

**ESL** (Equivalent Series Inductance)  
Characteristics of  
**NIC** Low **ESR** Capacitors

# ESL over Frequency Characteristics Curves

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SMT V-Chip Electrolytic Capacitors



## Hybrid Electrolyte: NSPE Series

SLIDE #3 ..... **8 x 10.8 mm Size** NSPE151M10V8X10.8TR [ 150uF, 10VDC, 100KHZ ESR = 0.030 ohm, ESL = 0.56nH ]

SLIDE #4 ..... **10 x 10.8 mm Size** NSPE151M16V10X10.8TR [ 150uF, 16VDC, 100KHZ ESR = 0.040ohm ESL = 0.7nH ]

## Liquid Electrolyte: NACZ Series

SLIDE #5 .... **8 x 10.5 mm Size** NACZ471M16V8X10.5TR [ 470uF, 16VDC, 100KHZ ESR = 0.170ohm ESL = 0.75nH ]

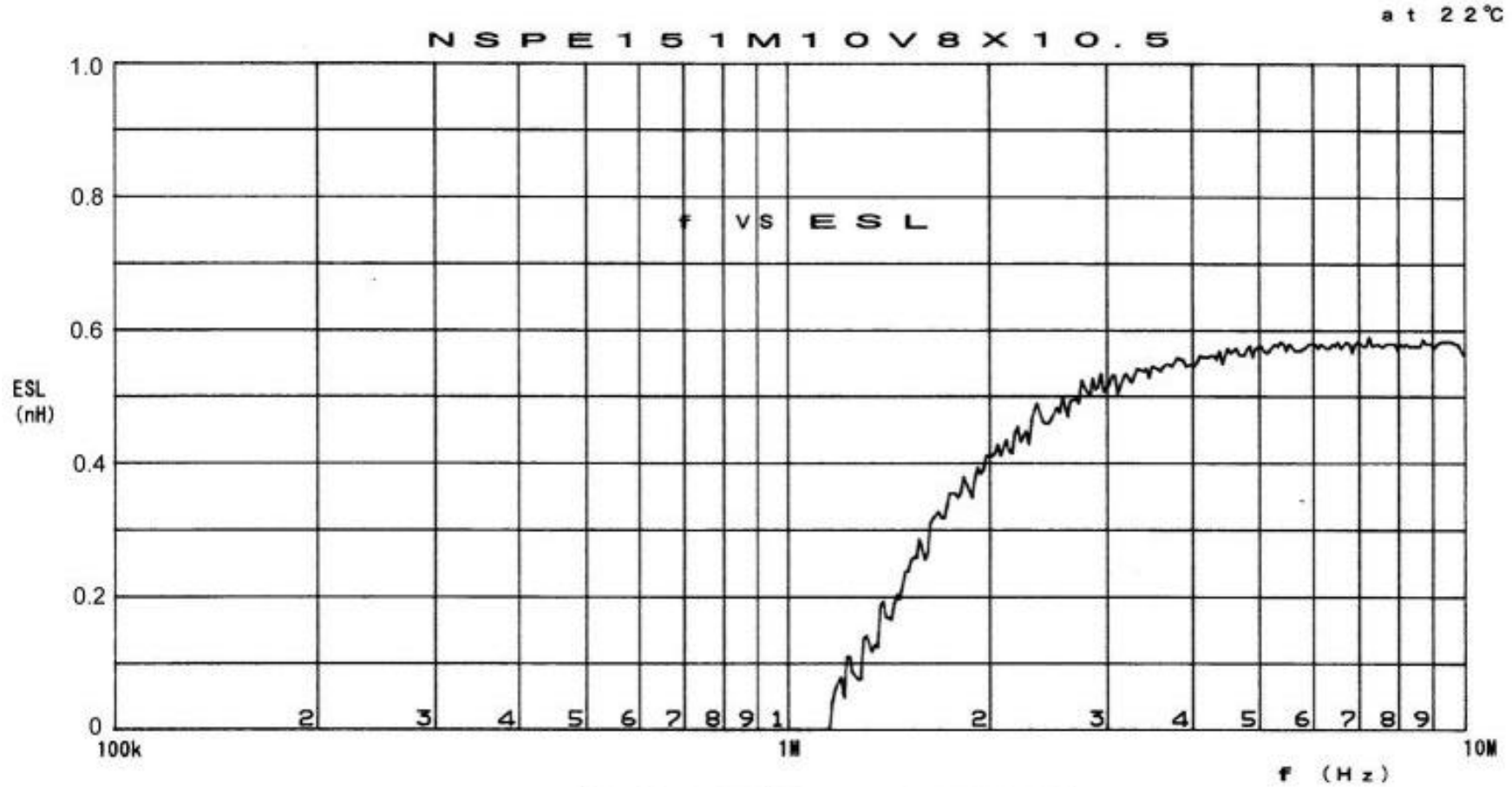
SLIDE #6 .... **10 x 8 mm Size** NACZ221M25V10X8TR [ 220uF, 25VDC, 100KHZ ESR = 0.170ohm ESL = 1.4nH ]

