

Qualification Report For ISO721D

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Approved By: Anita Bills

The **ISO721D** is fully qualified and meets the Texas Instruments quality and reliability standards for Analog & Mixed Signal Products per the testing described below.

Green/ Pbfree status: ☒ Qualified PB-free (SMT) ☐ Qualified Pb-free (Through hole) ☒ Qualified Green

Qualification Description

New Product and New Fab component in qualified package

Product Group : HPA/ HPL/ Interface

Product Qualification Reference (QBS) : N/A

Process Qualification Reference (QBS) : [LBC4 – DFAB](#)

Package Qualification Reference (QBS): [TITL SOIC Green \(Loctite GR825-73B\)](#)

Device Attributes			
Product & Process Related		Package Related	
Qualification Device:	ISO721D	Assembly Site:	TITL (TAI)
Die Name:	ALBFISO721TCBC / XLBFISO721RCBC	Package:	D
Die Revision:	C / C	Pin Count:	8
Die Size (mils):	22 X 63/ 29 x 76	Mold Compound:	LOC GR825-73B
Transistor Count:		Die OverCoat:	None/ BCB
Wafer Fab Site:	DFAB / DFAB	Mount Compound:	HIT EN-4088Z
Fab Process:	LBC4 / LBC4 (BOAC)	Bond Wire:	TS – 1.0 Au
Metal1:		Leadframe Material:	
Metal2:		Leadframe Finish:	NiPdAu
Metal3:			
Metal4:		Moisture Sensitivity Level:	Level 1-260C
Metal5:		Flammability Rating:	
Metal6:		Resistor Technology:	
BOAC/COA:		Down-Bonds:	No
Passivation:		Inter-Chip Bonds:	Yes

Lot Information				
Reliability Job#	Group	Lot Trace Code	Wafer Lot#	Assembly Lot#
MSPREL.05.IS0721.07016 (MSL)	A	56AT9YT	0512390/ 0514613	5624744
MSPREL.05.IS0721.08025	A	58AJ2XT	0512390 / 0514955	5892644
MSPREL.05.IS0721.09028	A	58AJ37T	0512390/ 0523039	5892645
MSPREL.05.IS0721.10030	A	58CHYJT	0512390/ 0502638	5923783

Reliability Test Results					
Test Type	Conditions/Duration	Sample Size/Results			
		Lot#1	Lot#2	Lot#3	
**Life Test, 150C	1000 Hours	116/0	116/0	112/0	
**HAST 130C/85%RH	96 Hours	77/0	77/0	77/0	
**Autoclave, 121C	240 Hours	77/0	77/0	76/0	
**Thermal Shock, -65/150C	1000 Cycles	77/0	77/0	77/0	
**Temp Cycle, -65/+150C	1000 Cycles	75/0	77/0	77/0	
**High-Temp Storage, 170C	420 hours	77/0	77/0	77/0	
ESD	HBM: 3000V	3/0	3/0	3/0	
	CDM: 1500V	3/0	3/0	3/0	
Latch-Up	150mA	5/0	5/0	5/0	
Electrical Characterization		Comp.	Comp.	Comp.	
X-Ray		5/0	5/0	5/0	
Manufacturability Qualification (Wafer Fab)		Approved			
Manufacturability Qualification (Assembly)		Approved			
Wafer Level Reliability	< 50 FITs in 100k hrs at 150 C	Approved			
Moisture Sensitivity	L1/260C	12/0	--	--	

Preconditioning Information:

** Preconditioning sequence: Level 1-260C Hybrid Interval Reflow

Reliability Estimation

Reliability Estimation data is calculated on a process technology level and includes data from multiple product qualifications within the process technology node.

Reliability Estimator

Search Results														
Part #	Early Life Failure Rate	MTBF / FIT		Early Life Failure Rate Supporting Data				MTBF / FIT Supporting Data						
	ELFR-DPPM	MTBF	FIT	Confidence Level (%)	Test Temp. (°C)	Sample Size	Number of Failures	Usage Temp. (°C)	Confidence Level (%)	Activation Energy (eV)	Test Temp. (°C)	Test Duration (hrs)	Sample Size	Number of Failures
ISO721D	20	4* 10*	0.3	60	125	46557	0	55	60	0.7	125	1000	46557	0

Definition of Table Terminology

Part #: The TI Orderable part number

ELFR: Early Life Failure Rate

DPPM: Defects per parts per million

MTBF: Mean Time Between Failures

FIT: Failures-in-Time. The number of failures per 1E9 device-hours

Confidence Level %: Statistical confidence level

Test Temp. (°C): Temperature at which the stress test is performed

Sample Size: Sample size is how many units were tested and would be based on the normalized value for duration

Number of Failures: The number of failures per test

Usage Temp (°C): Estimated usage temperature

Activation Energy (eV): Energy in electron volts (eV) for a particular process to occur

Test Duration (hrs): Test Duration is a field that comes from the qualification testing of a product. Since more than one test is conducted and the duration varies, this field will be normalized based on calculations using Temp, quantity and fails. This value would be equivalent unit hours.

NA: Not Applicable

TBD: To be Determined

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