

# Material Declaration Form

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ams-OSRAM AG  
 Tobelbader Strasse 30  
 A-8141 Premstaetten, Austria  
 Tel +43 (0) 3136 500-0



Ordering Code	Production Version	Package Family	Assembly Material Number	Lead Count	Weight (mg)	Manufacturing Country	Halogen Free	EU RoHS	China Rohs	Release Status	Report Version
TMF8821-1AM	TE21	OLGA	510840034	12	18.27	Taiwan	YES	YES	YES	FULL	1

## Production Version: TE21

Homogenous Material	Weight (mg)	Symbol	Chemical Substance	Input Ratio (%)	CAS Number	Unit Weight (mg)	Unit Weight (%)	Amount (ppm)
Substrate	2.92	Au	Gold	0.50	7440-57-5	0.01460	0.07991	799
		Cu	Copper	55.00	7440-50-8	1.60600	8.79037	87904
		Ni	Nickel	2.00	7440-02-0	0.05840	0.31965	3196
			Bismaleimide Triazine	3.50	35325-39-4	0.10220	0.55939	5594
			Filament Fiber Glass	25.00	65997-17-3	0.73000	3.99562	39956
			Inorganic Filler	14.00	21645-51-2	0.40880	2.23755	22375
<b>Subtotal:</b>				<b>100.00</b>		<b>2.92000</b>	<b>15.98248</b>	<b>159825</b>
Substrate (Solder Mask)	0.35	BaO4S	Barium Sulfate	75.00	7727-43-7	0.26250	1.43678	14368
		SiO2	Silica	1.00	7631-86-9	0.00350	0.01916	192
			Carbon Black	1.00	1333-86-4	0.00350	0.01916	192
			Dipropylene glycol monomethyl ether	18.00	34590-94-8	0.06300	0.34483	3448
			Talc	5.00	14807-96-6	0.01750	0.09579	958
<b>Subtotal:</b>				<b>100.00</b>		<b>0.35000</b>	<b>1.91571</b>	<b>19157</b>

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DAF	0.12	C15H16O2	Epoxy Resin	92.00	25068-38-6	0.11040	0.60427	6043
			4,4'-Diaminodiphenylsulfone	2.00	80-08-0	0.00240	0.01314	131
			Silica Dioxide	6.00	67762-90-7	0.00720	0.03941	394
<b>Subtotal:</b>				<b>100.00</b>		<b>0.12000</b>	<b>0.65681</b>	<b>6568</b>
IC	1.55	Si	Silicon	100.00	7440-21-3	1.55000	8.48385	84839
<b>Subtotal:</b>				<b>100.00</b>		<b>1.55000</b>	<b>8.48385</b>	<b>84839</b>
Adhesive (VCSEL)	0.01	Ag	Silver	80.00	7440-22-4	0.00800	0.04379	438
			Epoxy resin	20.00	24969-06-0	0.00200	0.01095	109
<b>Subtotal:</b>				<b>100.00</b>		<b>0.01000</b>	<b>0.05473</b>	<b>547</b>
VCSEL	0.01	GaAs	Gallium arsenide	100.00	1303-00-0	0.01000	0.05473	547
<b>Subtotal:</b>				<b>100.00</b>		<b>0.01000</b>	<b>0.05473</b>	<b>547</b>

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TMF8821-1AM	TE21	OLGA	510840034	12	18.27	Taiwan	YES	YES	YES	FULL	1

