

OCTOBER 1969



**RELATIVE SPECTRAL RESPONSE CURVES**

**FOR**

**SEMICONDUCTOR INFRARED DETECTORS**

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**FORMULATED BY**

**JEDEC SEMICONDUCTOR DEVICE COUNCIL**

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FOREWORD

The S-curves appearing in this publication were compiled by the JS-4\* Committee on Solid State Electro-Optical Devices and approved by the JEDEC Semiconductor Device Council. The intent of this document is to facilitate the specification of infrared detector diodes, particularly in conjunction with the preparation of data for JEDEC type registration.

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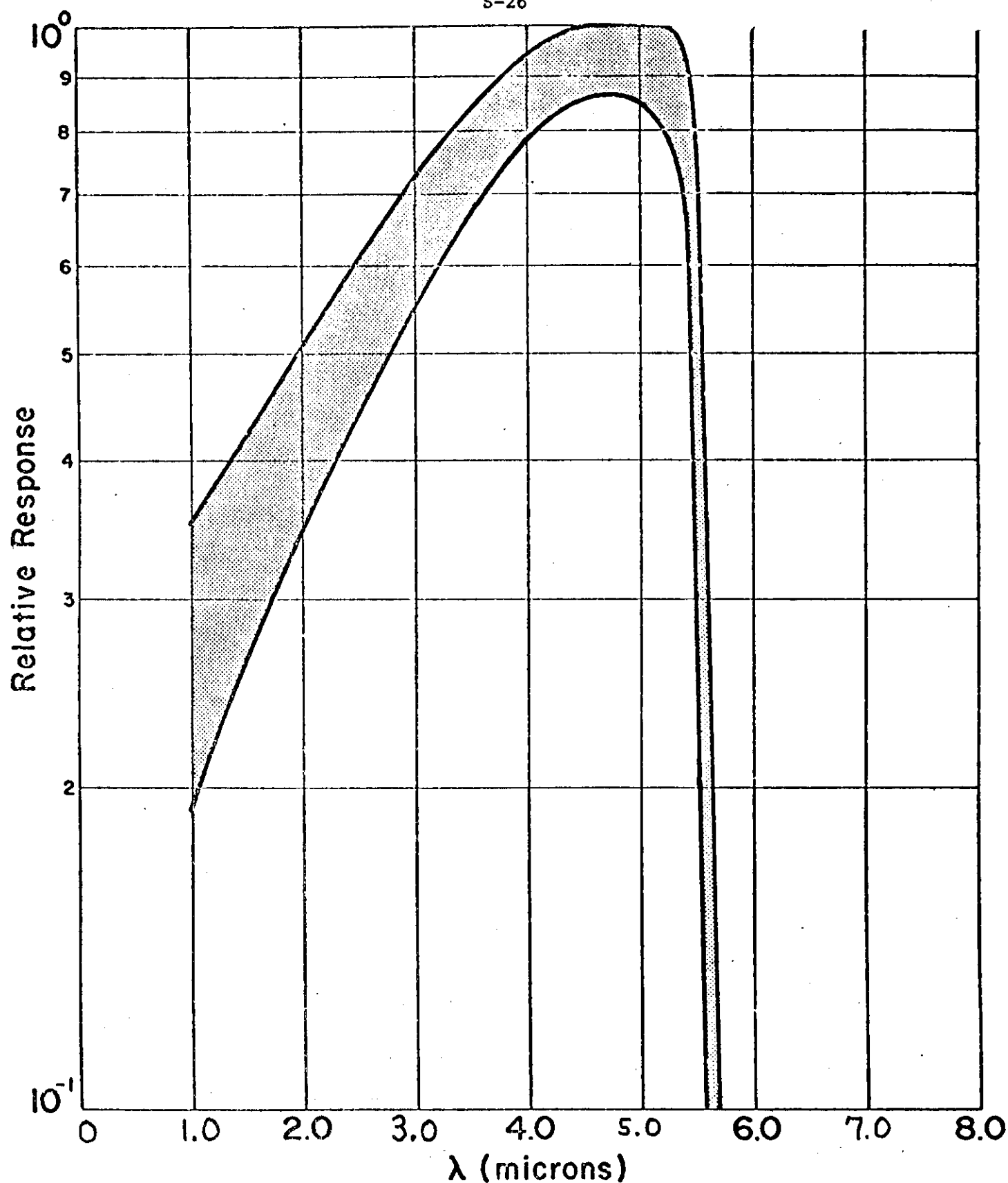
\* JS-4 gratefully acknowledges the assistance of Mr. W.L. Eisenman, Head, Detector Brand, Infrared Division, U.S. Naval Ordnance Laboratory, Corona, California, who was on the JS-4 task force that made the compilation.

