HERMETIC SOLUTIONS GROUP
Enabling Technology

Getters for Micro Electronics in Harsh Environments

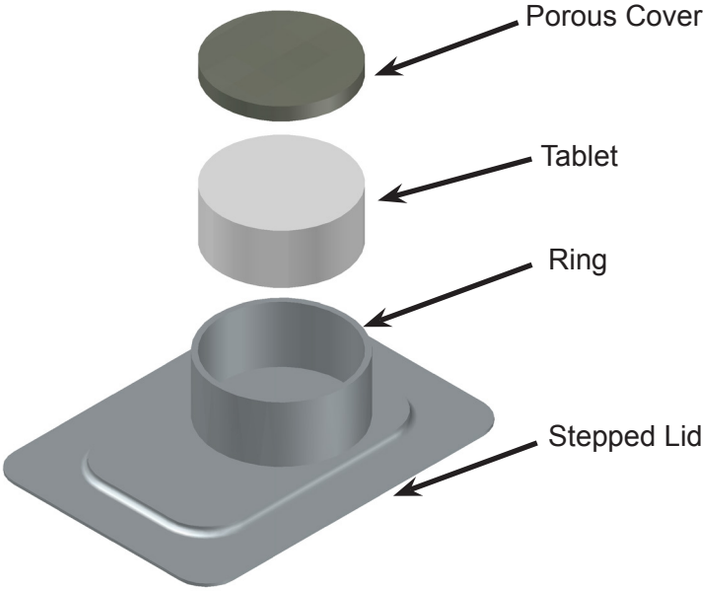
Overview

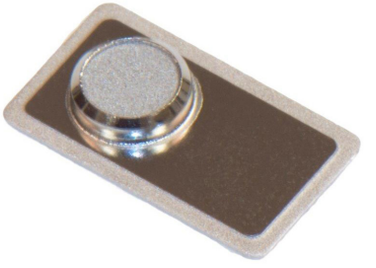
Micro electronic systems are being used in many challenging environments. Contaminants such as moisture and hydrogen, found at low levels in many systems, may not pose any problems in “normal” conditions can pose serious reliability issues at elevated temperatures. HTA series getters are designed to adsorb typical contaminants at elevated temperatures thereby enhancing device reliability and longevity.

JM Johnson Matthey
Inspiring science, enhancing life

Technical Advantages

The HTA getter material range, developed by Johnson Matthey, is a proprietary mixture of various absorbers which target specific contaminant molecules. Working over a temperature range of 25 to 500°C, the getters help protect sensitive components both in storage and in use. The getter material is formed into a tablet. These tablets are heated to activate the material and are hermetically sealed into a protective housing developed by the Hermetic Solutions Group. The sealed housing ensures that the getter remains conditioned for use. Immediately prior to closing the device, the protective seal on top of the housing is pierced. A screen behind the seal allows the device atmosphere access to the getter while ensuring getter particles remain safely within the





Getter assembly as typically supplied. In this case the getter housing attached to a stepped lid. This integrates the getter into the device at the point of lid sealing.

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There are currently four versions of this getter material available.

	Moisture % weight	CO_2 cm^3/g	Organics cm^3/g	Hydrogen cm^3/g	Max Temp.
HTA1	25	15			500°C
HTA2	20	10		30	300°C
HTA3	15	10	5		250°C
HTA4	15	10	5	30	250°C

Typical RGA Results

The devices tested were typical hybrids in a hermetic metal package. The devices were aged at 200°C for 250 hours to promote out-gassing from the constituent materials.

Sample ID		No Getter	HTA1	HTA2	HTA3	HTA4
Pressure	torr	607	621	617	614	631
Nitrogen	%	85.2	87.6	87.8	87.8	87.9
Oxygen	ppm	ND	ND	ND	ND	ND
Argon	%	1.37	1.4	1.44	1.4	1.5
CO_2	ppm	5591	<100	<100	<100	<100
Moisture	ppm	2.18%	<100	<100	<100	<100
Hydrogen	ppm	2546	2891	ND	2974	ND
Helium	%	10.4	10.7	10.7	10.5	10.6
Fluorocarbons	ppm	ND	ND	ND	ND	ND
Hydrocarbon	ppm	1298	1416	1588	<100	<100
R-Benzene	ppm	ND	ND	ND	ND	ND

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