Saelig unique electronics

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CEO's Corner

Dear Colleague,

Saelig Company Inc. continues to search the world for exciting new and useful products for American electronics engineers. We've just expanded our portfolio of high-performance electronic solutions with the addition of European Engineering & Consultancy Ltd. (EECL) RF products. This collaboration brings EECL's advanced RF and microwave expertise directly to Saelig's broad North American customer base, spanning industries from aerospace and defense to research, education, and commercial electronics design.

Dr. Ben Kieniewicz, founder and director of EECL, commented: "We are very pleased to be partnering together with Saelig's technical distribution services, and are confident that our collaboration will be successful. We know that Saelig's helpful technology team will be able to offer a competent resource for customers looking for our wealth of RF capabilities. Their existing customer base is well-suited to our product expertise."

EECL's products and custom capabilities represent a welcome addition to our expansive RF test product portfolio. EECL competes economically in some areas with well-known brands, while also offering customized EMI containment solutions that have proven themselves in space applications. EECL specifically tailors these housings with compressive gaskets for each project to give superior and repeatable electromagnetic isolation for production. The PCB enclosures feature proprietary isolation gasket designs and advanced microwave absorber materials to deliver industry-leading shielding effectiveness.

Read on for more!

Alan Lowne
CEO, Saelig Company Inc.

What's New?

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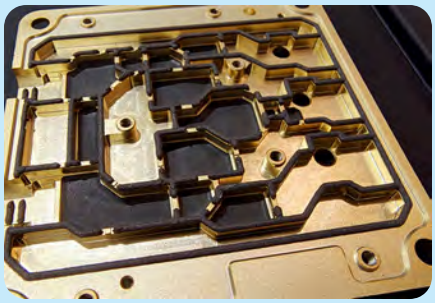

Custom RF Form-In-Place Services For Ultimate RF Gasket Shielding

EECL's advanced EMI/RFI shielding techniques offer proprietary, automated Form-in-Place (FIP) gasket and microwave absorber technologies, including conductive compression elastomers for cavity resonance suppression and environmental sealing. These custom solutions are designed for high-performance aerospace and electronics applications.

EECL specializes in advanced EMI/RFI shielding, offering proprietary, automated Form-in-Place (FIP) gasket and microwave absorber technologies, including conductive elastomers for cavity resonance suppression and environmental sealing. These custom solutions are designed to fit on high frequency RF PCBs to provide compartmentalized shielding and cavity resonance suppression. Applications include high-performance aerospace and commercial electronics, often featuring low outgassing and wideband suppression from 10MHz to 100GHz. EECL's premium custom RF and microwave enclosures are custom designed specifically for a client's circuits to deliver superior electromagnetic isolation and best-in-class RF performance. The absorbers can provide an attenuation > 100dB of incidence in K, Ku, Ka, L, S, C, X bands.

Meticulously machined and plated with high-loss tangent nickel, EECL enclosures provide exceptional suppression of electromagnetic interference (EMI) and resonance. These enclosures are fully customizable, with precision machining and plating processes and can be designed to enclose the customer's PCB as part of the finished product. EECL is able to screen around connectors, on side walls and provide a complete EMC shield from the outside world. The internal surfaces are precision-roughened to optimize RF isolation by reducing internal coupling, while the external surfaces are polished smooth for a clean, professional appearance.

Click the link above ^ to view an EECL video discussing a novel RF gasket.

EECL DCX-23202 Configurable Up/Down Dual Channel Frequency Converter Module for RF->IF or IF->RF Conversion

The EECL DCX-23202 Dual Channel Converter module can be configured for 8 to 32 GHz RF->IF 100MHz to 8GHz or IF->RF (independent) conversion utilizing two frequency- and phase-locked channels. With an ultra-low phase noise tunable LO, gain-control, integrated image and LO rejection filters, it offers a one-module solution for a wide range of uses.

The **EECL DCX-23202 Dual Channel Converter** module can be configured for RF->IF or IF->RF (independent) conversion utilizing two frequency and phase-locked channels. Featuring a gain control of 48dB on RF and 32dB on IF with a maximum conversion gain of 10dB, Up and Down conversion can be reversed as required independently. Each channel has high isolation of 90dB. The LO used for mixing is generated from an ultra-low phase noise VCO internally and can be set anywhere from 8GHz to 32GHz with a 1MHz step resolution. The unit's low phase noise supports high-end modulation schemes with, for example QAM16 230MHz bandwidth, having an EVM of 32dB at 30GHz. This makes the unit suitable for use in advanced communication systems. The high level of integration and flexibility of the frequency plan makes the unit a perfect fit for defense applications.
The unit has an integrated selectable filter bank to remove the unwanted side-band and suppress LO leakage, the unit provides extremely high dynamic range and low noise figure. The unit takes up to a 24V power supply and operates over USB with a simple UART-based command set and therefore is suitable for control with Matlab, C, Python and Labview. The unit is drift-stabilized by the inclusion of an oven and applicable for long term use in a calibrated system.
The system supports both up-conversion and down-conversion across the following frequency ranges: RF range: 8GHz to 32GHz; IF Range: 100MHz to 8GHz. The attenuators provide up to 60dB of control range. At minimum settings, the overall conversion gain is about 10dB positive, depending on the particular band being operated. The RF ports are capable of about +3 dBm output power. The RF port has a 0, 16, 32 or 48dB selectable attenuator and it is capable of handling high input powers up to 26dBm while still maintaining linearity. The unit can be internally or externally frequency locked.

