

LM2831YMFx/NOPB

Quality, reliability & packaging data download

Status: ACTIVE

Report date: 08/22/2024



Assembly site: **Texas Instruments Electronics**

RoHS	Yes
REACH	Yes
Device marking	SKZB
Lead finish/Ball material	SN
MSL rating/Peak reflow	Level-1-260C-UNLIM
Rating	Catalog

Material content

Component	Substance	CAS Number	Homogeneous Material Level		Component Level		
			Amount (mg)	Percentage %	ppm	Percentage %	ppm
Bond Wire							
Copper and Its Alloys	Copper	7440-50-8	0.059754	98.734303	987343	0.375382	3754
Not Categorized	Proprietary Materials	—	0.000007	0.011566	116	0.000044	0
Precious Metals	Gold	7440-57-5	0.000013	0.021481	215	0.000082	1
Precious Metals	Palladium	7440-05-3	0.000744	1.229346	12293	0.004674	47
Precious Metals	Silver	7440-22-4	0.000002	0.003305	33	0.000013	0
Sub-total	—	—	0.060520	100	1000000	0.380194	3802
Die Attach Adhesive							
Precious Metals	Silver	7440-22-4	0.192505	75.000097	750001	1.209340	12093
Thermoplastics	Epoxy	85954-11-6	0.064168	24.999903	249999	0.403111	4031
Sub-total	—	—	0.256673	100	1000000	1.612451	16125
Lead Frame							
Copper and Its Alloys	Copper	7440-50-8	5.436408	96.509995	965100	34.152183	341522
Copper and Its Alloys	Iron	7439-89-6	0.134065	2.379993	23800	0.842213	8422
Copper and Its Alloys	Phosphorus	7723-14-0	0.00169	0.030002	300	0.010617	106
Precious Metals	Silver	7440-22-4	0.054077	0.960004	9600	0.339718	3397
Zinc and Its Alloys	Zinc	7440-66-6	0.00676	0.120007	1200	0.042467	425
Sub-total	—	—	5.633000	100	1000000	35.387198	353872
Lead Frame Plating							
Other Nonferrous Metals and Alloys	Tin	7440-31-5	0.7	100.000000	1000000	4.397486	43975
Sub-total	—	—	0.7	100	1000000	4.397486	43975
Mold Compound							
Other Inorganic Materials	Silica	7631-86-9	7.451101	88.700004	887000	46.808732	468087
Other Nonferrous Metals and Alloys	Metal Hydroxide	Trade Secret	0.25201	2.999998	30000	1.583158	15832
Other Organic Materials	Carbon Black	1333-86-4	0.025201	0.300000	3000	0.158316	1583
Thermoplastics	Epoxy	85954-11-6	0.672027	7.999999	80000	4.221756	42218
Sub-total	—	—	8.400339	100	1000000	52.771962	527720
Semiconductor Device							
Ceramics / Glass	Doped Silicon	7440-21-3	0.867654	100.000000	1000000	5.450709	54507
Sub-total	—	—	0.867654	100	1000000	5.450709	54507
Total	—	—	15.918186	—	—	100	1000000

MTBF/FIT estimates

MTBF / FIT		MTBF / FIT supporting data							
MTBF	FIT	Usage temp (°C)	Conf level (%)	Activation energy (eV)	Test temp (°C)	Test duration (hours)	Sample size	Fails	Additional comments
1.57×10 ⁸	6.4	55	60	0.7	125	1000	1835	0	—

Qualification summary

Stress	Reference	Min lot qty	SS / lot	Condition	Duration	Result	Notes
HTOL	JESD22-A108	3	77	Life test, 125C	1000 hours	Pass	Or equivalent JEDEC condition
HTSL	JESD22-A103	3	25	High temp storage bake, 150C	1000 hours	Pass	Or equivalent JEDEC condition
AC/UHAST	JESD22-A102/JESD22-A118	3	25	Unbiased HAST 130C / 85% RH	96 hours	Pass	Or equivalent JEDEC condition
THB/HAST	JESD22-A101/JESD22-A110	3	25	HAST 130C/85%RH	96 hours	Pass	Or equivalent JEDEC condition
TC	JESD22-A104	3	25	Temperature cycle -65/150C	500 cycles	Pass	Or equivalent JEDEC condition
SD	J-STD-002	3	22	Per specification	>95% lead coverage	Pass	—
HBM	JS-001	1	3	ESD - HBM	Classification	See data sheet	—
CDM	JS-002	1	3	ESD - CDM	Classification	See data sheet	—
LU	JESD78	1	3	Latch-up	Per JESD78	Pass	As applicable per JESD78
MSL	J-STD-020	—	—	Per J-STD-020	Classification	See data sheet	—

Ongoing reliability monitoring

FAB process reliability data

Fab Process	Reliability Test	Rolling Year (3Q2023 - 2Q2024) Sample Size	Cumulative Sample Size	Disposition
Power BICMOS	Life test 125C, 1000 Hours or Equivalent JEDEC Condition	31999	400579	Pass

Assembly process reliability data

Package Family	Reliability Test	Rolling Year (3Q2023 - 2Q2024) Sample Size	Cumulative Sample Size	Disposition
SOP/SOT	Biased HAST 130C/85%RH, 96 Hours or Equivalent JEDEC Condition	10295	101341	Pass
SOP/SOT	High temp storage bake 150C, 1000 Hours or Equivalent JEDEC Condition	9491	79239	Pass
SOP/SOT	Temperature cycle -65/150C, 500 Hours or Equivalent JEDEC Condition	19148	185103	Pass
SOP/SOT	Unbiased HAST 130C/85% RH, 96 Hours or Equivalent JEDEC Condition	13795	155139	Pass

Additional resources

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[Certifications](#)

[Conflict minerals specialized disclosure report](#)

[Restricted chemical test report](#)

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