# SECTION I RELATIVE SPECTRAL RESPONSE CURVE

| S-No. | Photoeffect     | Nominal Components | Operating Temperature (°K) |
|-------|-----------------|--------------------|----------------------------|
| S-26  | photovoltaic    | InSb               | 77                         |
| S-27  | photoconductive | Ge:As              | 77                         |
| S-28  | photovoltaic    | InAs               | 195                        |
| S-29  | photoconductive | PbSe               | 77                         |
| S-30  | photoconductive | Ge:Cu              | 4.2                        |
| S-31  | photoconductive | PbS                | 300                        |
| S-32  | photoconductive | PbS                | 195                        |
| S-33  | photoconductive | PbS                | 77                         |
| S-34  | photovoltaic    | InAs               | 300                        |
| S-35  | photoconductive | InSb               | 77                         |
| S-36  | photovoltaic    | GaAs               | 300                        |
| S-37  | photovoltaic    | Si                 | 300                        |
| S-38  | photoconductive | PbSe               | 300                        |
| S-39  | photoconductive | PbSe               | 195                        |
| S-40  | photoconductive | Ge:Hg              | 4.2                        |

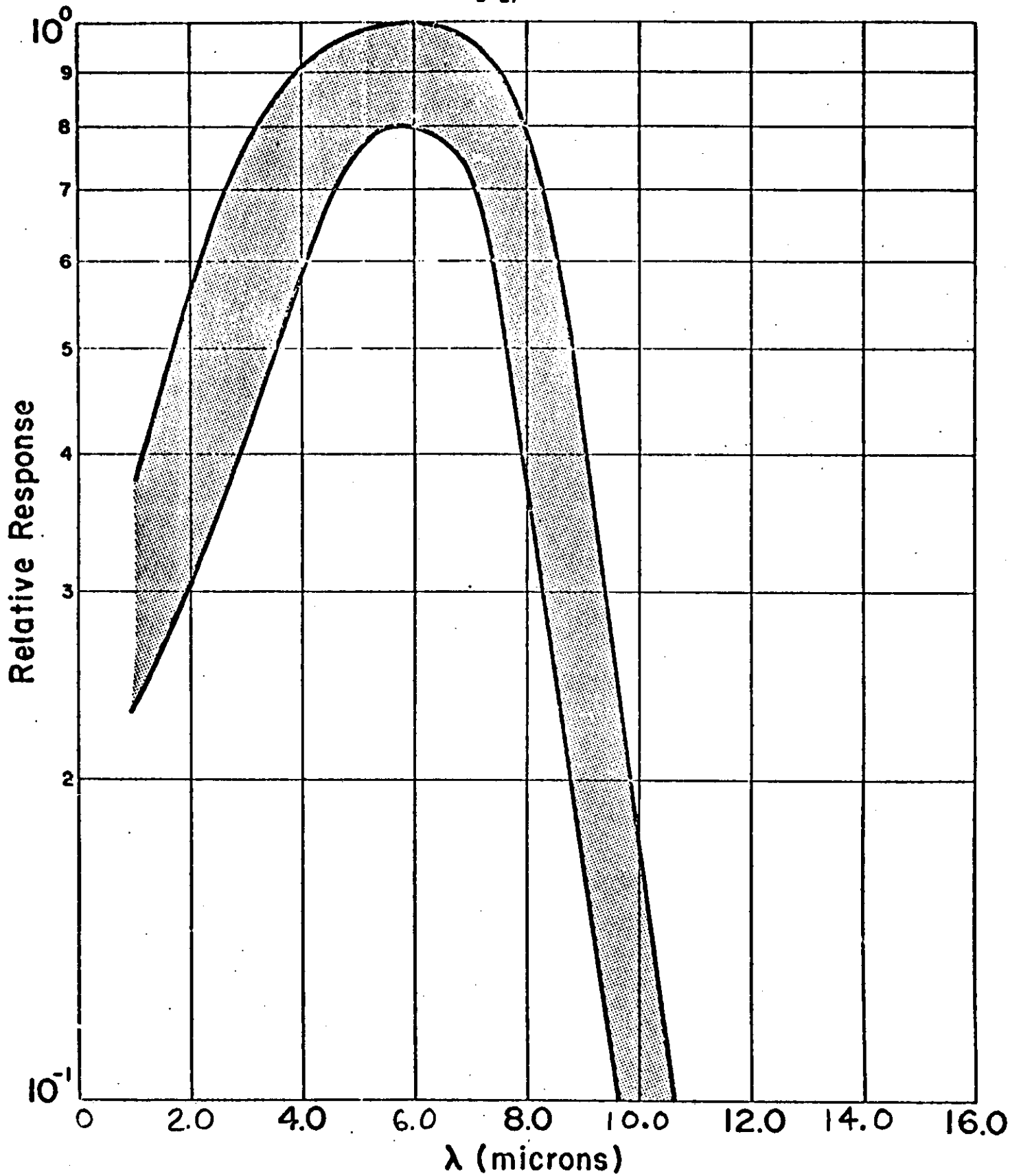
The shaded areas of the following S-curves indicate the range of spectral shapes which may be expected if a particular type photodetector is obtained from several different manufacturers. It should be noted that the spectral response of some types of photodetectors (particularly the lead-salt and intrinsic silicon detectors) can be varied during the manufacturing process. The curves shown here are representative of the more common, or "typical," detector types.

