



## Materials Declaration Form

<b>IPC Form Type *</b>	1752 Distribute	<b>Version</b>	2
<b>Sectionals *</b>	Material Info Manufacturing Info	<b>Subsectionals *</b>	A-D

*\* : Required Field*

Supplier Information			
<b>Company Name *</b>	STMicroelectronics	<b>Response Date *</b>	2020-01-22
<b>Contact Name *</b>	Refer to Supplier Comment section		Refer to Supplier Comment section
<b>Authorized Representative *</b>	Floriana SAN BIAGIO	<b>Representative Title</b>	AMS MD CHAMPION
<b>Representative Phone *</b>	Refer to Supplier Comment section	<b>Representative Email *</b>	Refer to Supplier Comment section
<b>Supplier Comment</b>	Online Technical Support - STMicroelectronics : <a href="http://www.st.com/web/en/support/support.html">http://www.st.com/web/en/support/support.html</a>		

Uncertainty Statement	
	<p>While STMicroelectronics has endeavored to provide information which is accurate and up to date, this document and its contents are provided on a strict 'as is' and 'as available' basis. STMicroelectronics disclaims all warranties, express or implied related to this document and its contents, including but not limited to implied warranties of completeness, truth, accuracy, merchantability, fitness for a particular purpose and non-infringement. ST shall have no responsibility and assumes no liability for any cost, loss or damage of any kind which could arise, directly or indirectly, from the use or inability to use this document and/or its contents.</p>
Legal Statement	
<b>Supplier Acceptance *</b>	true
	<b>Legal Declaration *</b>
	<b>Standard</b>
<b>Legal Statement</b>	<p>Supplier certifies that it gathered the provided information and such information is true and correct to the best of its knowledge and belief, as of the date that Supplier completes this form. Supplier acknowledges that Company will rely on this certification in determining the compliance of its products. Company acknowledges that Supplier may have relied on information provided by others in completing this form, and that Supplier may not have independently verified such information. However, in situations where Supplier has not independently verified information provided by others, Supplier agrees that, at a minimum, its suppliers have provided certifications regarding their contributions to the part(s), and those certifications are at least as comprehensive as the certification in this paragraph. If the Company and the Supplier enter into a written agreement with respect to the identified part(s), the terms and conditions of that agreement, including any warranty rights and/or remedies provided as part of that agreement, will be the sole and exclusive source of the Supplier's liability and the Company's remedies for issues that arise regarding information the Supplier provides in this form.</p>

Product				
Mfr Item Number	Mfr Item Name	Version	Mfr Site	Date
	RFL*U1N9AA5	B	Z8GA	2020-01-22
Amount	UoM	Unit type	ST ECOPACK Grade	
123.70	mg	Each	ECOPACK® 2	
	Comment	ECOPACK® 2 is STMicroelectronics trade name for ROHS compliant device without Brominated and Chlorinated compound (900ppm) and without Antimony oxide flame retardant		

Manufacturing information				
J-STD-020 MSL Rating	Classification Temp	Nbr of Reflow Cycles		
1	260	3		
bulk Solder Termination	Terminal Plating	Terminal Base Alloy	Comment	
ing is used or other bulk terminat	Tin (Sn), matte, annealed	Copper Alloy		



Package Designator	Size	Nbr of instances	Shape	
SOT	6.5x3.5x1.8	6	gull wing	
Comment	Package: LL SOT 223; MDF is valid for LDL1117S33R			

QueryList : RoHS Directive 2011/65/EU-July 2011 – Annex II amended by Directive 2015/863-April 2015	
Query	Response
1 - Product(s) meets EU RoHS requirement without any exemptions	true
2 - Product(s) meets EU RoHS requirements except lead in solder and this usage may qualify under the lead in solder '7b' exemption (other selected exemptions may apply)	false
3 - Product(s) meets EU RoHS requirements by application of the selected exemption(s)	false
4 - Product(s) does not meet EU RoHS requirements and is not under exemptions	false
Exemption Id.	Description

