Rao R Tummala

List of Publications by Year
in descending order

95 papers	1,970 citations	516710 16 h-index	345221 36 g-index
95 all docs	95 docs citations	95 times ranked	1266 citing authors

#	Article	IF	Citations
1	A Review of SiC Power Module Packaging Technologies: Challenges, Advances, and Emerging Issues. IEEE Journal of Emerging and Selected Topics in Power Electronics, 2020, 8, 239-255.	5.4	204
2	Title is missing!. Journal of Materials Science: Materials in Electronics, 2000, 11, 253-268.	2.2	201
3	Low-Cost Thin Glass Interposers as a Superior Alternative to Silicon and Organic Interposers for Packaging of 3-D ICs. IEEE Transactions on Components, Packaging and Manufacturing Technology, 2012, 2, 1426-1433.	2.5	183
4	A Review of 5G Front-End Systems Package Integration. IEEE Transactions on Components, Packaging and Manufacturing Technology, 2021, 11, 118-133.	2.5	106
5	Electrical modeling of Through Silicon and Package Vias. , 2009, , .		105
6	Toward high output-power nanogenerator. Applied Physics Letters, 2008, 92, .	3.3	84
7	First Demonstration of Compact, Ultra-Thin Low-Pass and Bandpass Filters for 5G Small-Cell Applications. IEEE Microwave and Wireless Components Letters, 2018, 28, 1110-1112.	3.2	49
8	Trend from ICs to 3D ICs to 3D systems. , 2009, , .		41
9	First Demonstration of 28 GHz and 39 GHz Transmission Lines and Antennas on Glass Substrates for 5G Modules. , 2017, , .		36
10	Design, Modeling, Fabrication and Characterization of 2â€“5-<inline-formula> <tex-math notation="LaTeX">$mu ext{m}$ </tex-math> </inline-formula> Redistribution Layer Traces by Advanced Semiadditive Processes on Low-Cost Panel-Based Glass Interposers. IEEE Transactions on Components, Packaging and Manufacturing Technology, 2016, 6, 959-967.	2.5	35
11	Broadband and Miniaturized Antenna-in-Package (AiP) Design for 5G Applications. IEEE Antennas and Wireless Propagation Letters, 2020, 19, 1963-1967.	4.0	32
12	Glass-Based IC-Embedded Antenna-Integrated Packages for 28-GHz High-Speed Data Communications. , 2020, , .		30
13	Quantifying oxygen diffusion in ZnO nanobelt. Applied Physics Letters, 2006, 89, 063125.	3.3	28
14	Chip-last Embedded Active for System-On-Package (SOP). , 2007, , .		28
15	Board-Level Thermal Cycling and Drop-Test Reliability of Large, Ultrathin Glass BGA Packages for Smart Mobile Applications. IEEE Transactions on Components, Packaging and Manufacturing Technology, 2017, 7, 726-733.	2.5	27
16	Design and Demonstration of a 2.5-D Glass Interposer BGA Package for High Bandwidth and Low Cost. IEEE Transactions on Components, Packaging and Manufacturing Technology, 2017, 7, 552-562.	2.5	27
17	Miniaturized High-Performance Filters for 5G Small-Cell Applications. , 2018, , .		26
18	Prevention of Cracking From RDL Stress and Dicing Defects in Glass Substrates. IEEE Transactions on Device and Materials Reliability, 2016, 16, 43-49.	2.0	25