**Production Version: TE21**

Homogenous Material	Weight (mg)	Symbol	Chemical Substance	Input Ratio (%)	CAS Number	Unit Weight (mg)	Unit Weight (%)	Amount (ppm)
Adhesive (MLA)	0.02	C12H22O3	Oxetane, 3,3'-[oxybis(methylene)]bis[3-ethyl-	6.71	18934-00-4	0.00134	0.00735	74
		C13H18O2	P-tert-Butylphenyl 1-(2,3-epoxy)propyl ether	2.50	3101-60-8	0.00050	0.00274	27
		C14H20O4	Cycloaliphatic epoxy resin	6.71	2386-87-0	0.00134	0.00735	74
		C15H16O2	Bisphenol A diglycidyl ether resin	80.57	25068-38-6	0.01611	0.08820	882
		C9H20O5Si	3-Glycidoxypropyltrimethoxysilane	2.50	2530-83-8	0.00050	0.00274	27
			Hydroxy-, C9-11-alkyl ethers	1.00	709014-50-6	0.00020	0.00109	11
<b>Subtotal:</b>				<b>100.00</b>		<b>0.02000</b>	<b>0.10947</b>	<b>1095</b>
Glass (MLA)	1.59		Inorganic Glass	100.00	65997-17-3	1.59000	8.70279	87028
		<b>Subtotal:</b>				<b>100.00</b>	<b>1.59000</b>	<b>8.70279</b>
Wire	0.07	Au	Gold	100.00	7440-57-5	0.07000	0.38314	3831
		<b>Subtotal:</b>				<b>100.00</b>	<b>0.07000</b>	<b>0.38314</b>

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Homogenous Material	Weight (mg)	Symbol	Chemical Substance	Input Ratio (%)	CAS Number	Unit Weight (mg)	Unit Weight (%)	Amount (ppm)
Moldcompound	2.19	C15H16O2	Epoxy Resin	99.00	25068-38-6	2.16810	11.86700	118670
			2,6-Ditert.butyl-4-Methyl	1.00	128-37-0	0.02190	0.11987	1199
<b>Subtotal:</b>				<b>100.00</b>		<b>2.19000</b>	<b>11.98686</b>	<b>119869</b>
Adhesive (Lid Attach)	0.96	SiO2	Silica	20.00	7631-86-9	0.19200	1.05090	10509
			Silicon Dioxide	3.00	7631-86-9	0.02880	0.15764	1576
			Carbon Black	1.00	1333-86-4	0.00960	0.05255	525
			Dicyandiamide	16.00	461-58-5	0.15360	0.84072	8407
			Epoxy Resin	50.00	25085-99-8	0.48000	2.62726	26273
			Epoxy resin 2	10.00	2095-03-6	0.09600	0.52545	5255
<b>Subtotal:</b>				<b>100.00</b>		<b>0.96000</b>	<b>5.25452</b>	<b>52545</b>
LCP LID	8.18		Carbon Black	5.00	1333-86-4	0.40900	2.23864	22386
			Glass oxide	60.00	65997-17-3	4.90800	26.86371	268637
			Liquid crystal polymers	35.00	147310-94-9	2.86300	15.67050	156705
<b>Subtotal:</b>				<b>100.00</b>		<b>8.18000</b>	<b>44.77285</b>	<b>447729</b>

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**Production Version: TE21**

Homogenous Material	Weight (mg)	Symbol	Chemical Substance	Input Ratio (%)	CAS Number	Unit Weight (mg)	Unit Weight (%)	Amount (ppm)
Adhesive (Barrier)	0.3	SiO2	Silica	20.00	7631-86-9	0.06000	0.32841	3284
			Carbon Black	1.00	1333-86-4	0.00300	0.01642	164
			Dicyandiamide	16.00	461-58-5	0.04800	0.26273	2627
			Epoxy resin 1	52.50	25085-99-8	0.15750	0.86207	8621
			Epoxy resin 2	9.50	2095-03-6	0.02850	0.15599	1560
			Silicon dioxide	1.00	67762-90-7	0.00300	0.01642	164
			<b>Subtotal:</b>	<b>100.00</b>		<b>0.30000</b>	<b>1.64204</b>	<b>16420</b>
<b>Total:</b>	<b>18.27</b>					<b>18.27</b>	<b>100.00000</b>	<b>1000000</b>

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