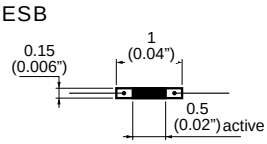
ESB Strain Gages

Semiconductor - Bar Shaped

ESB-020



Dim: mm (inches)

ESB Series

MODELS	SHAPE	R RESISTANCE nom.	TCR /100°F (/55°C) nom.(Note 3)	GF - GAGE FACTOR nom.	TCGF /100°F (/55°C) nom. (Note 3)
ESB-020-350	Bar	350 Ω	+22%	+155	-18%
ESB-020-500	Bar	500 Ω	+22%	+155	-18%

QUANTITY OF GAGES IN PACK: **Matched Sets of 4:** 4 **Unmatched sets of 10:** 10

MATCHING (R): **Matched Sets of 4:** R within ±2% of each other **Unmatched sets of 10:** R within ±10% of each other

R nom., 20°C (70F°): **Matched Sets of 4:** Resistance in ohms, ±10% **Unmatched sets of 10:** Resistance in ohms, ±20%

GF nom., 20°C (70F°): Gage Factor, $\frac{\Delta R/R}{\Delta L/L}$ ±5%.

TCR nom. (Note 3): Thermal Coefficient of Resistance, $\frac{(\Delta R/R)\% \pm 3\%}{100°F}$, 70°F to 170° (20°C to 77°C).

TCGF nom. (Note 3): Thermal Coefficient of Gage Factor, $\frac{\Delta GF\% \pm 3\%}{100°F}$, 70°F to 170°F (20°C to 77°C).

GAGE TYPE: P-Type Silicon.

STRAIN LEVEL (Note 1): 0-1000µstrain recommended, 0-3000µstrain maximum.

WATTAGE RATING (per gage): 0-25milliwatt recommended, 50milliwatt maximum. Watts=(Voltage on Gage)²/(Gage Resistance).

TEMPERATURE RANGE: -100°F to +600°F (-73°C to 315°C).

LEAD WIRES: Gold, 0.0015" diameter x 0.25" length min. (0.038mm dia. x 6.35mm).

YOUNG'S MODULUS: E=27x10⁶psi (1.9x10⁶kg/cm²).

SENSITIVITY, Vo (Note 2): Voltage Out=1/4(No. Active Arms) (Gage Factor)(Strain Level) (Excitation Voltage).
Example: Fully active 4 Arm Bridge, GF=130, 500µstrain, 5V Exc. Vo=1/4 (4) (130) (500x10⁻⁶) (5V)=325mV.

BONDING: Apply thin Epoxy precoat for electrical isolation. Then apply bonding coat to substrate, place gage (handling by its leads only) on wet epoxy and align. Gage is held in position by surface tension only, DO NOT apply weights or force, as this may damage the gage. Micro Measurements M-Bond 610 or equivalents are recommended.

[1]µstrain = strain in inches/inch x 10⁻⁶. [2] Equations assume bridge with adjacent tension and compression arms for additive outputs. [3]The actual values of TCR and TCGF greatly depend upon excitation voltage, heat sinking, temperature of use, mounting and prestrain, and catalog values should not be used as absolute numbers for calculation of data for experimental or design use. TCR and TCGF, where important, must be calibrated after gage mounting.

Gaging Service & Supplies

GAGING SERVICE: Entran's Gageing Services in the USA and Europe can apply strain gages to your prototype or production parts, big or small. Areas as small as 3.2mm (1/8") in diameter can be gaged with either a half-bridge of two gages or a fully active four arm bridge. Wiring, coating, thermal zero offset compensation, thermal sensitivity compensation and zero offset trimming are also available. Contact Entran for specific quotations.

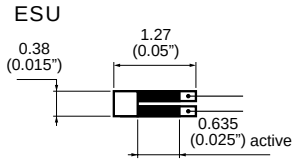
GAGING TOOL & SUPPLY KIT: **ES-TSKIT1:** Tweezers, Fine Brush, Bonding Agent & other supplies for prototype gageing and soldering.

"Off-the-Shelf" Stocking Program

ESU Strain Gages

Semiconductor - "U" Shaped

ESU-025



Dim: mm (inches)

ESU Series

MODELS	SHAPE	R RESISTANCE nom.	TCR /100°F (/55°C) nom.(Note 3)	GF - GAGE FACTOR nom.	TCGF /100°F (/55°C) nom. (Note 3)
ESU-025-500	U	500 Ω	+14%	+140	-15%
ESU-025-1000	U	1000 Ω	+22%	+155	-18%

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