QueryList : ELV directive : 2000/53/EC amended 2017/2096 _November 2017	
Query	Response
1 - Product(s) meets EU ELV requirements without any exemptions	true
2 - Product(s) meets EU RoHS requirements by application of the selected exemption(s)	false
Exemption Id.	Description

QueryList : REACH-16th January 2020				
Query				Response
1 - Product(s) does not contain REACH Substances Of Very High Concern above the limits per the definition within REACH				true
CategoryLevel_Name	CategoryLevel_Threshold	amount in product (mg)	Application	ppm in product

Material Composition Declaration						Mfr Item Name	RFL#U1N9AA5					
Homogeneous Material	Material Group	Mass	UoM	Level	Substance Category	Substance	CAS	Exempt	Mass	UoM	Concentration in homogeneous material (ppm)	Concentration in product (ppm)
Die	Other inorganic materials	0.522	mg	supplier	die	Silicon (Si)	7440-21-3		0.498	mg	954023	4026
				supplier	metallization	Aluminium (Al)	7429-90-5		0.005	mg	9579	40
				supplier	metallization	Tungsten (W)	7440-33-7		0.004	mg	7663	32
				supplier	Passivation	Silicon Nitride	12033-89-5		0.001	mg	1916	8
				supplier	Passivation	Silicon Oxide	7631-86-9		0.009	mg	17241	73
				supplier	polymer die coating	PIX1 Gamma-butyrolactone	96-48-0		0.005	mg	9579	40
Leadframe	Copper & its alloys	67.203	mg	supplier	alloy	Phosphorus (P)	12185-10-3		0.067	mg	997	542
				supplier	alloy	Iron(Fe)	7439-89-6		1.681	mg	25014	13589
				supplier	alloy	Copper (Cu)	7440-50-8		65.368	mg	972695	528440
				supplier	alloy	Silver(Ag)	7440-22-4		0.007	mg	104	57
				supplier	alloy	Zinc(Zn)	7440-66-6		0.067	mg	997	542
				supplier	alloy	Lead (Pb)	7439-92-1		0.013	mg	193	105
Die attach 1	Other Organic Materials	0.078	mg	supplier	glue	Aluminum oxide, fibrous	1344-28-1		0.039	mg	500000	315
				supplier	glue	Diethylene glycol monoethyl ether acetate	112-15-2		0.017	mg	217949	137
				supplier	glue	Epoxy resin-1	29690-82-2		0.008	mg	102564	65
				supplier	glue	Epoxy resin-2	Proprietary		0.008	mg	102564	65
				supplier	glue	Epoxy resin-3	Proprietary		0.004	mg	51282	32
				supplier	glue	Dapsone	80-08-0		0.002	mg	25641	16
Die attach 2	Other Organic Materials	0.077	mg	supplier	glue	Silica, vitreous	60676-86-0		0.046	mg	597403	372
				supplier	glue	Epoxy resin	29690-82-2		0.015	mg	194805	121
				supplier	glue	Epoxy resin modifier	Proprietary		0.015	mg	194805	121
				supplier	glue	Guanidine derivative	Proprietary		0.001	mg	12987	8
Bonding wires	Other inorganic materials	0.117	mg	supplier	wire	Copper (Cu)	7440-50-8		0.117	mg	1000000	946
Encapsulation	Other Organic Materials	52.832	mg	supplier	mold compound	Epoxy Resin A	29690-82-2		0.793	mg	15010	6411
				supplier	mold compound	Epoxy Resin B	Proprietary		0.793	mg	15010	6411
				supplier	mold compound	Phenol Resin	25068-38-6		2.113	mg	39995	17082
				supplier	mold compound	Catalyst	Proprietary		0.265	mg	5016	2142
				supplier	mold compound	Carbon Black	1333-86-4		0.106	mg	2006	857
				supplier	mold compound	Amorphous silica	60676-86-0		46.649	mg	882969	377114
				supplier	mold compound	Crystal silica	14808-60-7		2.113	mg	39995	17082
Finishing	Solder	2.873	mg	supplier	Connection coating	Tin(Sn)	7440-31-5		2.873	mg	1000000	23226