

Editorial

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Radar Is Driving Industry Differently

Radar has long been a healthy application area for the RF/microwave industry, but it has also long been synonymous with military customers and subcontractors. For military radar use, requirements for devices, components, and systems were well established by the environmental and performance needs of those military radar systems. That being said, the commercial world is quickly adopting radar technology for collision avoidance systems, albeit at somewhat higher frequencies. Of course, without the support of military contracts, these higher-frequency systems must be designed economically and competitively.

One of the frequency bands that has caught a great deal of attention for commercial/consumer automotive radar systems is at 77 GHz, within a band that is not occupied by other applications and can effectively support collision-avoidance radar systems in commercial automobiles. The secrets are to fabricate electronic systems that can reliably and repeatably provide the performance needed for these systems, and to do so at a cost that can be competitively applied across a wide range of automobiles.

Because of the potential size of this market—with each automobile employing multiple antennas and 77-GHz radar receivers and transmitters to handle collision-avoidance protection for the front, rear, and sides of a vehicle—many major device, component, and subsystem manufacturers are exploring cost-effective solutions for 77-GHz automotive collision-avoidance radar systems.

Even suppliers of printed-circuit boards (PCBs) are testing different high-frequency materials for low dissipation at frequencies to 77 GHz and beyond. Interestingly, these frequencies that were once considered “exotic” because they were much higher than the traditional RF/microwave frequency range of DC to 18 GHz, are now drawing a growing number of device, circuit, system, and even PCB developers offering products capable of cost-effective performance at frequencies to 77 GHz and beyond.

The automotive radar market it is only just a start for what might be possible at these higher frequencies. With the increasing needs to move large amounts of data across relatively short distances in both commercial and military applications, line-of-sight communications links at 60 and 94 GHz are also growing in popularity. Not many years ago, electronic products at millimeter-wave frequencies were considered somewhat exotic. But driven by automotive applications, the use of 77 GHz and other millimeter-wave frequency bands may be as commonplace as getting in the car. **mw**

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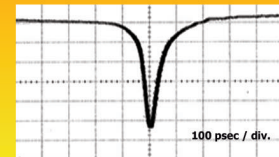
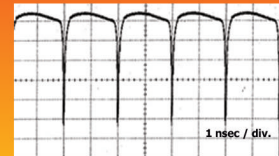
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MODEL	INPUT (DRIVING) FREQ. (MHZ)	TYPICAL IMPULSE OUTPUT VOLTAGE (V)	TYPICAL IMPULSE PULSE WIDTH (P SEC)
GIM100A	100	-12	100
GIM200A	200	-18	90
GIM250A	250	-18	80
GIM500A	500	-15	60
GIM1000A	1000	-10	50
GIM1500A	1500	-8	45
GIM2000A	2000	-7	35

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