Material Content Report

This document provides a comprehensive material content analysis for the APIO16 and AFIO16 device families packaged in 28-pin TSSOP packages with NiPdAu lead finish. The report presents a detailed breakdown of all materials used in the device construction, including the leadframe, die attach material, die, bonding wire, and molding compound. Each material is further decomposed into its constituent chemical ingredients, with each component quantified as a percentage of the specific material, as a percentage of the total product mass, as absolute mass in milligrams, and as parts per million (PPM).

Device Family	Package Type	Pin Count	Lead Finish
APIO16 and AFIO16	TSSOP	28	NiPdAu

COPYRIGHT 2025 APOGEE SEMICONDUCTOR

No.	Material Name	Material Weight (mg)	Chemical Ingredient	Chemical in Material (%)	Chemical in Product (%)	Chemical Mass in Product (mg)	PPM
1	Die	0.00724	Si	100	7.62567	0.00724	76257
2	Leadframe	0.01320	Copper	95.015	13.20992	0.01254	132099
			Nickel - Material Base	2.280	0.31699	0.00030	3170
			Silicon	0.520	0.0723	0.00007	723
			Magnesium	0.130	0.01807	0.00002	181
			Nickel - Plating	2.000	0.27806	0.00026	2781
			Palladium	0.050	0.00695	0.00001	70
			Aurum	0.005	0.0007	0.00000	7
3	Die attach material	0.00168	Silver	77.000	1.3656	0.00130	13656
			Acrylic Resin	8.500	0.15075	0.00014	1507
			Butadine Copolymer	0.400	0.00709	0.00001	71
			Polybutadine Derivative	5.500	0.09754	0.00009	975
			Acrylate	5.500	0.09754	0.00009	975
			Epoxy Resin	2.500	0.04434	0.00004	443
			Peroxide	0.200	0.00355	0.00000	35
			Additive	0.400	0.00709	0.00001	71
4	Wire	0.00045	Au	99.900	0.47139	0.00045	4714
			Pd	0.100	0.00047	0.00000	5
6	Encapsulation	0.07239	Epoxy Resin-1	7.500	5.71695	0.00543	57169
			Phenol resin	3.000	2.28678	0.00217	22868
			Silica Amourphous A	82.300	62.73398	0.05957	627340
			Silica Amourphous B	7.000	5.33582	0.00507	53358
			Carbon Black	0.200	0.15245	0.00014	1525
Total (Package Weight)						**0.09496 mg**	

Table 2: APIO16 and AFIO16 28-pin TSSOP Material Content

COPYRIGHT 2025 APOGEE SEMICONDUCTOR

1 Revision History

REVISION	DESCRIPTION	DATE
A00	Initial release.	November 5, 2025

2 Legal

All product, product specifications and data are subject to change without notice. Apogee Semiconductor provides technical data (such as datasheets), design resources (including reference designs), relia- bility data (including performance in radiation environments), application or other design advice, safety information, and other resources **"as is"** and with all faults, and disclaims all warranties, express and implied, including without limitation any implied warranties of merchantability, fitness for a particular purpose or non-infringement of third party intellectual property rights. These resources are intended for skilled engineers with understanding of high reliability and high radiation environments and its complexities. Apogee Semiconductor is not responsible for: (1) selecting the suitable products for a given application, (2) designing, veri- fying, validating and testing it, or (3) ensuring that it meets any performance, safety, security, or other requirements. These resources are subject to change without advance notice. The use of these resources is restricted to the development of an application that uses the Apogee Semiconductor products described in them. Other reproduction and display of these resources is prohibited. No license is granted to any other Apogee Semiconductor intellectual property right or to any third- party intellectual property right. Apogee Semiconductor disclaims responsibility and reserves the right to demand indemnification for any claims, damages, costs, losses, and liabilities arising out of wrongful use of these resources. The products are provided subject to Apogee Semiconductor's Terms of Sale (https://www.apogeesemi.com/terms) or other applicable terms provided in conjunction with applicable products. The provision of these resources does not expand or otherwise alter applicable warranties or warranty disclaimers for Apogee Semiconductor products. Purchasers of these products acknowledge that they may be subject to and agree to abide by the United States laws and regulations controlling the export of technical data, computer software, electronic hardware and other commodities. The transfer of such items may require a license from the cognizant agency of the U.S. Government.