

TL2845BD

Quality, reliability & packaging data download

Status: ACTIVE

Report date: 06/29/2022



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

RoHS	Yes
REACH	Yes
Device marking	TL2845B
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	0.042105	99.997625	999976	0.025997	260
Precious Metals	Silver	7440-22-4	0.000001	0.002375	24	0.000001	0
Sub-total	—	—	0.042106	100	1000000	0.025997	260
Die Attach Adhesive							
Precious Metals	Silver	7440-22-4	0.739717	80.000022	800000	0.456718	4567
Thermoplastics	Epoxy	85954-11-6	0.184929	19.999978	200000	0.114179	1142
Sub-total	—	—	0.924646	100	1000000	0.570897	5709
Lead Frame							
Copper and Its Alloys	Copper	7440-50-8	51.63279	99.870000	998700	31.879258	318793
Copper and Its Alloys	Iron	7439-89-6	0.0517	0.100000	1000	0.031921	319
Copper and Its Alloys	Phosphorus	7723-14-0	0.01551	0.030000	300	0.009576	96
Sub-total	—	—	51.70000	100	1000000	31.920755	319208
Lead Frame Plating							
Nickel and Its Alloys	Nickel	7440-02-0	0.741936	95.120000	951200	0.458088	4581
Precious Metals	Gold	7440-57-5	0.006084	0.780000	7800	0.003756	38
Precious Metals	Palladium	7440-05-3	0.03198	4.100000	41000	0.019745	197
Sub-total	—	—	0.780000	100	1000000	0.481590	4816
Mold Compound							
Other Inorganic Materials	Fused Silica	60676-86-0	92.831731	88.000000	880000	57.316420	573164
Other Plastics and Rubber	Carbon Black	1333-86-4	0.316472	0.300000	3000	0.195397	1954
Other Plastics and Rubber	Organic Phosphorus	1330-78-5	0.580198	0.550000	5500	0.358227	3582
Thermoplastics	Epoxy	85954-11-6	11.762202	11.150000	111500	7.262251	72623
Sub-total	—	—	105.490603	100	1000000	65.132295	651323
Semiconductor Device							
Ceramics / Glass	Doped Silicon	7440-21-3	3.026234	100.000000	1000000	1.868466	18685
Sub-total	—	—	3.026234	100	1000000	1.868466	18685
Total	—	—	161.963589	—	—	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	
1.54×10 ⁹	0.6	55	60	0.7	125	1000	39752	1	—	

Qualification summary

Stress	Reference	Min lot qty	SS / lot	Condition	Duration	Result
HTOL	JESD22-A108	3	77	Life test, 125C	1000 hours	Pass
HTSL	JESD22-A103	3	25	High temp storage bake 150C	1000 hours	Pass
AC/UHAST	JESD22-A102/JESD22-A118	3	25	Autoclave 121C or unbiased HAST 130C / 85% RH	96 hours	Pass
THB/HAST	JESD22-A101/JESD22-A110	3	25	THB 85C/85%RH or HAST 130C/110C/85%RH	1000 hours or 96 hours	Pass
TC	JESD22-A104	3	25	Temperature cycle -65/150C	500 cycles	Pass
SD	J-STD-002	3	22	Per specification	>95% lead coverage	Pass
HBM	JS-001	1	3	ESD - HBM	Classification	See data sheet
CDM	JESD22-C101	1	3	ESD - CDM	Classification	See data sheet
LU	JESD78	1	3	Latch-up	Per JESD78	Pass
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 (2Q21 - 1Q22) Sample Size	Cumulative Sample Size	Disposition
BIPOLAR	High Temperature Operating Life, 125C, 1000 Hours (or Equivalent)	561	17445	Pass

Assembly process reliability data

Package Family	Reliability Test	Rolling Year (2Q21 - 1Q22) Sample Size	Cumulative Sample Size	Disposition
SOIC	Autoclave, 121C, 96 Hours	7946	87021	Pass
SOIC	Biased HAST, 110C/85%RH, 264 Hours	518	518	Pass
SOIC	Biased HAST, 130C/85%RH, 96 Hours	2774	56055	Pass
SOIC	High Temperature Storage Life, 150C, 1000 Hours	899	19089	Pass
SOIC	High Temperature Storage Life, 170C, 420 Hours	231	30094	Pass
SOIC	Temperature Cycle, -40/125C, 850 Cycles	0	231	Pass
SOIC	Temperature Cycle, -55/125C, 700 Cycles	0	845	Pass
SOIC	Temperature Cycle, -65/150C, 500 Cycles	11025	133015	Pass
SOIC	Temperature-Humidity Bias Test (85C/85%RH), 1000 Hours	0	1823	Pass
SOIC	Unbiased HAST, 110C/85%RH, 264 Hours	178	158	Pass
SOIC	Unbiased HAST, 130C/85%RH, 96 Hours	717	15449	Pass

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