S-26

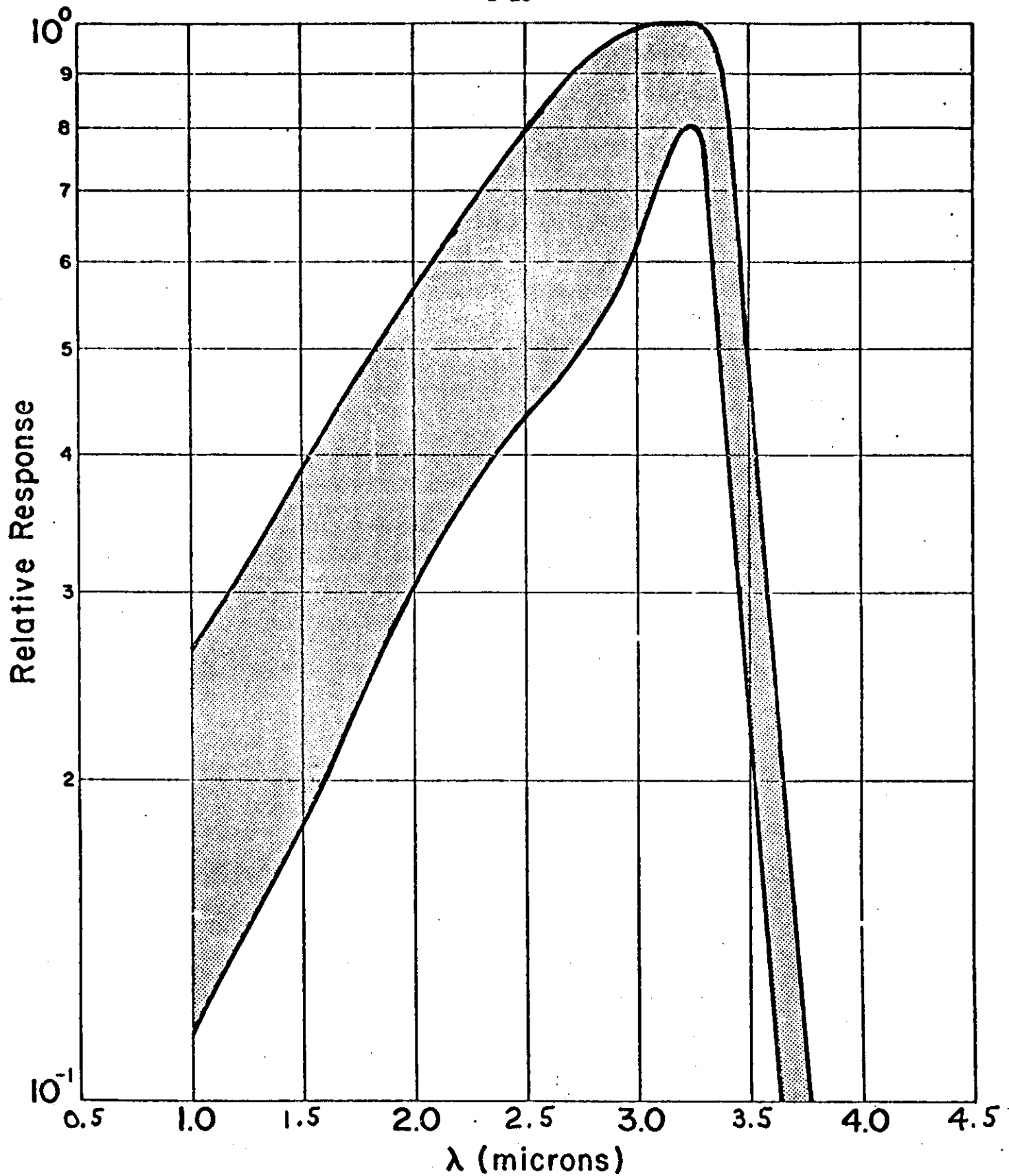


The spectral sensitivity of photovoltaic InSb operated at a temperature of 77°K.