EECL Advanced Multi-channel Source-Measure Unit With 40V/3A Pulse-Mode Capability

EECL's Advanced Source-Measure Unit (SMU) is a 4 or 8 channel SMU. The outputs include a ±10V bipolar mode, and a 0-40V high voltage range. Each channel can supply up to 3A continuous current, and up to 5A in pulsed mode.

EECL's Advanced Source-Measure Unit (SMU) SMU-08103 is a 4 or 8 channel SMU with outputs that include a ±10V bipolar mode, and a 0-40V high voltage range. Each channel can supply up to 3A continuous current, and up to 5A in pulsed mode. Each channel also features Kelvin voltage sensing inputs, and precision current measurement, with 1uV and sub-1pA resolutions. The device can operate in either constant voltage or constant

current mode, depending on the measurement required. Each channel also offers an advanced pulse-mode, offering high speed pulses down to 10us periods, with adjustable slopes. Fast sampling modes are available, at sample rates up to 2MSa/s, allowing for detailed capture of fast pulse waveforms in current and voltage. The source can act as a waveform generator up to 50kHz. Each channel is fully galvanically isolated, eliminating ground loops in complex measurement circuits, with available hardware to bridge the isolation if needed.

The SMU also features an intelligent triggering architecture, allowing individual channels to be triggered and synchronized as required, either between each other, or to external devices, such as VNAs or other automated test equipment. Preprogrammed test sequences can be implemented, and then synchronously controlled and performed by the device motherboard, significantly simplifying the external control inputs required for complex multichannel measurements. The unit is configured with internal software functions that can generate multichannel semiconductor device I/V curves. The SMU can be controlled either via a dedicated graphical interface, or through USB/Ethernet commands allowing easy integration into automated test scripts based on Python, MATLAB, or other scientific scripting languages. The SMU thus offers a one-product solution for even the most complex measurement problems in semiconductor device characterization, quantum computing, and other electronic automated measurement applications.

EECL's Rack-Mount Solid-State Full Cross-Bar Switch Matrixes for 16kHz - 12/30GHz Signals.

The SMX series of switch matrixes meet the precision testing requirements for creating bi-directional RF paths over a broad frequency range from 16 kHz to 12/30 GHz, maintaining minimal insertion and return loss. Each port is internally DC-blocked and capable of handling up to 16V, making it durable and resilient for demanding RF environments.

The **EECL SMX** range of configurable switch matrixes are designed for signals up to 30GHz, with up to 8 common ports and 48 switched ports. These high-speed, USB and ethernet controlled RF full cross-bar switch matrixes are specifically designed for versatile and dynamic routing of RF signals. With a full cross-bar architecture, the switch matrices can switch any of its common ports to any of the I/O ports in dual path, offering unparalleled flexibility in routing and signal distribution. Custom configurations are available upon request. This solid-state matrix enables bi-directional RF paths over a broad frequency range of 16 kHz to 12 GHz (or up to 30 GHz), maintaining minimal insertion and return loss. Each port is internally DC-blocked and capable of handling up to 16V, making it durable and resilient for demanding RF environments. In contrast to mechanical switching solutions, the switch matrices solid-state design ensures each port is permanently matched to 50 ohms, including unselected ports, providing exceptional impedance matching ideal for vector network analyzer (VNA) extension applications. The module also integrates a precision-controlled internal oven, which can sustain stability over time, limiting signal drift to less than 0.02 dB. All signal paths have been designed to be equal in length, resulting in consistent phase and magnitude for each path. Two key applications are easy de-embedding of test setups and multi-port TDR measurements. Channel to channel isolation is exceptional at more than 80dB.

For information about EECL's products, please contact **Saelig Company, Inc.** their USA distributor. For detailed specifications, free technical assistance, or more information, please contact Saelig at **1-888-7SAELIG**, email at **info@saelig.com**, or visit **www.saelig.com**.

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