



GigaDevice

Product Shelf Life

QRE, GigaDevice
2024

Background Introduction

GD

This document describes the definition of shelf -life and control standards for the GD packaged products to explain the shelf -life related questions that customers concerned in use.

GD

JEDEC JSTD33

It is based on the results of GD's experience and actual evaluation data, in accordance with the JEDEC JSTD33 standard.

Not Applicable

KGD

The shelf life and storage requirement of KGD product will be sent along with the shipment

JSTD033D

Product Shelf Life Definition of JSTD033D Standard

Standard#	Standard Title
IPC/JEDEC J-STD-033D	Handling, Packing, Shipping and Use of Moisture, Reflow, and Process Sensitive Devices

Product Shelf Life

- Shelf Life (of a device in a sealed MBB) The allowable time that a dry-packed moisture or reflow -sensitive device can be stored in an unopened moisture -barrier bag (MBB).
- | | | |
|----|----|------|
| 12 | 40 | 90%. |
|----|----|------|

The calculated shelf life for dry-packed SMD packages shall be a minimum of 12 months from the bag seal date, when stored in a non-condensing atmospheric environment of <40 °C/90% RH.
- | | | | | | |
|--------|----|-----|----------------|-----|-----|
| baking | 12 | MSL | JSTD033D 5.3.2 | MBB | HIC |
|--------|----|-----|----------------|-----|-----|

This declaration reflects the minimum shelf life calculated under harsh storage conditions ; According to JSTD 033D 5.3.2, as long as the MBB is not damaged, the HIC does not show moisture absorption or baking is required, more than 12 months will not be a risk, and the customer may apply the SMT according to the original MSL requirements .



5.3.2 Shelf Life: The minimum calculated shelf life is 12 months from bag seal date or indicated on barcode. If the actual shelf life has exceeded 12 months from the bag seal date and the humidity indicator card (HIC) (see 5.5.1) indicates that baking is not required, then it is safe to reflow the devices per the original MSL rating. However, if the HIC indicates that baking is required, then it is not safe to reflow the devices per the original MSL rating. However, if the HIC indicates that baking is required, then it is not safe to reflow the devices per the original MSL rating.

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GD Product Shelf Life Requirement

GD : MBB
GD Date Code Date Code

GD Product Shelf-life :

The time between the vacuum packaging date and the date customer unpacking the vacuum package (MBB). However, concerning the industry practice, it is easier to calculate the shelf life from the assembly start date (Date Code) to the date customer unpacking the vacuum package (MBB).

If the products are repacked, the shelf life should start from the actual MBB seal date instead of the Date Code to reflect the resetting of the shelf life .

, 2 Date Code

Based on the results of G D experience and actual evaluation data, GigaDevice Semiconductor Inc. guarantees the shelf life of the products with an assembly date code can be prolonged to 2 years . The

