

SN74HCT14DR

Quality, reliability & packaging data download

Status: ACTIVE

Report date: 04/14/2026



Assembly site: **TI AGUASCALIENTES**

RoHS	Yes
REACH	Yes
Device marking	HCT14
Lead finish/Ball material	NiPdAu
MSL rating/Peak reflow	Level-1-260C-UNLIM
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	0.089156	99.997757	999978	0.061117	611
Precious Metals	Silver	7440-22-4	0.000002	0.002243	22	0.000001	0
Sub-total	—	—	0.089158	100	1000000	0.061118	611
Die Attach Adhesive							
Precious Metals	Silver	7440-22-4	0.221346	79.999855	799999	0.151734	1517
Thermoplastics	Epoxy	85954-11-6	0.055337	20.000145	200001	0.037934	379
Sub-total	—	—	0.276683	100	1000000	0.189668	1897
Lead Frame							
Copper and Its Alloys	Copper	7440-50-8	47.1663	97.050000	970500	32.332785	323328
Copper and Its Alloys	Iron	7439-89-6	1.2636	2.600000	26000	0.866205	8662
Copper and Its Alloys	Phosphorus	7723-14-0	0.0729	0.150000	1500	0.049973	500
Zinc and Its Alloys	Zinc	7440-66-6	0.0972	0.200000	2000	0.066631	666
Sub-total	—	—	48.6000	100	1000000	33.315595	333156
Lead Frame Plating							
Nickel and Its Alloys	Nickel	7440-02-0	0.19024	95.120000	951200	0.130411	1304
Precious Metals	Gold	7440-57-5	0.00156	0.780000	7800	0.001069	11
Precious Metals	Palladium	7440-05-3	0.0082	4.100000	41000	0.005621	56
Sub-total	—	—	0.20000	100	1000000	0.137101	1371
Mold Compound							
Not Categorized	Phenolic Resin	9003-35-4	3.353219	3.500000	35000	2.298652	22987
Other Inorganic Materials	Fused Silica	60676-86-0	81.914339	85.500000	855000	56.152777	561528
Other Organic Materials	Carbon Black	1333-86-4	0.479031	0.500000	5000	0.328379	3284
Thermoplastics	Epoxy	85954-11-6	10.059656	10.500000	105000	6.895955	68960
Sub-total	—	—	95.806245	100	1000000	65.675762	656758
Semiconductor Device							
Ceramics / Glass	Doped Silicon	7440-21-3	0.905543	100.000000	1000000	0.620755	6208
Sub-total	—	—	0.905543	100	1000000	0.620755	6208
Total	—	—	145.877629	—	—	100	1000000

Assembly site: TI AGUASCALIENTES

RoHS	Yes
REACH	Yes
Device marking	HCT14
Lead finish/Ball material	NiPdAu
MSL rating/Peak reflow	Level-1-260C-UNLIM
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	0.066725	97.535484	975355	0.045802	458
Not Categorized	Proprietary Materials	—	0.000008	0.011694	117	0.000005	0
Precious Metals	Gold	7440-57-5	0.000035	0.051161	512	0.000024	0
Precious Metals	Palladium	7440-05-3	0.001641	2.398737	23987	0.001126	11
Precious Metals	Silver	7440-22-4	0.000002	0.002924	29	0.000001	0
Sub-total	—	—	0.068411	100	1000000	0.046960	470
Die Attach Adhesive							
Precious Metals	Silver	7440-22-4	0.070078	79.999543	799995	0.048104	481
Thermoplastics	Epoxy	85954-11-6	0.01752	20.000457	200005	0.012026	120
Sub-total	—	—	0.087598	100	1000000	0.060130	601
Lead Frame							
Copper and Its Alloys	Copper	7440-50-8	47.1663	97.050000	970500	32.376671	323767
Copper and Its Alloys	Iron	7439-89-6	1.2636	2.600000	26000	0.867381	8674
Copper and Its Alloys	Phosphorus	7723-14-0	0.0729	0.150000	1500	0.050041	500
Zinc and Its Alloys	Zinc	7440-66-6	0.0972	0.200000	2000	0.066722	667
Sub-total	—	—	48.6000	100	1000000	33.360815	333608
Lead Frame Plating							
Nickel and Its Alloys	Nickel	7440-02-0	0.19024	95.120000	951200	0.130588	1306
Precious Metals	Gold	7440-57-5	0.00156	0.780000	7800	0.001071	11
Precious Metals	Palladium	7440-05-3	0.0082	4.100000	41000	0.005629	56