SLIDE #7 .... **12.5 x 14 mm Size** NACZ222M10V12.5X14TR [ 2200uF, 10VDC, 100KHZ ESR = 0.066ohm ESL = 2.5nH ]

**ESL Characteristics over Frequency 8 x 10.5 mm Size**

NSPE151M10V8x10.5TR [ 150uF, 10VDC, 100KHZ ESR = 0.030 ohm, ESL = 0.56nH ]

Frequency Characteristics

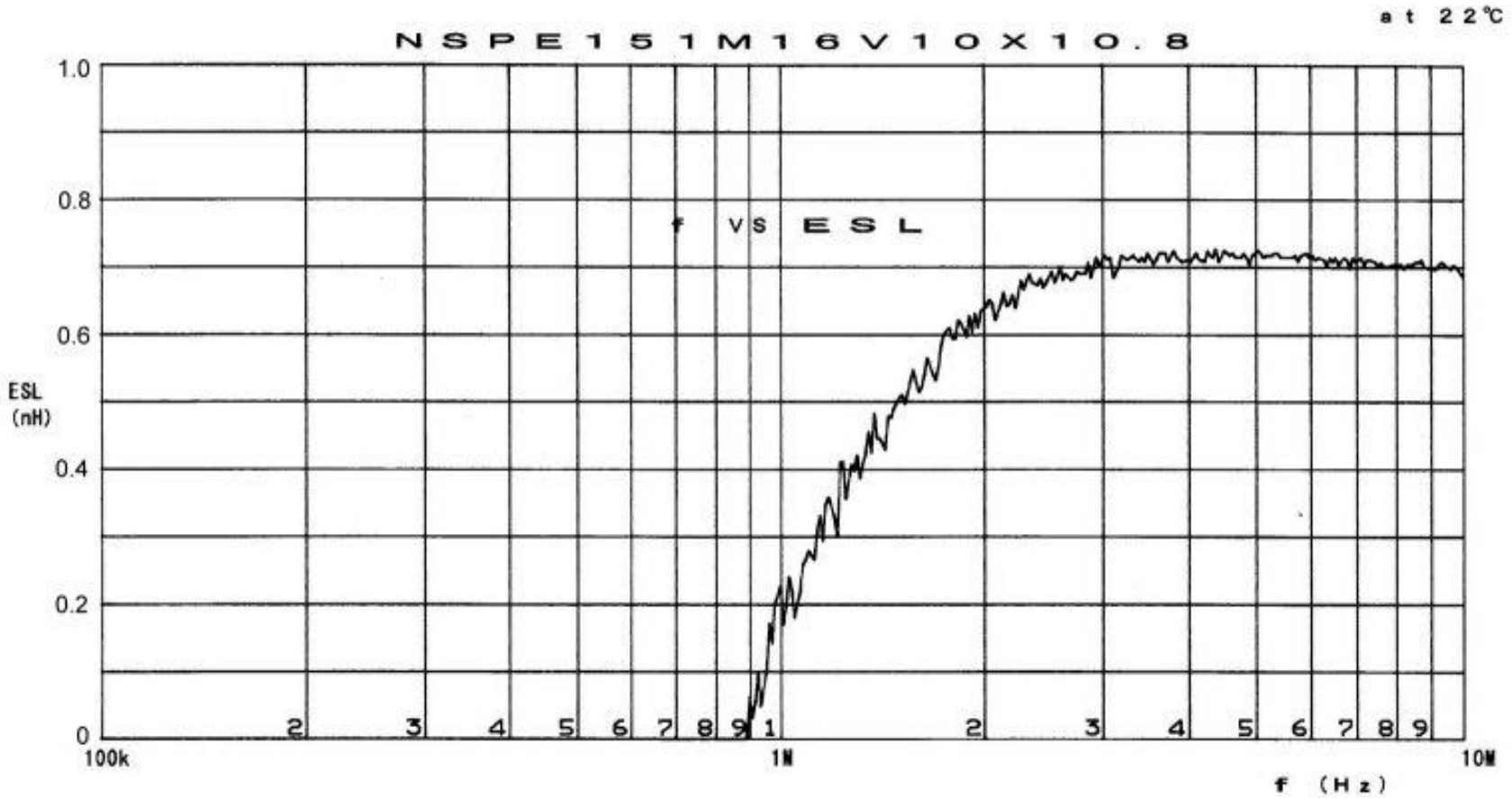


|          |       |       |
|----------|-------|-------|
| f (Hz)   | 5 M   | 10 M  |
| ESL (nH) | 0.574 | 0.561 |

