

ESD451WDPYRQ1

Quality, reliability & packaging data download

Status: ACTIVE

Report date: 07/16/2026



Assembly site: TI Semiconductor

RoHS	Yes
REACH	Yes
Device marking	S6
Lead finish/Ball material	Sn
MSL rating/Peak reflow	Level-1-260C-UNLIM
Rating	Automotive

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	0.002847	97.533402	975334	0.245222	2452
Precious Metals	Gold	7440-57-5	0.000002	0.068517	685	0.000172	2
Precious Metals	Palladium	7440-05-3	0.00007	2.398082	23981	0.006029	60
Sub-total	—	—	0.002919	100	1000000	0.251424	2514
Die Attach Adhesive							
Precious Metals	Silver	7440-22-4	0.007728	80.000000	800000	0.665641	6656
Thermoplastics	Epoxy	85954-11-6	0.001932	20.000000	200000	0.166410	1664
Sub-total	—	—	0.009660	100	1000000	0.832051	8321
Lead Frame							
Copper and Its Alloys	Copper	7440-50-8	0.817232	97.755024	977550	70.391141	703911
Copper and Its Alloys	Iron	7439-89-6	0.017974	2.150000	21500	1.548165	15482
Copper and Its Alloys	Phosphorus	7723-14-0	0.000209	0.025000	250	0.018002	180
Zinc and Its Alloys	Zinc	7440-66-6	0.000585	0.069976	700	0.050388	504
Sub-total	—	—	0.836000	100	1000000	72.007697	720077
Lead Frame Plating							
Other Nonferrous Metals and Alloys	Tin	7440-31-5	0.019	100.000000	1000000	1.636539	16365
Sub-total	—	—	0.019	100	1000000	1.636539	16365
Mold Compound							
Other Inorganic Materials	Fused Silica	60676-86-0	0.231798	87.999939	879999	19.965598	199656
Other Organic Materials	Carbon Black	1333-86-4	0.00079	0.299916	2999	0.068046	680
Other Organic Materials	Chlorine	7782-50-5	0.000003	0.001139	11	0.000258	3
Thermoplastics	Epoxy	85954-11-6	0.030816	11.699006	116990	2.654293	26543
Sub-total	—	—	0.263407	100	1000000	22.688195	226882
Semiconductor Device							
Ceramics / Glass	Doped Silicon	7440-21-3	0.030001	100.000000	1000000	2.584094	25841
Sub-total	—	—	0.030001	100	1000000	2.584094	25841
Total	—	—	1.160987	—	—	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	
9.24×10 ⁸	1.1	55	60	0.7	125	1000	10793	0	—	

Qualification summary

No results found

Ongoing reliability monitoring

FAB process reliability data

Fab Process	Reliability Test	Rolling Year (3Q2025 - 2Q2026) Sample Size	Cumulative Sample Size	Disposition
VDIODE	High temperature reverse bias 125C, 1000 Hours or Equivalent JEDEC Condition	539	3234	Pass
VDIODE	Life test 125C, 1000 Hours or Equivalent JEDEC Condition	539	8407	Pass

Assembly process reliability data

Package Family	Reliability Test	Rolling Year (3Q2025 - 2Q2026) Sample Size	Cumulative Sample Size	Disposition
SON	Biased HAST 130C/85%RH, 96 Hours or Equivalent JEDEC Condition	4095	79099	Pass
SON	High temp storage bake 150C, 1000 Hours or Equivalent JEDEC Condition	2753	59238	Pass
SON	Temperature cycle -65/150C, 500 Hours or Equivalent JEDEC Condition	8399	144057	Pass
SON	Unbiased HAST 130C/85% RH, 96 Hours or Equivalent JEDEC Condition	5855	117295	Pass

Additional resources

[General quality guidelines](#)

[Certifications](#)

[Conflict minerals specialized disclosure report](#)

[Restricted chemical test report](#)

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