Product Shelf Life Resetting

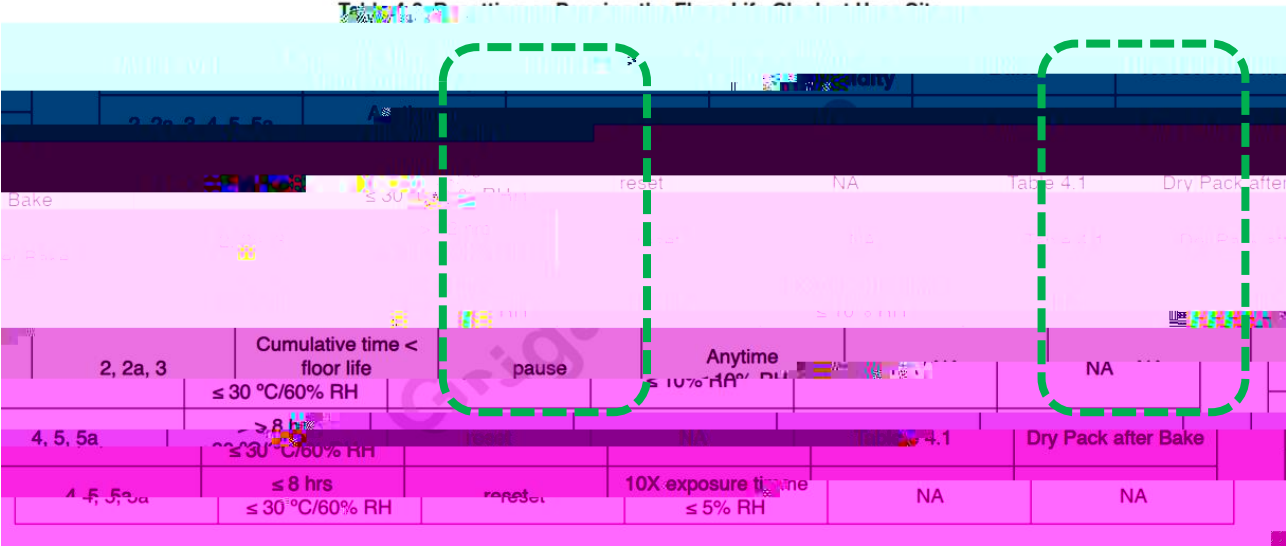


Table 4-1 Reference Conditions for Drying Mounted or Unmounted SMD Packages

Package Body	Level	Bake @ 125 °C + 10/-0 °C ≤ 5% RH		Bake @ 90 °C + 8/-0 °C ≤ 5% RH		Bake
		Exceeding	Exceeding	Exceeding	Exceeding	
2, 2a, 3	1	3 hours	1 hour	23 hours	8 hours	1
4, 5, 5a	2	13 hours	4 days	3 days	5a	4 hours
4, 5, 5a	3	20 hours	8 days	7 days	2	Not Required (see Note 4)
4, 5, 5a	4	27 hours	11 days	10 days	3	Not Required (see Note 4)
4, 5, 5a	5	34 hours	14 days	13 days	4	Not Required (see Note 4)
4, 5, 5a	6	41 hours	17 days	16 days	5	Not Required (see Note 4)
4, 5, 5a	7	48 hours	20 days	19 days	6	Not Required (see Note 4)
4, 5, 5a	8	55 hours	23 days	22 days	7	Not Required (see Note 4)
4, 5, 5a	9	62 hours	26 days	25 days	8	Not Required (see Note 4)
4, 5, 5a	10	69 hours	29 days	28 days	9	Not Required (see Note 4)
4, 5, 5a	11	76 hours	32 days	31 days	10	Not Required (see Note 4)
4, 5, 5a	12	83 hours	35 days	34 days	11	Not Required (see Note 4)
4, 5, 5a	13	90 hours	38 days	37 days	12	Not Required (see Note 4)
4, 5, 5a	14	97 hours	41 days	40 days	13	Not Required (see Note 4)
4, 5, 5a	15	104 hours	44 days	43 days	14	Not Required (see Note 4)
4, 5, 5a	16	111 hours	47 days	46 days	15	Not Required (see Note 4)
4, 5, 5a	17	118 hours	50 days	49 days	16	Not Required (see Note 4)
4, 5, 5a	18	125 hours	53 days	52 days	17	Not Required (see Note 4)
4, 5, 5a	19	132 hours	56 days	55 days	18	Not Required (see Note 4)
4, 5, 5a	20	139 hours	59 days	58 days	19	Not Required (see Note 4)
4, 5, 5a	21	146 hours	62 days	61 days	20	Not Required (see Note 4)
4, 5, 5a	22	153 hours	65 days	64 days	21	Not Required (see Note 4)
4, 5, 5a	23	160 hours	68 days	67 days	22	Not Required (see Note 4)
4, 5, 5a	24	167 hours	71 days	70 days	23	Not Required (see Note 4)
4, 5, 5a	25	174 hours	74 days	73 days	24	Not Required (see Note 4)
4, 5, 5a	26	181 hours	77 days	76 days	25	Not Required (see Note 4)
4, 5, 5a	27	188 hours	80 days	79 days	26	Not Required (see Note 4)
4, 5, 5a	28	195 hours	83 days	82 days	27	Not Required (see Note 4)
4, 5, 5a	29	202 hours	86 days	85 days	28	Not Required (see Note 4)
4, 5, 5a	30	209 hours	89 days	88 days	29	Not Required (see Note 4)
4, 5, 5a	31	216 hours	92 days	91 days	30	Not Required (see Note 4)
4, 5, 5a	32	223 hours	95 days	94 days	31	Not Required (see Note 4)
4, 5, 5a	33	230 hours	98 days	97 days	32	Not Required (see Note 4)
4, 5, 5a	34	237 hours	101 days	100 days	33	Not Required (see Note 4)
4, 5, 5a	35	244 hours	104 days	103 days	34	Not Required (see Note 4)
4, 5, 5a	36	251 hours	107 days	106 days	35	Not Required (see Note 4)
4, 5, 5a	37	258 hours	110 days	109 days	36	Not Required (see Note 4)
4, 5, 5a	38	265 hours	113 days	112 days	37	Not Required (see Note 4)
4, 5, 5a	39	272 hours	116 days	115 days	38	Not Required (see Note 4)
4, 5, 5a	40	279 hours	119 days	118 days	39	Not Required (see Note 4)
4, 5, 5a	41	286 hours	122 days	121 days	40	Not Required (see Note 4)
4, 5, 5a	42	293 hours	125 days	124 days	41	Not Required (see Note 4)
4, 5, 5a	43	300 hours	128 days	127 days	42	Not Required (see Note 4)
4, 5, 5a	44	307 hours	131 days	130 days	43	Not Required (see Note 4)
4, 5, 5a	45	314 hours	134 days	133 days	44	Not Required (see Note 4)
4, 5, 5a	46	321 hours	137 days	136 days	45	Not Required (see Note 4)