**ESL Characteristics over Frequency 10 x 10.8 mm Size**

NSPE151M16V10X10.8TR [ 150uF, 16VDC, 100KHZ ESR = 0.040ohm ESL = 0.7nH ]

Frequency Characteristics

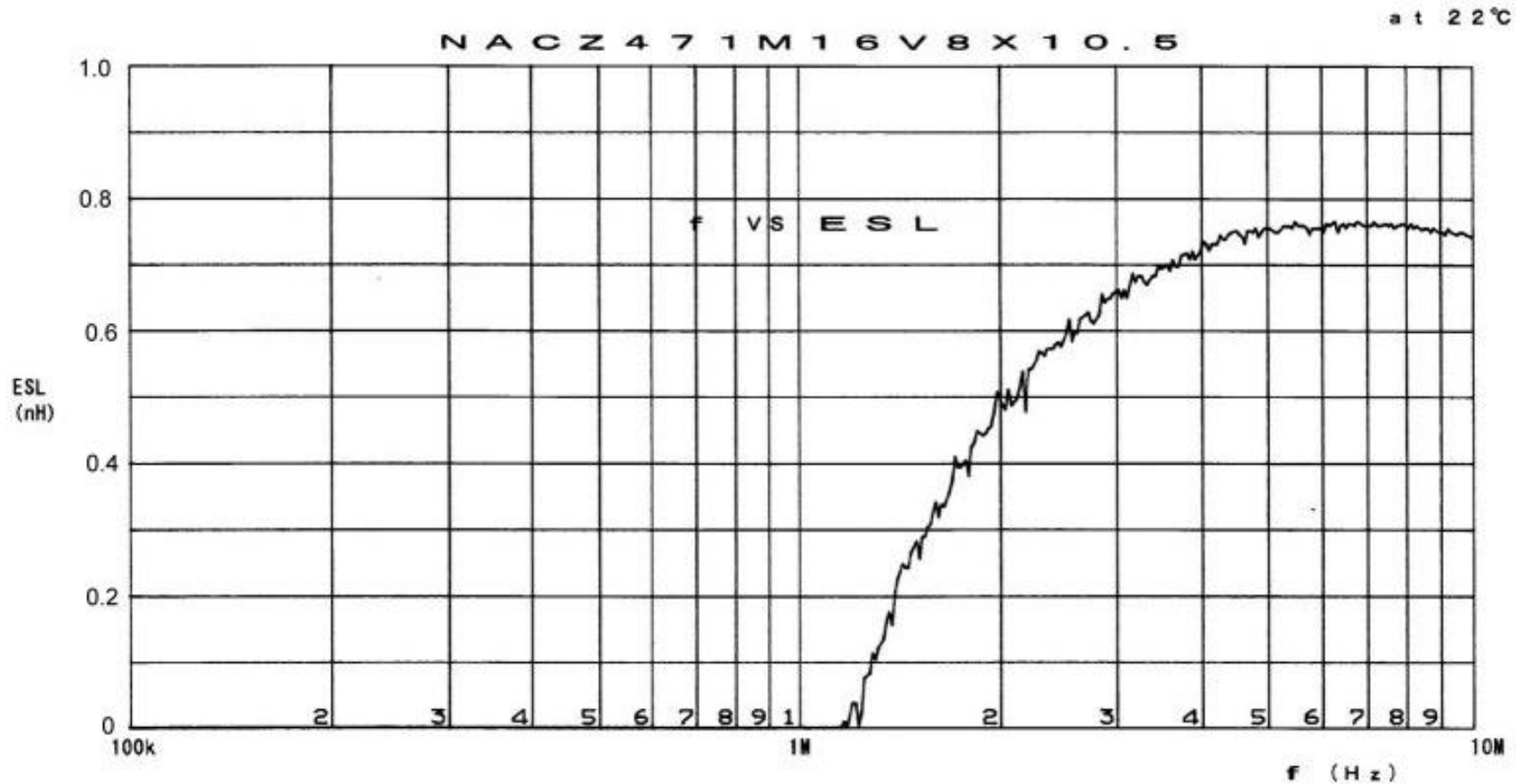


|          |       |       |       |
|----------|-------|-------|-------|
| f (Hz)   | 1 M   | 5 M   | 10 M  |
| ESL (nH) | 0.226 | 0.716 | 0.685 |

