and product families based on JEDEC JESD47. The data shown is representative of the material sets, processes and manufacturing sites used by the device family.

<b>Report for TI part number :</b>	<b>ISOW1412DFMR</b>
<b>Report Date:</b>	<b>11/17/2021</b>

**FAB process reliability data. This device utilizes multiple fab processes.**

Fab Process	Reliability Test	Rolling Year (4Q20 - 3Q21) Sample Size	Cumulative Sample Size	Disposition
Power BICMOS	High Temperature Operating Life, 125 C, 1000 Hours (or E equivalent)	27838	313592	Pass

### Important Notice and Disclaimer

TI PROVIDES TECHNICAL AND RELIABILITY DATA (INCLUDING DATASHEETS), DESIGN RESOURCES (INCLUDING REFERENCE DESIGNS), APPLICATION OR OTHER DESIGN ADVICE, WEB TOOLS, SAFETY INFORMATION, AND OTHER RESOURCES "AS IS" AND WITH ALL FAULTS, AND DISCLAIMS ALL WARRANTIES, EXPRESS AND IMPLIED, INCLUDING WITHOUT LIMITATION ANY IMPLIED WARRANTIES OF MERCHANTABILITY, FITNESS FOR A PARTICULAR PURPOSE OR NON-INFRINGEMENT OF THIRD PARTY INTELLECTUAL PROPERTY RIGHTS.

These resources are intended for skilled developers designing with TI products. You are solely responsible for (1) selecting the appropriate TI products for your application, (2) designing, validating and testing your application, and (3) ensuring your application meets applicable standards, and any other safety, security, or other requirements.

These resources are subject to change without notice. TI grants you permission to use these resources only for development of an application that uses the TI products described in the resource. Other reproduction and display of these resources is prohibited. No license is granted to any other TI intellectual property right or to any third party intellectual property right. TI disclaims responsibility for, and you will fully indemnify TI and its representatives against, any claims, damages, costs, losses, and liabilities arising out of your use of these resources.

TI's products are provided subject to [TI's Terms of Sale](#) or other applicable terms available either on ti.com or provided in conjunction with such TI products. TI's provision of these resources does not expand or otherwise alter TI's applicable warranties or warranty disclaimers for TI products.

Fab Process	Reliability Test	Rolling Year (4Q20 - 3Q21) Sample Size	Cumulative Sample Size	Disposition
High-Speed BICMOS	High Temperature Operating Life, 125 C, 1000 Hours (or E equivalent)	913	32071	Pass

#### Assembly process reliability data.

Package Family	Reliability Test	Rolling Year (4Q20 - 3Q21) Sample Size	Cumulative Sample Size	Disposition
SOIC	Autoclave, 121C, 96 Hours	8482	83447	Pass
SOIC	Biased HAST, 130 C/85%RH, 96 Hours	4988	55094	Pass
SOIC	High Temperature Storage Life, 150C, 1000 Hours	1474	18909	Pass
SOIC	High Temperature Storage Life, 170C, 420 Hours	924	29635	Pass
SOIC	Temperature Cycle, -40/125C, 850 Cycles	0	231	Pass
SOIC	Temperature Cycle, -55/125C, 700 Cycles	0	845	Pass
SOIC	Temperature Cycle, -65/150C, 500 Cycles	14135	128192	Pass
SOIC	Temperature-Humidity Bias Test (85C/85%RH), 1000 Hours	231	1823	Pass

#### Important Notice and Disclaimer

TI PROVIDES TECHNICAL AND RELIABILITY DATA (INCLUDING DATASHEETS), DESIGN RESOURCES (INCLUDING REFERENCE DESIGNS), APPLICATION OR OTHER DESIGN ADVICE, WEB TOOLS, SAFETY INFORMATION, AND OTHER RESOURCES "AS IS" AND WITH ALL FAULTS, AND DISCLAIMS ALL WARRANTIES, EXPRESS AND IMPLIED, INCLUDING WITHOUT LIMITATION ANY IMPLIED WARRANTIES OF MERCHANTABILITY, FITNESS FOR A PARTICULAR PURPOSE OR NON-INFRINGEMENT OF THIRD PARTY INTELLECTUAL PROPERTY RIGHTS.

These resources are intended for skilled developers designing with TI products. You are solely responsible for (1) selecting the appropriate TI products for your application, (2) designing, validating and testing your application, and (3) ensuring your application meets applicable standards, and any other safety, security, or other requirements.

These resources are subject to change without notice. TI grants you permission to use these resources only for development of an application that uses the TI products described in the resource. Other reproduction and display of these resources is prohibited. No license is granted to any other TI intellectual property right or to any third party intellectual property right. TI disclaims responsibility for, and you will fully indemnify TI and its representatives against, any claims, damages, costs, losses, and liabilities arising out of your use of these resources.

TI's products are provided subject to [TI's Terms of Sale](#) or other applicable terms available either on [ti.com](http://ti.com) or provided in conjunction with such TI products. TI's provision of these resources does not expand or otherwise alter TI's applicable warranties or warranty disclaimers for TI products.

Package Family	Reliability Test	Rolling Year (4Q20 - 3Q21) Sample Size	Cumulative Sample Size	Disposition
SOIC	Unbiased HAST, 1 30C/85%RH, 96 Hours	2124	15071	Pass

#### Important Notice and Disclaimer

TI PROVIDES TECHNICAL AND RELIABILITY DATA (INCLUDING DATASHEETS), DESIGN RESOURCES (INCLUDING REFERENCE DESIGNS), APPLICATION OR OTHER DESIGN ADVICE, WEB TOOLS, SAFETY INFORMATION, AND OTHER RESOURCES “AS IS” AND WITH ALL FAULTS, AND DISCLAIMS ALL WARRANTIES, EXPRESS AND IMPLIED, INCLUDING WITHOUT LIMITATION ANY IMPLIED WARRANTIES OF MERCHANTABILITY, FITNESS FOR A PARTICULAR PURPOSE OR NON-INFRINGEMENT OF THIRD PARTY INTELLECTUAL PROPERTY RIGHTS.

These resources are intended for skilled developers designing with TI products. You are solely responsible for (1) selecting the appropriate TI products for your application, (2) designing, validating and testing your application, and (3) ensuring your application meets applicable standards, and any other safety, security, or other requirements.

These resources are subject to change without notice. TI grants you permission to use these resources only for development of an application that uses the TI products described in the resource. Other reproduction and display of these resources is prohibited. No license is granted to any other TI intellectual property right or to any third party intellectual property right. TI disclaims responsibility for, and you will fully indemnify TI and its representatives against, any claims, damages, costs, losses, and liabilities arising out of your use of these resources.

TI's products are provided subject to [TI's Terms of Sale](#) or other applicable terms available either on ti.com or provided in conjunction with such TI products. TI's provision of these resources does not expand or otherwise alter TI's applicable warranties or warranty disclaimers for TI products.