



Materials Declaration Form

IPC Form Type *	1752 Distribute	Version	2
Sectionals *	Material Info Manufacturing Info	Subsectionals *	A-D <i>* : Required Field</i>

Supplier Information			
Company Name *	STMicroelectronics	Response Date *	2017-11-09
Company Unique ID	NL 008751171801		
Contact Name *	Refer to Supplier Comment section		Refer to Supplier Comment section
Contact Phone *	Refer to Supplier Comment section	Contact Email *	Refer to Supplier Comment section
Authorized Representative *	Floriana SAN BIAGIO	Representative Title	AMG MD CHAMPION
Representative Phone *	Refer to Supplier Comment section	Representative Email *	Refer to Supplier Comment section
Supplier Comment	Online Technical Support - STMicroelectronics : http://www.st.com/web/en/support/support.html		

Uncertainty Statement

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Legal Statement

Supplier Acceptance *	true	Legal Declaration *	Standard
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Legal Statement

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.

Product				
Mfr Item Number	Mfr Item Name	Version	Mfr Site	Date
	RVWO*V431A46	A	ZS1A	2017-11-09
Amount	UoM	Unit type	ST ECOPACK Grade	
7	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 (in each organic material)		

Manufacturing information				
J-STD-020 MSL Rating	Classification Temp	Nbr of Reflow Cycles		 life.augmented
1	260	3		
bulk Solder Termination	Terminal Plating	Terminal Base Alloy	Comment	
Not Applicable	Nickel/Palladium/Gold (Ni/Pd/Au)	Copper Alloy		

Package Designator	Size	Nbr of instances	Shape	
SOT	2x1.26x0.93	6	gull wing	
Comment	Package: WO SOT 323 6LDS; MDF valid for TLVH431LIC1			

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 : REACH-7th July 2017				
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 : note : Substance present with less 0.001mg will not be declared in this document						Mfr Item Name	RVW0*V431A46				5000001.0	999948.0
Homogeneous Material	Material Group	Mass	UoM	Level	Substance Category	Substance	CAS	Exempt	Mass	UoM	Concentration in homogeneous material (ppm)	Concentration in product (ppm)
Die	M-011 Other inorganic materials	0.348	mg	supplier	die	Silicon (Si)	7440-21-3		0.328	mg	942529	46857
				supplier	metallization	Aluminium (Al)	7429-90-5		0.005	mg	14368	714
				supplier	metallization	Titanium (Ti)	7440-32-6		0.001	mg	2874	143
				supplier	Passivation	Silicon Nitride	12033-89-5		0.001	mg	2874	143
				supplier	Passivation	Silicon Oxide	7631-86-9		0.008	mg	22989	1143
				supplier	polymer die coating	PIX1 Gamma-butyrolactone	96-48-0		0.005	mg	14368	714
Leadframe	M-004 Copper and its alloys	2.910	mg	supplier	alloy	Copper (Cu)	7440-50-8		2.814	mg	967140	402054
				supplier	alloy	Phosphorus (P)	7723-14-0		0.000	mg	150	62
				supplier	alloy	Zinc (Zn)	7440-66-6		0.001	mg	500	208
				supplier	alloy	Iron (Fe)	7439-89-6		0.061	mg	21000	8730
				JIG - R	alloy	Lead (0.03% max)	7439-92-1		0.000	mg	10	4
				supplier	metallization	Nickel (Ni)	7440-02-0		0.029	mg	10000	4157
Die attach	M-008 Precious metals	0.030	mg	supplier	metallization	Palladium (Pd)	7440-05-3		0.003	mg	1000	416
				supplier	metallization	Gold (Au)	7440-57-5		0.001	mg	200	83
				supplier	glue	Aluminium oxide	1344-28-1		0.010	mg	320000	1371
Bonding wires	M-004 Copper and its alloys	0.020	mg	supplier	glue	Carbinol acetate	112-15-2		0.007	mg	220000	943
				supplier	glue	Epoxy Cresol Novolac Resin	29690-82-2		0.005	mg	180000	771
				supplier	glue	CP Bisph. A diglycidyl ether+Bisph. A	25036-25-3		0.003	mg	100000	429
				supplier	glue	Epichlorohyd.-bisphenol A resin MW	25068-38-6		0.002	mg	50000	214
				supplier	glue	Dapsone	80-08-0		0.002	mg	50000	214
				supplier	glue	Other additives	Proprietary		0.002	mg	80000	343
				supplier	wire	Copper (Cu)	7440-50-8		0.020	mg	1000000	2807
				supplier	mold compound	Solid Epoxy Resin-1	29690-82-2		0.074	mg	20108	10606
Encapsulation	M-011 Other inorganic materials	3.692	mg	supplier	mold compound	Solid Epoxy Resin-2	Proprietary		0.074	mg	20108	10606
				supplier	mold compound	Phenol resin	25068-38-6		0.128	mg	34800	18354
				supplier	mold compound	Amorphous Silica	60676-86-0		3.304	mg	894821	471954
				supplier	mold compound	Carbon Black	1333-86-4		0.019	mg	5027	2651
				supplier	mold compound	Crystalline silica	14808-60-7		0.093	mg	25135	13257