#	Article	IF	Citations
19	Ultrathin Antenna-Integrated Glass-Based Millimeter-Wave Package With Through-Glass Vias. IEEE Transactions on Microwave Theory and Techniques, 2020, , 1-1.	4.6	24
20	Reliability Assessment of Through-Silicon Vias in Multi-Die Stack Packages. IEEE Transactions on Device and Materials Reliability, 2012, 12, 263-271.	2.0	23
21	Leading-Edge and Ultra-Thin 3D Glass-Polymer 5G Modules with Seamless Antenna-to-Transceiver Signal Transmissions. , 2018, , .		23
22	Electrical modeling of annular and co-axial TSVs considering MOS capacitance effects. , 2009, , .		22
23	Modeling, Fabrication, and Characterization of Low-Cost and High-Performance Polycrystalline Panel-Based Silicon Interposer With Through Vias and Redistribution Layers. IEEE Transactions on Components, Packaging and Manufacturing Technology, 2014, 4, 2035-2041.	2.5	21
24	2.5D Glass Panel Embedded (GPE) Packages with Better I/O Density, Performance, Cost and Reliability than Current Silicon Interposers and High-Density Fan-Out Packages. , 2018, , .		21
25	Study of cracking of thin glass interposers intended for microelectronic packaging substrates. , 2015, , .		19
26	Measurement and Analysis of Glass Interposer Power Distribution Network Resonance Effects on a High-Speed Through Glass Via Channel. IEEE Transactions on Electromagnetic Compatibility, 2016, 58, 1747-1759.	2.2	18
27	Novel 3D-/Inkjet-Printed Flexible On-package Antennas, Packaging Structures, and Modules for Broadband 5G Applications. , 2018, , .		18
28	Thermo-mechanical behavior of through silicon vias in a 3D integrated package with inter-chip microbumps. , 2011, , .		17
29	â€œzero-undercutâ€•semi-additive copper patterning - a breakthrough for ultrafine-line RDL lithographic structures and precision RF thinfilm passives. , 2015, , .		17
30	Reliability of Copper Through-Package Vias in Bare Glass Interposers. IEEE Transactions on Components, Packaging and Manufacturing Technology, 2017, 7, 829-837.	2.5	16
31	Nanostructured miniaturized artificial magnetic conductors (AMC) for high-performance antennas in 5G, IoT, and smart skin applications. , 2017, , .		16
32	Innovative Sub-5-mu m Microvias by Picosecond UV Laser for Post-Moore Packaging Interconnects. IEEE Transactions on Components, Packaging and Manufacturing Technology, 2019, 9, 2016-2023.	2.5	16
33	Advanced Low-Loss and High-Density Photosensitive Dielectric Material for RF/Millimeter-Wave Applications. , 2019, , .		16
34	Package-Integrated, Wideband Power Dividing Networks and Antenna Arrays for 28-GHz 5G New Radio Bands. IEEE Transactions on Components, Packaging and Manufacturing Technology, 2020, 10, 1515-1523.	2.5	16
35	Ultralow-Loss Substrate-Integrated Waveguides in Glass-Based Substrates for Millimeter-Wave Applications. IEEE Transactions on Components, Packaging and Manufacturing Technology, 2020, 10, 531-533.	2.5	16
36	Design and Demonstration of Glass Panel Embedding for 3D System Packages for Heterogeneous Integration Applications. Journal of Microelectronics and Electronic Packaging, 2019, 16, 124-135.	0.7	16

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37	New 3-D Chip Stacking Architectures by Wire-On-Bump and Bump-On-Flex. IEEE Transactions on Advanced Packaging, 2008, 31, 367-376.	1.6	15
38	Advances in High Performance RDL Technologies for Enabling IO Density of 500 IOs/mm/layer and 8-Î¼m IO Pitch Using Low-k Dielectrics. , 2020, , .		15
39	Flip-chip on glass (FCOG) package for low warpage. , 2014, , .		14
40	Analysis of Power Distribution Network in glass, silicon interposer and PCB. , 2014, , .		13
41	Heterogeneous Integration of 5G and Millimeter-Wave Diplexers with 3D Glass Substrates. , 2020, , .		12
42	Wideband Power/Ground Noise Suppression in Low-Loss Glass Interposers Using a Double-Sided Electromagnetic Bandgap Structure. IEEE Transactions on Microwave Theory and Techniques, 2020, 68, 5055-5064.	4.6	12
43	Sintered Nanocopper Paste for High-Performance 3D Heterogeneous Package Integration. Journal of Electronic Materials, 2020, 49, 6737-6745.	2.2	12
44	Characterization of electrical properties of glass and transmission lines on thin glass up to 50 GHz. , 2015, , .		11
45	Fabrication and Reliability Demonstration of 3 Âµm Diameter Photo Vias at 15 Âµm Pitch in Thin Photosensitive Dielectric Dry Film for 2.5 D Glass Interposer Applications. , 2019, , .		11
46	Low-Loss Impedance-Matched Sub-25-Î¼m Vias in 3-D Millimeter-Wave Packages. IEEE Transactions on Components, Packaging and Manufacturing Technology, 2020, 10, 870-877.	2.5	11
47	Measurement and Analysis of Through Glass Via Noise Coupling and Shielding Structures in a Glass Interposer. IEEE Transactions on Electromagnetic Compatibility, 2021, 63, 1562-1573.	2.2	11
48	Smaller Microvias for Packaging Interconnects by Picosecond UV Laser With a Nanometer Metal Barrier Layer: A Feasibility Study. IEEE Transactions on Components, Packaging and Manufacturing Technology, 2020, 10, 1411-1418.	2.5	10
49	Laminated Glass-Based, Compact Inline Stepped-Impedance Resonator Bandpass Filters for 5G New Radio Modules. IEEE Transactions on Components, Packaging and Manufacturing Technology, 2021, 11, 708-711.	2.5	10
50	Enabling antenna design with nano-magnetic materials using machine learning. , 2015, , .		9
51	3D printed wearable flexible SIW and microfluidics sensors for Internet of Things and smart health applications. , 2017, , .		9
52	Via-in-Trench: A Revolutionary Panel-Based Package RDL Configuration Capable of 200-450 IO/mm/Layer, an Innovation for More-Than-Moore System Integration. , 2017, , .		9
53	Low-Cost 1-mu m Photolithography Technologies for Large-Body-Size, Low-Resistance Panel-Based RDL. IEEE Transactions on Components, Packaging and Manufacturing Technology, 2019, 9, 1426-1433.	2.5	9
54	Title is missing!. Journal of Materials Science: Materials in Electronics, 2000, 11, 455-460.	2.2	8

