Material Composition Specification
TO-202 Case

Device average mass . . . . **1438 mg**
Fluctuation margin . . . . **+/-10%**

Component	Material	Material		Substance	CAS No.	Substance		
		(%wt)	(mg)			(%wt)	(mg)	(ppm)
active device	doped Si	0.08%	1.2	Si	7440-21-3	0.083%	1.2	834
bond wire*	aluminum	0.28%	4	Al	7429-90-5	0.278%	4	2,782
leadframe	Cu alloy 194 w/ silver plating	56.68%	815	Cu	7440-50-8	55.216%	794	552,156
				Fe	7439-89-6	1.307%	18.8	13,074
				Zn	7440-66-6	0.07%	1	695
				P	7723-14-0	0.056%	0.8	556
				Ag	7440-22-4	0.028%	0.4	278
encapsulation**	EMC	40.82%	587	silica	7631-86-9	29.798%	428.5	297,983
				epoxy resin	Proprietary	9.388%	135	93,880
				Sb_2O_3	1309-64-4	0.817%	11.75	8,171
				TBBA	79-94-7	0.817%	11.75	8,171
	EMC GREEN	40.82%	587	silica (fused)	60676-86-0	34.701%	499	347,010
				epoxy resin	Proprietary	2.594%	37.3	25,939
				phenol resin	9003-35-4	2.594%	37.3	25,939
				epoxy, cresol novolac	29690-82-2	0.814%	11.7	8,136
				carbon black	1333-86-4	0.118%	1.7	1,182
plating***	tin/lead process	2.14%	30.8	Sn	7440-31-5	1.711%	24.6	17,107
				Pb	7439-92-1	0.431%	6.2	4,312
	matte tin	2.14%	30.8	Sn	7440-31-5	2.142%	30.8	21,419

*Part numbers CEN-U45 and CEN-U95 use gold bond wires:

bond wire	gold	0.28%	4	Au	7440-57-5	0.278%	4	2,782

**EMC GREEN molding compound is Halogen-Free.
***For Lead Free plating, add suffix “PB FREE” to part number.
For Tin/Lead plating, add suffix “TIN/LEAD” to part number.
No suffix designation allows for the supply of either lead-free or tin/lead plated product depending on availability.

Disclaimer
The information provided in this Material Composition data sheet is, to the best of our knowledge, correct. However, there is no guarantee to completeness or accuracy, as some information is derived from data sources outside the company.

R4 (30-May 2019)