4, 5, 5a	47	328 hours	140 days	139 days	46	Not Required (see Note 4)
4, 5, 5a	48	335 hours	143 days	142 days	47	Not Required (see Note 4)
4, 5, 5a	49	342 hours	146 days	145 days	48	Not Required (see Note 4)
4, 5, 5a	50	349 hours	149 days	148 days	49	Not Required (see Note 4)
4, 5, 5a	51	356 hours	152 days	151 days	50	Not Required (see Note 4)
4, 5, 5a	52	363 hours	155 days	154 days	51	Not Required (see Note 4)
4, 5, 5a	53	370 hours	158 days	157 days	52	Not Required (see Note 4)
4, 5, 5a	54	377 hours	161 days	160 days	53	Not Required (see Note 4)
4, 5, 5a	55	384 hours	164 days	163 days	54	Not Required (see Note 4)
4, 5, 5a	56	391 hours	167 days	166 days	55	Not Required (see Note 4)
4, 5, 5a	57	398 hours	170 days	169 days	56	Not Required (see Note 4)
4, 5, 5a	58	405 hours	173 days	172 days	57	Not Required (see Note 4)
4, 5, 5a	59	412 hours	176 days	175 days	58	Not Required (see Note 4)
4, 5, 5a	60	419 hours	179 days	178 days	59	Not Required (see Note 4)
4, 5, 5a	61	426 hours	182 days	181 days	60	Not Required (see Note 4)
4, 5, 5a	62	433 hours	185 days	184 days	61	Not Required (see Note 4)
4, 5, 5a	63	440 hours	188 days	187 days	62	Not Required (see Note 4)
4, 5, 5a	64	447 hours	191 days	190 days	63	Not Required (see Note 4)
4, 5, 5a	65	454 hours	194 days	193 days	64	Not Required (see Note 4)
4, 5, 5a	66	461 hours	197 days	196 days	65	Not Required (see Note 4)
4, 5, 5a	67	468 hours	200 days	199 days	66	Not Required (see Note 4)
4, 5, 5a	68	475 hours	203 days	202 days	67	Not Required (see Note 4)
4, 5, 5a	69	482 hours	206 days	205 days	68	Not Required (see Note 4)
4, 5, 5a	70	489 hours	209 days	208 days	69	Not Required (see Note 4)
4, 5, 5a	71	496 hours	212 days	211 days	70	Not Required (see Note 4)
4, 5, 5a	72	503 hours	215 days	214 days	71	Not Required (see Note 4)
4, 5, 5a	73	510 hours	218 days	217 days	72	Not Required (see Note 4)
4, 5, 5a	74	517 hours	221 days	220 days	73	Not Required (see Note 4)
4, 5, 5a	75	524 hours	224 days	223 days	74	Not Required (see Note 4)
4, 5, 5a	76	531 hours	227 days	226 days	75	Not Required (see Note 4)
4, 5, 5a	77	538 hours	230 days	229 days	76	Not Required (see Note 4)
4, 5, 5a	78	545 hours	233 days	232 days	77	Not Required (see Note 4)
4, 5, 5a	79	552 hours	236 days	235 days	78	Not Required (see Note 4)
4, 5, 5a	80	559 hours	239 days	238 days	79	Not Required (see Note 4)
4, 5, 5a	81	566 hours	242 days	241 days	80	Not Required (see Note 4)
4, 5, 5a	82	573 hours	245 days	244 days	81	Not Required (see Note 4)
4, 5, 5a	83	580 hours	248 days	247 days	82	Not Required (see Note 4)
4, 5, 5a	84	587 hours	251 days	250 days	83	Not Required (see Note 4)
4, 5, 5a	85	594 hours	254 days	253 days	84	Not Required (see Note 4)
4, 5, 5a	86	601 hours	257 days	256 days	85	Not Required (see Note 4)
4, 5, 5a	87	608 hours	260 days	259 days	86	Not Required (see Note 4)
4, 5, 5a	88	615 hours	263 days	262 days	87	Not Required (see Note 4)
4, 5, 5a	89	622 hours	266 days	265 days	88	Not Required (see Note 4)
4, 5, 5a	90	629 hours	269 days	268 days	89	Not Required (see Note 4)
4, 5, 5a	91	636 hours	272 days	271 days	90	Not Required (see Note 4)
4, 5, 5a	92	643 hours	275 days	274 days	91	Not Required (see Note 4)
4, 5, 5a	93	650 hours	278 days	277 days	92	Not Required (see Note 4)
4, 5, 5a	94	657 hours	281 days	280 days	93	Not Required (see Note 4)