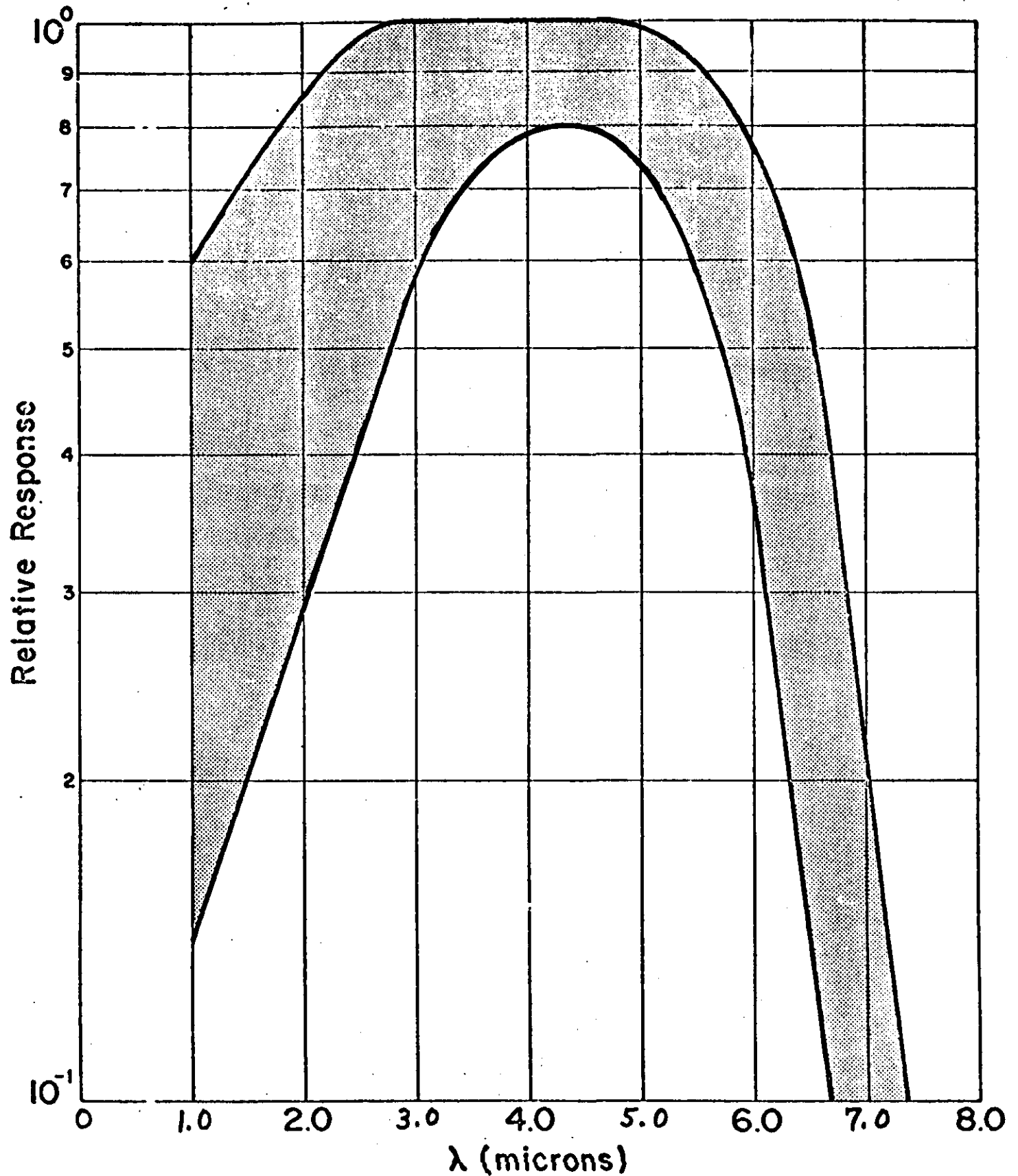
S-27



The spectral sensitivity of photoconductive Ge:Au operated at a temperature of 77°K.



The spectral sensitivity of photovoltaic InAs operated at a temperature of 77°K.



The spectral sensitivity of photoconductive PbSe operated at a temperature of 77°K.