**ESL Characteristics over Frequency 8 x 10.5 mm Size**

**NACZ471M16V8X10.5TR [ 470uF, 16VDC, 100KHZ ESR = 0.170ohm ESL = 0.75nH ]**

Frequency Characteristics

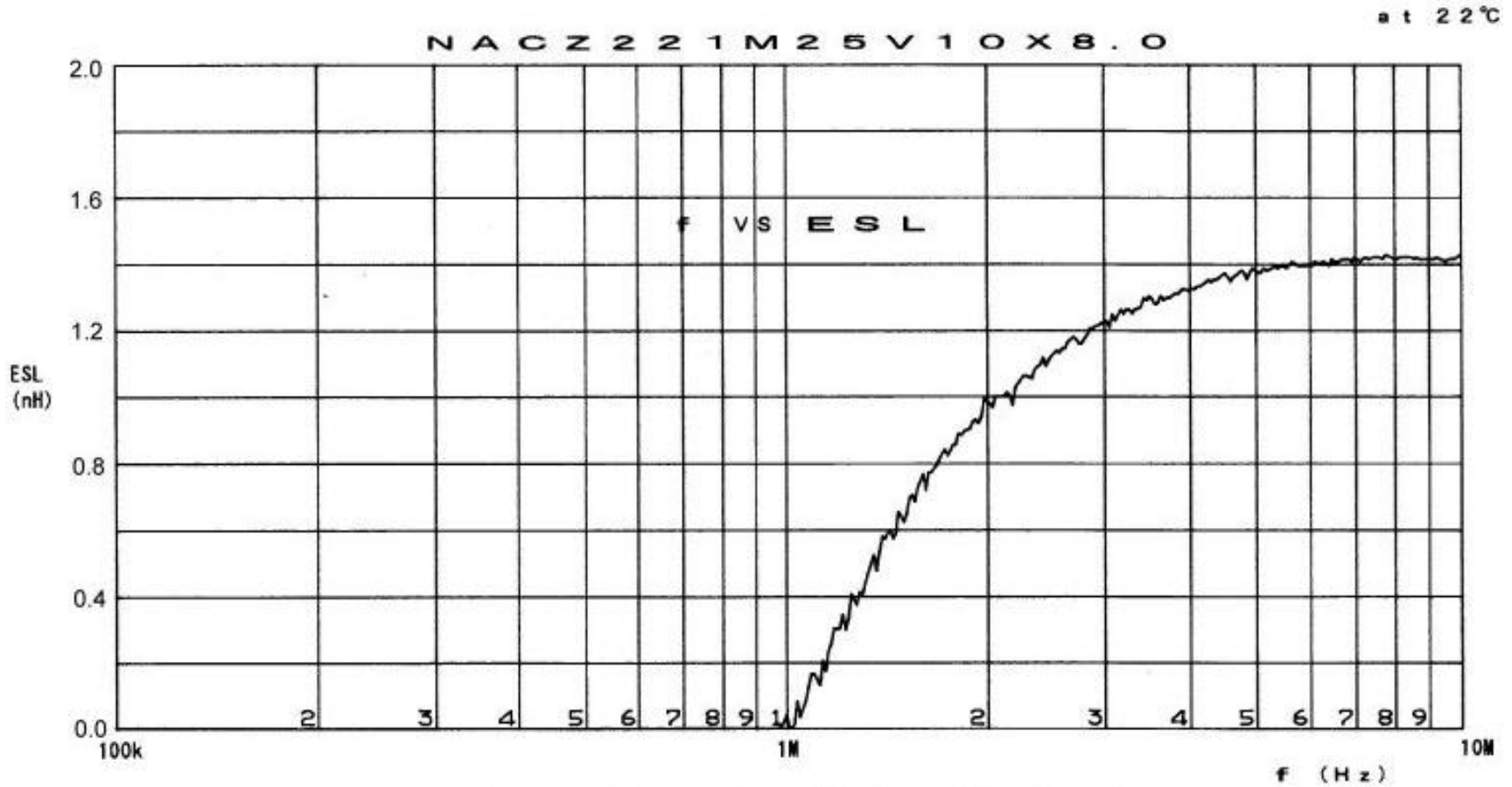


|          |       |       |
|----------|-------|-------|
| f (Hz)   | 5 M   | 10 M  |
| ESL (nH) | 0.756 | 0.741 |

ESL Characteristics over Frequency 10 x 8.0 mm Size

NACZ221M25V10X8TR [ 220uF, 25VDC, 100KHZ ESR = 0.170ohm ESL = 1.4nH]

