

TRF7970ARHBT

Quality, reliability & packaging data download

Status: ACTIVE

Report date: 05/26/2021



Assembly site: **TI MALAYSIA A/T**

RoHS	Yes
REACH	Yes
Device marking	TRF, 7970A
Lead finish/Ball material	NIPDAU
MSL rating/Peak reflow	Level-2-260C-1 YEAR
Rating	Catalog

Material content

Homogeneous Material Level Component Level							
Component	Substance	CAS Number	Amount (mg)	Percentage %	ppm	Percentage %	ppm
Bond Wire							
Copper and Its Alloys	Copper	7440-50-8	0.171692	97.586095	975861	0.252711	2527
Nickel and Its Alloys	Nickel	7440-02-0	0.000001	0.000568	6	0.000001	0
Not Categorized	Proprietary Materials	—	0.000019	0.010799	108	0.000028	0
Precious Metals	Palladium	7440-05-3	0.004222	2.399695	23997	0.006214	62
Precious Metals	Silver	7440-22-4	0.000005	0.002842	28	0.000007	0
Sub-total	—	—	0.175939	100	1000000	0.258962	2590
Die Attach Adhesive							
Other Inorganic Materials	Silica	7631-86-9	0.031562	1.999997	20000	0.046456	465
Precious Metals	Silver	7440-22-4	1.08889	68.999976	690000	1.602722	16027
Thermoplastics	Epoxy	85954-11-6	0.45765	29.000027	290000	0.673609	6736
Sub-total	—	—	1.578102	100	1000000	2.322787	23228
Lead Frame							
Copper and Its Alloys	Copper	7440-50-8	29.923875	99.250000	992500	44.044543	440445
Other Nonferrous Metals and Alloys	Chromium	7440-47-3	0.07839	0.260000	2600	0.115381	1154
Other Nonferrous Metals and Alloys	Tin	7440-31-5	0.075375	0.250000	2500	0.110943	1109
Zinc and Its Alloys	Zinc	7440-66-6	0.07236	0.240000	2400	0.106506	1065
Sub-total	—	—	30.150000	100	1000000	44.377373	443774
Lead Frame Plating							
Nickel and Its Alloys	Nickel	7440-02-0	0.516502	95.120074	951201	0.760232	7602
Precious Metals	Gold	7440-57-5	0.004235	0.779926	7799	0.006233	62
Precious Metals	Palladium	7440-05-3	0.022263	4.100000	41000	0.032769	328
Sub-total	—	—	0.543000	100	1000000	0.799234	7992
Mold Compound							
Other Inorganic Materials	Fused Silica	60676-86-0	27.452169	90.500001	905000	40.406472	404065
Other Plastics and Rubber	Carbon Black	1333-86-4	0.151669	0.499999	5000	0.223240	2232
Thermoplastics	Epoxy	85954-11-6	2.73005	9.000000	90000	4.018323	40183
Sub-total	—	—	30.333888	100	1000000	44.648035	446480
Semiconductor Device							
Ceramics / Glass	Doped Silicon	7440-21-3	5.1591	100.000000	1000000	7.593609	75936
Sub-total	—	—	5.1591	100	1000000	7.593609	75936
Total	—	—	67.940029	—	—	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
1.9734403×10^7	51	55	60	0.7	125	1000	232	0	—

Qualification summary

Stress	Reference	Min lot qty	SS / lot	Condition	Duration	Result
AC/UHAST	JESD22-A102/JESD22-A118	3	25	Autoclave 121C or unbiased HAST 130C / 85% RH	96 hours	Pass
TC	JESD22-A104	3	25	Temperature cycle -65/150C	500 cycles	Pass
HTSL	JESD22-A103	3	25	High temp storage bake 150C	1000 hours	Pass
CDM	JESD22-C101	1	3	ESD - CDM	Classification	See data sheet
HBM	JS-001	1	3	ESD - HBM	Classification	See data sheet
THB/HAST	JESD22-A101/JESD22-A110	3	25	THB 85C/85%RH or HAST 130C/110C/85%RH	1000 hours or 96 hours	Pass
MSL	J-STD-020	—	—	Per J-STD-020	Classification	See data sheet
SD	J-STD-002	3	22	Per specification	>95% lead coverage	Pass

Ongoing reliability monitoring

No results found

Additional resources

[General quality guidelines](#)

[Certifications](#)

[Conflict minerals specialized disclosure report](#)

[Restricted chemical test report](#)

For additional component information, please visit [Material content search](#)

For additional information, please contact [TI customer support center](#)

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.