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55	Modeling, design, and demonstration of 2.5D glass interposers for 16-channel 28 Gbps signaling applications. , 2015, , .		8
56	3D Glass Package-Integrated, High-Performance Power Dividing Networks for 5G Broadband Antennas. , 2019, , .		8
57	Vapor phase infiltration of aluminum oxide into benzocyclobutene-based polymer dielectrics to increase adhesion strength to thin film metal interconnects. Journal of Vacuum Science and Technology A: Vacuum, Surfaces and Films, 2020, 38, 033210.	2.1	8
58	High-density low-loss millimeter-wave package interconnects with the impact of dielectric-material surface roughness. Applied Physics Letters, 2021, 119, .	3.3	8
59	Ultra high Q embedded inductors in highly miniaturized family of low loss organic substrates. , 2008, , .		7
60	Filter integration in ultra thin organic substrate via 3D stitched capacitor. , 2009, , .		7
61	Thermal Aging Reliability of Socketable BGA Packages With Niâ€“Au-Coated SAC305 Spheres. IEEE Transactions on Components, Packaging and Manufacturing Technology, 2020, 10, 2118-2124.	2.5	7
62	Effect of Solder Paste Volume and Reflow Parameters on Solder Paste Wicking and Joint Shear Strength of Niâ€“Au-Coated Cu Spheres. IEEE Transactions on Components, Packaging and Manufacturing Technology, 2020, 10, 828-835.	2.5	7
63	Experimental and Theoretical Assessment of Thin Glass Substrate for Low Warpage. IEEE Transactions on Components, Packaging and Manufacturing Technology, 2017, , 1-8.	2.5	6
64	Reliability of Through-Package-Vias From via-First Processing With Ultra-Thin Glass. IEEE Transactions on Device and Materials Reliability, 2017, 17, 683-691.	2.0	6
65	Low Cost Panel-Based 1-2 Micron RDL Technologies with Lower Resistance than Si BEOL for Large Packages. , 2018, , .		6
66	Thermomechanical Reliability of Nickel Pillar Interconnections Replacing Flip-Chip Solder Without Underfill. IEEE Transactions on Electronics Packaging Manufacturing, 2008, 31, 341-354.	1.4	5
67	Design and Demonstration of Highly Miniaturized, Low Cost Panel Level Glass Package for MEMS Sensors. , 2017, , .		5
68	Cointegration of Single-Mode Waveguides and Embedded Electrical Interconnects for High-Bandwidth Communications. IEEE Transactions on Components, Packaging and Manufacturing Technology, 2020, 10, 393-399.	2.5	5
69	Development of low viscosity, high dielectric constant (k) polymers for integral passive applications. , 0, , .		4
70	Coupling noise analysis and high frequency design optimization of power/ground plane stack-up in embedded chip substrate cavities. , 2008, , .		4
71	Ultrathin, Substrate-Integrated, and Self-Healing Nanocapacitors With Low-Leakage Currents and High-Operating Frequencies. IEEE Transactions on Components, Packaging and Manufacturing Technology, 2016, 6, 1776-1784.	2.5	4
72	Via-First Process to Enable Copper Metallization of Glass Interposers With High-Aspect-Ratio, Fine-Pitch Through-Package-Vias. IEEE Transactions on Components, Packaging and Manufacturing Technology, 2017, 7, 544-551.	2.5	4

