

**Japan Business Council in Europe**

Brussels, 18<sup>th</sup> of July 2008

Dear Mr. Deubzer:

In response to your mail from July 4 and in the spirit of the discussions from the past stakeholder consultation meetings held in Brussels from 09 to 12 June, we would like to provide a list with examples of uses of high-melting point solders containing 85% of lead by weight or more in electronic components for which there is no substitution material or technology available in our industry presently.

This list was also presented on the stakeholder meeting for exemption 7a. held on June, 12 and hopefully provided a better insight of where our industry is at.

It is our sincere desire that this might serve as a reference for future evaluation and considerations.

Finally, we would like to reassure that we will be more than pleased to provide further information and assistance from our standpoint for whatever may be necessary concerning the on-going RoHS exemption evaluation process.

Kind regards

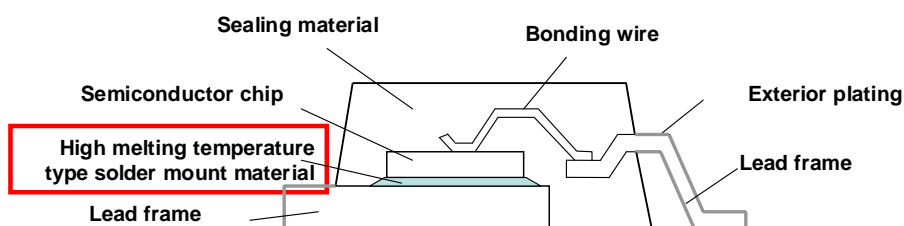
A handwritten signature in black ink, appearing to read 'T. Fukumoto', is written in a cursive style.

**Takuya Fukumoto**  
**Secretary General**  
**Japan Business Council in Europe**

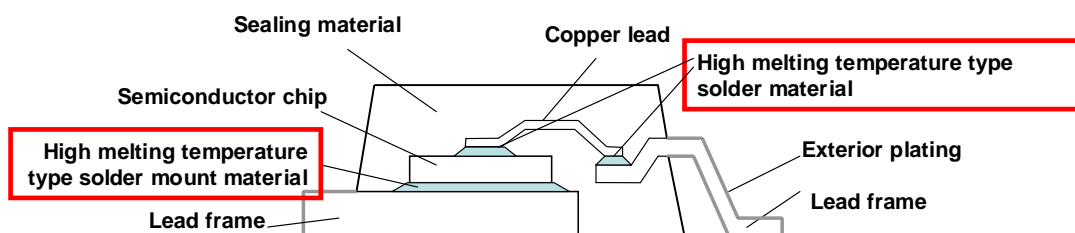
Applications and Related Products in which High Temperature Type Lead- Containing Solders are Used

Intended Use	Reasons for Necessity	Related Products
<p>Solders used for internally combining a functional element and a functional element, and a functional element with wire/terminal/heat sink/substrate, etc. within an electronic component.</p>	<ol style="list-style-type: none"> <li>1. It is needed to achieve electrical characteristic and thermal characteristic during operation, due to electric conductivity, heat conductivity, etc.</li> <li>2. It is needed to gain high reliability for temperature cycles, power cycles, etc.</li> <li>3. When it is incorporated in products, it needs heatproof characteristics to temperatures higher than melting temperatures (250 to 260°C) of lead-free solders</li> <li>4. Stress relaxation characteristic with materials and metal materials at the time of assembly is needed.</li> </ol>	<p>Resistors, capacitors, chip coil, resistor networks, capacitor networks, power semiconductors, discrete semiconductors, microcomputers, ICs, LSIs, FCBGA, chip EMI, chip beads, chip inductors, chip transformers, etc. (Annex : Fig.1 to 3)</p>
<p>Solders for mounting electronic components onto sub-assembled module or sub-circuit boards.</p>	<ol style="list-style-type: none"> <li>1. It is needed to achieve electrical characteristic and thermal characteristic during operation, due to electric conductivity, heat conductivity, etc.</li> <li>2. It is needed to gain high reliability for temperature cycles, power cycles, etc.</li> <li>3. When it is incorporated in products, it needs heatproof characteristics to temperatures higher than melting temperatures (250 to 260°C) of lead-free solders</li> <li>4. Stress relaxation characteristic with materials and metal materials at the time of assembly is needed.</li> <li>5. It is needed to prevent copper leaching that occurs when connecting it in the product using the copper wire.</li> </ol>	<p>Hybrid IC, modules, optical modules, etc. (Annex : Fig.4)</p>

<p>Solders used as a sealing material between a ceramic package or plug and a metal case</p>	<ol style="list-style-type: none"> <li>1. Stress relaxation characteristic with materials and metal materials at the time of assembly is needed.</li> <li>2. When it is incorporated in products, it needs heatproof characteristics to temperatures higher than melting temperatures (250 to 260°C) of lead-free solders.</li> <li>3. It is needed to gain high reliability for temperature cycles, power cycles, etc.</li> </ol>	<p>SAW (Surface Acoustic Wave) filter, crystal unit, crystal oscillators, crystal filters, etc. (Annex : Fig.5)</p>
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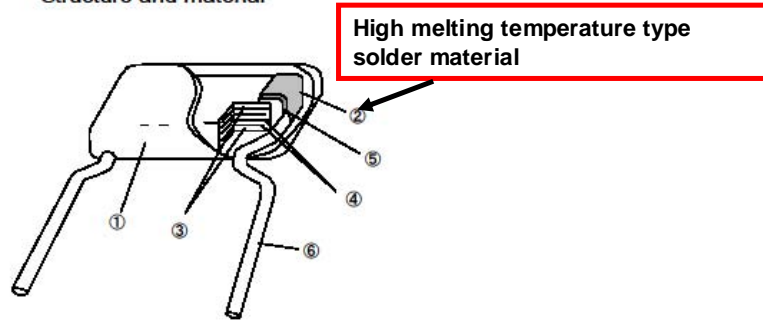
**Fig. 1 Schematic Cross Sectional View of Power Semiconductor**