4, 5, 5a	95	664 hours	284 days	283 days	94	Not Required (see Note 4)
4, 5, 5a	96	671 hours	287 days	286 days	95	Not Required (see Note 4)
4, 5, 5a	97	678 hours	290 days	289 days	96	Not Required (see Note 4)
4, 5, 5a	98	685 hours	293 days	292 days	97	Not Required (see Note 4)
4, 5, 5a	99	692 hours	296 days	295 days	98	Not Required (see Note 4)
4, 5, 5a	100	699 hours	299 days	298 days	99	Not Required (see Note 4)
4, 5, 5a	101	706 hours	302 days	301 days	100	Not Required (see Note 4)
4, 5, 5a	102	713 hours	305 days	304 days	101	Not Required (see Note 4)
4, 5, 5a	103	720 hours	308 days	307 days	102	Not Required (see Note 4)
4, 5, 5a	104	727 hours	311 days	310 days	103	Not Required (see Note 4)
4, 5, 5a	105	734 hours	314 days	313 days	104	Not Required (see Note 4)
4, 5, 5a	106	741 hours	317 days	316 days	105	Not Required (see Note 4)
4, 5, 5a	107	748 hours	320 days	319 days	106	Not Required (see Note 4)
4, 5, 5a	108	755 hours	323 days	322 days	107	Not Required (see Note 4)
4, 5, 5a	109	762 hours	326 days	325 days	108	Not Required (see Note 4)
4, 5, 5a	110	769 hours	329 days	328 days	109	Not Required (see Note 4)
4, 5, 5a	111	776 hours	332 days	331 days	110	Not Required (see Note 4)
4, 5, 5a	112	783 hours	335 days	334 days	111	Not Required (see Note 4)
4, 5, 5a	113	790 hours	338 days	337 days	112	Not Required (see Note 4)
4, 5, 5a	114	797 hours	341 days	340 days	113	Not Required (see Note 4)
4, 5, 5a	115	804 hours	344 days	343 days	114	Not Required (see Note 4)
4, 5, 5a	116	811 hours	347 days	346 days	115	Not Required (see Note 4)
4, 5, 5a	117	818 hours	350 days	349 days	116	Not Required (see Note 4)
4, 5, 5a	118	825 hours	353 days	352 days	117	Not Required (see Note 4)
4, 5, 5a	119	832 hours	356 days	355 days	118	Not Required (see Note 4)
4, 5, 5a	120	839 hours	359 days	358 days	119	Not Required (see Note 4)
4, 5, 5a	121	846 hours	362 days	361 days	120	Not Required (see Note 4)
4, 5, 5a	122	853 hours	365 days	364 days	121	Not Required (see Note 4)
4, 5, 5a	123	860 hours	368 days	367 days	122	Not Required (see Note 4)
4, 5, 5a	124	867 hours	371 days	370 days	123	Not Required (see Note 4)
4, 5, 5a	125	874 hours	374 days	373 days	124	Not Required (see Note 4)
4, 5, 5a	126	881 hours	377 days	376 days	125	Not Required (see Note 4)
4, 5, 5a	127	888 hours	380 days	379 days	126	Not Required (see Note 4)
4, 5, 5a	128	895 hours	383 days	382 days	127	Not Required (see Note 4)
4, 5, 5a	129	902 hours	386 days	385 days	128	Not Required (see Note 4)
4, 5, 5a	130	909 hours	389 days	388 days	129	Not Required (see Note 4)
4, 5, 5a	131	916 hours	392 days	391 days	130	Not Required (see Note 4)
4, 5, 5a	132	923 hours	395 days	394 days	131	Not Required (see Note 4)
4, 5, 5a	133	930 hours	398 days	397 days	132	Not Required (see Note 4)
4, 5, 5a	134	937 hours	401 days	400 days	133	Not Required (see Note 4)
4, 5, 5a	135	944 hours	404 days	403 days	134	Not Required (see Note 4)
4, 5, 5a	136	951 hours	407 days	406 days	135	Not Required (see Note 4)
4, 5, 5a	137	958 hours	410 days	409 days	136	Not Required (see Note 4)
4, 5, 5a	138	965 hours	413 days	412 days	137	Not Required (see Note 4)
4, 5, 5a	139	972 hours	416 days	415 days	138	Not Required (see Note 4)
4, 5, 5a	140	979 hours	419 days	418 days	139	Not Required (see Note 4)
4, 5, 5a	141	986 hours	422 days	421 days	140	Not Required (see Note 4)