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73	High Frequency Electrical Performance and Thermo-Mechanical Reliability of Fine-Pitch, Copper-Metallized Through-Package-Vias (TPVs) in Ultra-Thin Glass Interposers. , 2017, , .		4
74	Ultra-High Density, Thin-Film Tantalum Capacitors with Improved Frequency Characteristics for MHz Switching Power Converters. Journal of Electronic Materials, 2018, 47, 5632-5639.	2.2	4
75	High-Temperature And Moisture-Ageing Reliability of High-Density Power Packages For Electric Vehicles. , 2018, , .		4
76	Reliability of Fine-Pitch <5-<i>Î¼</i>m-Diameter Microvias for High-Density Interconnects. IEEE Transactions on Components, Packaging and Manufacturing Technology, 2020, 10, 1552-1559.	2.5	4
77	Substrate-Embedded Low-Resistance Solenoid Inductors for Integrated Voltage Regulators. IEEE Transactions on Components, Packaging and Manufacturing Technology, 2020, 10, 134-141.	2.5	4
78	First Demonstration of Ultra-Thin Glass Panel Embedded (GPE) Package with Sheet Type Epoxy Molding Compound for 5G/mm-wave Applications. International Symposium on Microelectronics, 2019, 2019, 000202-7.	0.0	4
79	2008 IEEE electrical performance of electronic packaging suppression of vertical coupling using Electromagnetic Band Gap structures. , 2008, , .		3
80	Analysis of through glass via (TGV) noise coupling effect to noise figure of 2.4GHz LNA on glass interposer. , 2015, , .		3
81	Modeling, Fabrication, and Reliability of Through Vias in Polycrystalline Silicon Panels. IEEE Transactions on Components, Packaging and Manufacturing Technology, 2015, 5, 938-944.	2.5	3
82	Ultra-Precise Low-Cost Surface Planarization Process for Advanced Packaging Fabrications and Die Assembly: A Survey of Recent Investigations on Unit Process Applications and Integrations. , 2016, , .		3
83	Design and demonstration of ultra-thin 3D glass-based 5G modules with low-loss interconnects. , 2018, , .		3
84	3-D Packaging and Integration of High-Density Tantalum Capacitors on Silicon. IEEE Transactions on Components, Packaging and Manufacturing Technology, 2019, 9, 1466-1472.	2.5	3
85	3D Glass-Based Panel-Level Package with Antenna and Low-Loss Interconnects for Millimeter-Wave 5G Applications. , 2019, , .		3
86	Novel Chip-Last Method for Embedded Actives in Organic Packaging Substrates. IEEE Transactions on Components, Packaging and Manufacturing Technology, 2012, 2, 63-70.	2.5	2
87	Effect of latching force on socketed BGA packages with Ni-Au coated solder spheres. , 2021, , .		2
88	Solid-state diffusion studies of lead-free solders on gold and in polymer films. Journal of Materials Science: Materials in Electronics, 2022, 33, 7679-7690.	2.2	2
89	Demonstration of Glass-based 3D Package Architectures with Embedded Dies for High Performance Computing. , 2022, , .		2
90	Packaging of ZnO nanobelts as nanosensors: Synthesis, Alignment and Characterization. , 0, , .		1

#	Article	IF	Citations
91	A novel method for suppression of vertical coupling in multi-layered substrates. , 2008, , .		1
92	Chip-package electrical interaction in organic packages with embedded actives. , 2011, , .		1
93	Suppression of Vertical Electromagnetic Coupling in Multilayer Packages. IEEE Transactions on Components, Packaging and Manufacturing Technology, 2012, 2, 418-429.	2.5	1
94	First Demonstration of Photoresist Cleaning for Fine-Line RDL Yield Enhancement by an Innovative Ozone Treatment Process for Panel Fan-Out and Interposers. , 2017, , .		1
95	Packaging Materials in High-Performance Computing Applications. Journal of the Indian Institute of Science, 0, , 1.	1.9	0