Sub-total	—	—	0.20000	100	1000000	0.137287	1373
Mold Compound							
Not Categorized	Phenolic Resin	9003-35-4	3.375302	3.500000	35000	2.316931	23169
Other Inorganic Materials	Fused Silica	60676-86-0	82.453797	85.500000	855000	56.599298	565993
Other Organic Materials	Carbon Black	1333-86-4	0.482186	0.500000	5000	0.330990	3310
Thermoplastics	Epoxy	85954-11-6	10.125905	10.500000	105000	6.950791	69508
Sub-total	—	—	96.437190	100	1000000	66.198009	661980
Semiconductor Device							
Ceramics / Glass	Doped Silicon	7440-21-3	0.286695	100.000000	1000000	0.196798	1968
Sub-total	—	—	0.286695	100	1000000	0.196798	1968
Total	—	—	145.679894	—	—	100	1000000

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

RoHS	Yes
REACH	Yes
Device marking	HCT14
Lead finish/Ball material	NiPdAu
MSL rating/Peak reflow	Level-1-260C-UNLIM
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	0.058701	99.989780	999898	0.030121	301
Not Categorized	Proprietary Materials	—	0.000005	0.008517	85	0.000003	0
Precious Metals	Silver	7440-22-4	0.000001	0.001703	17	0.000001	0
Sub-total	—	—	0.058707	100	1000000	0.030124	301
Die Attach Adhesive							
Precious Metals	Silver	7440-22-4	0.221346	79.999855	799999	0.113579	1136
Thermoplastics	Epoxy	85954-11-6	0.055337	20.000145	200001	0.028395	284
Sub-total	—	—	0.276683	100	1000000	0.141974	1420
Lead Frame							
Copper and Its Alloys	Copper	7440-50-8	97.375	97.375000	973750	49.965908	499659
Copper and Its Alloys	Iron	7439-89-6	2.6	2.600000	26000	1.334135	13341
Copper and Its Alloys	Phosphorus	7723-14-0	0.015	0.015000	150	0.007697	77
Other Nonferrous Metals and Alloys	Lead	7439-92-1	0.01	0.010000	100	0.005131	51
Sub-total	—	—	100.000	100	1000000	51.312871	513129
Lead Frame Plating							
Nickel and Its Alloys	Nickel	7440-02-0	4.37552	95.120000	951200	2.245205	22452
Precious Metals	Gold	7440-57-5	0.03588	0.780000	7800	0.018411	184
Precious Metals	Palladium	7440-05-3	0.1886	4.100000	41000	0.096776	968
Sub-total	—	—	4.60000	100	1000000	2.360392	23604
Mold Compound							
Not Categorized	Phenolic Resin	9003-35-4	3.116468	3.500000	35000	1.599149	15991
Other Inorganic Materials	Fused Silica	60676-86-0	76.130862	85.500000	855000	39.064931	390649
Other Organic Materials	Carbon Black	1333-86-4	0.44521	0.500000	5000	0.228450	2285
Thermoplastics	Epoxy	85954-11-6	9.349404	10.500000	105000	4.797448	47974
Sub-total	—	—	89.041944	100	1000000	45.689978	456900
Semiconductor Device							
Ceramics / Glass	Doped Silicon	7440-21-3	0.905543	100.000000	1000000	0.464660	4647
Sub-total	—	—	0.905543	100	1000000	0.464660	4647
Total	—	—	194.882877	—	—	100	1000000

Assembly site: TI MALAYSIA A/T

RoHS	Yes
REACH	Yes
Device marking	HCT14
Lead finish/Ball material	NiPdAu
MSL rating/Peak reflow	Level-1-260C-UNLIM
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	0.066725	97.535484	975355	0.045802	458
Not Categorized	Proprietary Materials	—	0.000008	0.011694	117	0.000005	0
Precious Metals	Gold	7440-57-5	0.000035	0.051161	512	0.000024	0
Precious Metals	Palladium	7440-05-3	0.001641	2.398737	23987	0.001126	11
Precious Metals	Silver	7440-22-4	0.000002	0.002924	29	0.000001	0
Sub-total	—	—	0.068411	100	1000000	0.046960	470
Die Attach Adhesive							
Precious Metals	Silver	7440-22-4	0.070078	79.999543	799995	0.048104	481
Thermoplastics	Epoxy	85954-11-6	0.01752	20.000457	200005	0.012026	120
Sub-total	—	—	0.087598	100	1000000	0.060130	601
Lead Frame							
Copper and Its Alloys	Copper	7440-50-8	47.1663	97.050000	970500	32.376671	323767
Copper and Its Alloys	Iron	7439-89-6	1.2636	2.600000	26000	0.867381	8674
Copper and Its Alloys	Phosphorus	7723-14-0	0.0729	0.150000	1500	0.050041	500
Zinc and Its Alloys	Zinc	7440-66-6	0.0972	0.200000	2000	0.066722	667
Sub-total	—	—	48.6000	100	1000000	33.360815	333608
Lead Frame Plating							
Nickel and Its Alloys	Nickel	7440-02-0	0.19024	95.120000	951200	0.130588	1306
Precious Metals	Gold	7440-57-5	0.00156	0.780000	7800	0.001071	11
Precious Metals	Palladium	7440-05-3	0.0082	4.100000	41000	0.005629	56