Frequency Characteristics

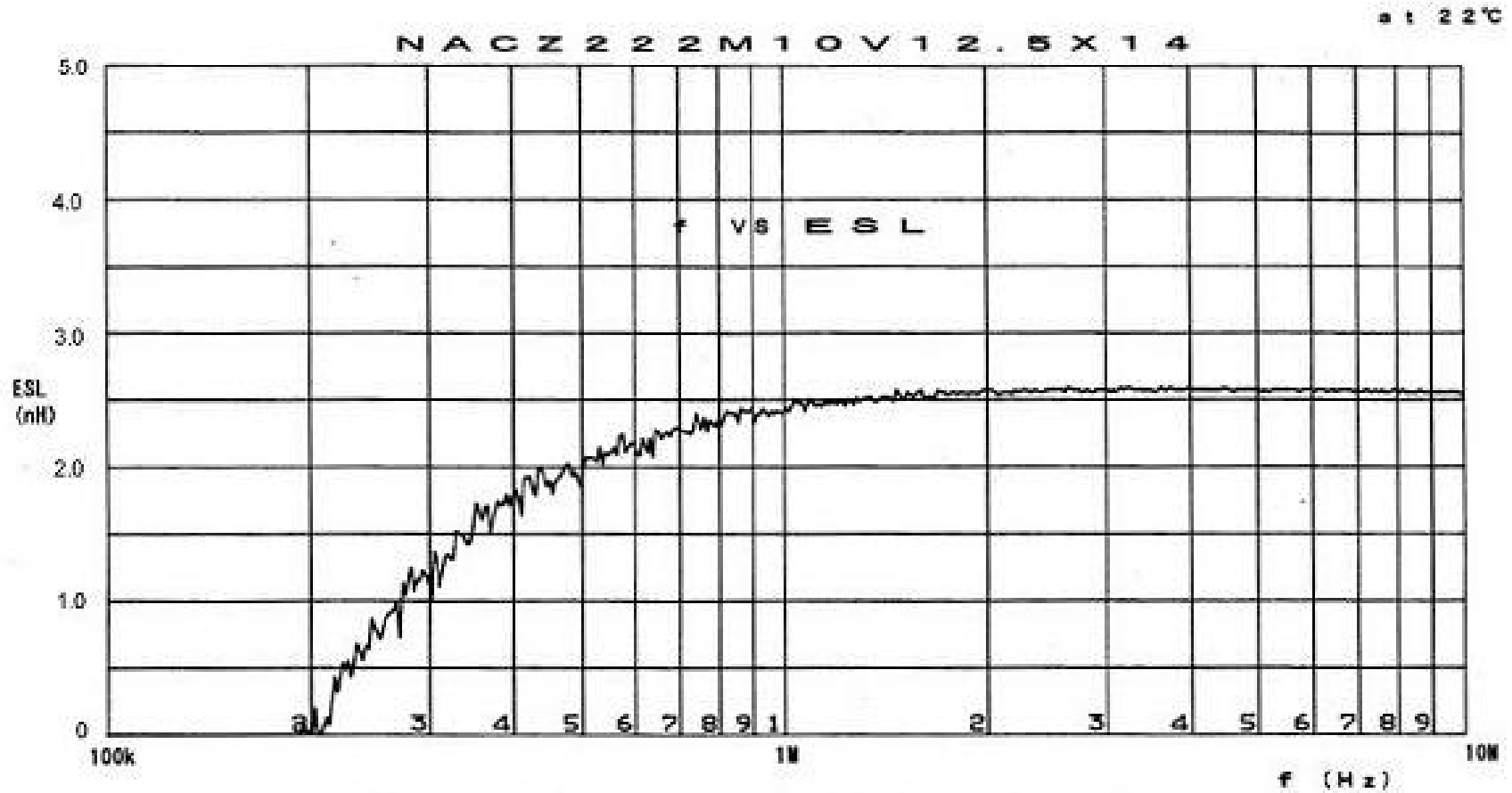


|          |       |       |       |
|----------|-------|-------|-------|
| f (Hz)   | 1 M   | 5 M   | 1 0 M |
| ESL (nH) | 0.040 | 1.388 | 1.424 |

## ESL Characteristics over Frequency 12.5 x 14 mm Size

NACZ222M10V12.5X14TR [ 2200uF, 10VDC, 100KHZ ESR = 0.066ohm ESL = 2.5nH]

### Frequency Characteristics



| f (Hz)   | 500k  | 1M    | 5M    | 10M   |
|----------|-------|-------|-------|-------|
| ESL (nH) | 1.840 | 2.397 | 2.568 | 2.537 |