**Fig. 2 Schematic Cross Sectional View of Internal Connection of Semiconductor**

1. Structure

Structure and material

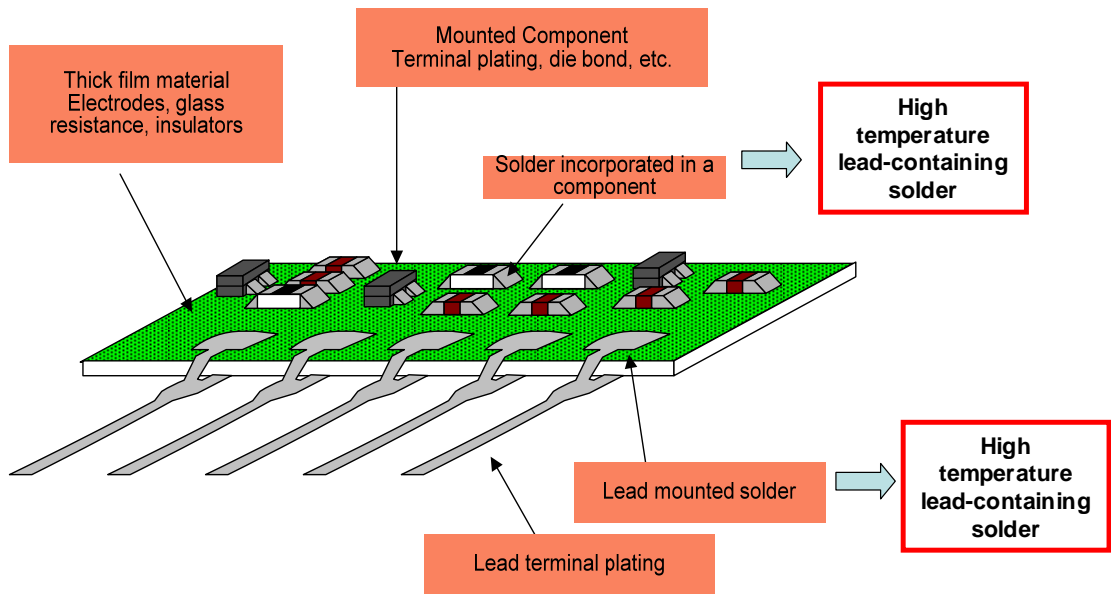


2. Material and Description

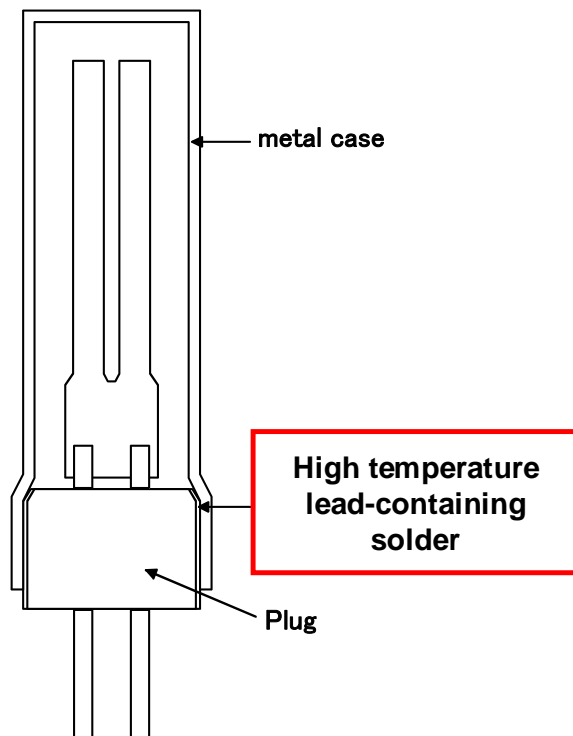
No.	Material	Description
①	Enclosure	Epoxy resin
②	Inner solder	Sn-Pb type solder <sup>*1</sup>
③	Dielectric	Ceramic
④	Inner electrode	Ni or Pd or Ag/Pd
⑤	Outer electrode	1)Ag/Pd or 2) Ag or Ag/Pd or Cu + Ni plating + Sn plating
⑥	Lead wire	Solder(Sn-2.5Cu) coated copper wire or Solder(Sn-2.5Cu) coated CP wire

\*1 Lead in high melting temperature type solders (Pb:85% or more) are exempted from the requirements of RoHS.

**Fig. 3 Schematic View of Capacitor with Lead**



**Fig. 4 Schematic View of Circuit Module Component**



**Fig. 5 Schematic View of Crystal Unit**