4, 5, 5a	142	993 hours	425 days	424 days	141	Not Required (see Note 4)
4, 5, 5a	143	1000 hours	428 days	427 days	142	Not Required (see Note 4)
4, 5, 5a	144	1007 hours	431 days	430 days	143	Not Required (see Note 4)
4, 5, 5a	145	1014 hours	434 days	433 days	144	Not Required (see Note 4)
4, 5, 5a	146	1021 hours	437 days	436 days	145	Not Required (see Note 4)
4, 5, 5a	147	1028 hours	440 days	439 days	146	Not Required (see Note 4)
4, 5, 5a	148	1035 hours	443 days	442 days	147	Not Required (see Note 4)
4, 5, 5a	149	1042 hours	446 days	445 days	148	Not Required (see Note 4)
4, 5, 5a	150	1049 hours	449 days	448 days	149	Not Required (see Note 4)
4, 5, 5a	151	1056 hours	452 days	451 days	150	Not Required (see Note 4)
4, 5, 5a	152	1063 hours	455 days	454 days	151	Not Required (see Note 4)
4, 5, 5a	153	1070 hours	458 days	457 days	152	Not Required (see Note 4)
4, 5, 5a	154	1077 hours	461 days	460 days	153	Not Required (see Note 4)
4, 5, 5a	155	1084 hours	464 days	463 days	154	Not Required (see Note 4)
4, 5, 5a	156	1091 hours	467 days	466 days	155	Not Required (see Note 4)
4, 5, 5a	157	1098 hours	470 days	469 days	156	Not Required (see Note 4)
4, 5, 5a	158	1105 hours	473 days	472 days	157	Not Required (see Note 4)
4, 5, 5a	159	1112 hours	476 days	475 days	158	Not Required (see Note 4)
4, 5, 5a	160	1119 hours	479 days	478 days	159	Not Required (see Note 4)
4, 5, 5a	161	1126 hours	482 days	481 days	160	Not Required (see Note 4)
4, 5, 5a	162	1133 hours	485 days	484 days	161	Not Required (see Note 4)
4, 5, 5a	163	1140 hours	488 days	487 days	162	Not Required (see Note 4)
4, 5, 5a	164	1147 hours	491 days	490 days	163	Not Required (see Note 4)
4, 5, 5a	165	1154 hours	494 days	493 days	164	Not Required (see Note 4)
4, 5, 5a	166	1161 hours	497 days	496 days	165	Not Required (see Note 4)
4, 5, 5a	167	1168 hours	500 days	499 days	166	Not Required (see Note 4)
4, 5, 5a	168	1175 hours	503 days	502 days	167	Not Required (see Note 4)
4, 5, 5a	169	1182 hours	506 days	505 days	168	Not Required (see Note 4)
4, 5, 5a	170	1189 hours	509 days	508 days	169	Not Required (see Note 4

Product Shelf Life Q&A

Q What is the definition of the product shelf life of GD?

A JEDECJ-STD-033D “

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In accordance with JEDECJ-STD-033D "Handling, Packaging, Transportation and Use of Humidity, reflux and process Sensitive Devices", GD provides appropriate MBB and desiccant. The calculated shelf life for dry-packed SMD packages shall be a minimum of 12 months can be prolonged to 24 months from the bag seal date, when stored in a non-condensing

DECLARATION

- **DISCLAIMER** The information presented in this document is for informational purposes only and is subject to change or rendered obsolete without notice. GigaDevice Semiconductor Inc. ("GigaDevice ") makes no representations or warranties with respect to the contents or information provided herein and assumes no responsibility for any inaccuracies, errors or omissions that may appear in this document and no obligation to update, correct or revise the information. GigaDevice assumes no responsibility or liability for any accident, negligence, infringement or any direct or indirect damages resulting from the use or reliance on the information provided herein.

- GigaDevice Semiconductor Inc.(

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