Sub-total	—	—	0.20000	100	1000000	0.137287	1373
Mold Compound							
Not Categorized	Phenolic Resin	9003-35-4	3.375302	3.500000	35000	2.316931	23169
Other Inorganic Materials	Fused Silica	60676-86-0	82.453797	85.500000	855000	56.599298	565993
Other Organic Materials	Carbon Black	1333-86-4	0.482186	0.500000	5000	0.330990	3310
Thermoplastics	Epoxy	85954-11-6	10.125905	10.500000	105000	6.950791	69508
Sub-total	—	—	96.437190	100	1000000	66.198009	661980
Semiconductor Device							
Ceramics / Glass	Doped Silicon	7440-21-3	0.286695	100.000000	1000000	0.196798	1968
Sub-total	—	—	0.286695	100	1000000	0.196798	1968
Total	—	—	145.679894	—	—	100	1000000

Assembly site: **Ext-Mfg**

RoHS	Yes
REACH	Yes
Device marking	HCT14
Lead finish/Ball material	Sn
MSL rating/Peak reflow	Level-1-260C-UNLIM
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	0.034909	95.156190	951562	0.024586	246
Precious Metals	Gold	7440-57-5	0.000273	0.744153	7442	0.000192	2
Precious Metals	Palladium	7440-05-3	0.001504	4.099657	40997	0.001059	11
Sub-total	—	—	0.036686	100	1000000	0.025838	258
Die Attach Adhesive							
Precious Metals	Silver	7440-22-4	0.075611	79.999788	799998	0.053252	533
Thermoplastics	Epoxy	85954-11-6	0.018903	20.000212	200002	0.013313	133
Sub-total	—	—	0.094514	100	1000000	0.066565	666
Lead Frame							
Copper and Its Alloys	Copper	7440-50-8	43.521966	96.780000	967800	30.652056	306521
Copper and Its Alloys	Iron	7439-89-6	1.056795	2.350000	23500	0.744289	7443
Copper and Its Alloys	Phosphorus	7723-14-0	0.035976	0.080000	800	0.025338	253
Other Nonferrous Metals and Alloys	Lead	7439-92-1	0.004497	0.010000	100	0.003167	32
Precious Metals	Silver	7440-22-4	0.292305	0.650000	6500	0.205867	2059
Zinc and Its Alloys	Zinc	7440-66-6	0.058461	0.130000	1300	0.041173	412
Sub-total	—	—	44.970000	100	1000000	31.671890	316719
Lead Frame Plating							
Other Nonferrous Metals and Alloys	Tin	7440-31-5	0.2923	100.000000	1000000	0.205864	2059
Sub-total	—	—	0.2923	100	1000000	0.205864	2059
Mold Compound							
Other Inorganic Materials	Fused Silica	60676-86-0	81.830754	85.000000	850000	57.632526	576325
Other Organic Materials	Carbon Black	1333-86-4	0.529493	0.550000	5500	0.372916	3729
Thermoplastics	Epoxy	85954-11-6	13.911228	14.450000	144500	9.797529	97975
Sub-total	—	—	96.271475	100	1000000	67.802971	678030
Semiconductor Device							
Ceramics / Glass	Doped Silicon	7440-21-3	0.322129	100.000000	1000000	0.226872	2269
Sub-total	—	—	0.322129	100	1000000	0.226872	2269
Total	—	—	141.987104	—	—	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

8.71×10 ⁹	0.1	55	60	0.7	125	1000	101758	0	—
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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 (2Q2025 - 1Q2026) Sample Size	Cumulative Sample Size	Disposition
Power BICMOS	High temperature reverse bias 125C, 1000 Hours or Equivalent JEDEC Condition	462	462	Pass
Power BICMOS	Life test 125C, 1000 Hours or Equivalent JEDEC Condition	26863	442169	Pass

Assembly process reliability data

Package Family	Reliability Test	Rolling Year (2Q2025 - 1Q2026) Sample Size	Cumulative Sample Size	Disposition
SOIC	Biased HAST 130C/85%RH, 96 Hours or Equivalent JEDEC Condition	4522	83092	Pass
SOIC	High temp storage bake 150C, 1000 Hours or Equivalent JEDEC Condition	3530	70790	Pass
SOIC	Temperature cycle -65/150C, 500 Hours or Equivalent JEDEC Condition	12607	184408	Pass
SOIC	Unbiased HAST 130C/85% RH, 96 Hours or Equivalent JEDEC Condition	8855	135910	Pass

Additional resources

[General quality guidelines](#)

[Certifications](#)

[Conflict minerals specialized disclosure report](#)

[Restricted chemical test report](#)

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