

## DA-TYPE SOCKET ASSEMBLIES C7247 SERIES

The C7247 series is a DA type socket assembly designed for 28 mm (1-1/8 inch) diameter side-on and head-on photomultiplier tubes. The C7247 series socket assembly incorporates a voltage-divider circuit and a current-to-voltage conversion circuit along with an amplifier having a wide bandwidth (0 Hz to 5 MHz).

The C7247 series converts the low-level, high-impedance current of a photomultiplier tube into a low-impedance voltage output by a factor of 0.3 V/  $\mu$ A.

Since the C7247 series employs an active voltage-divider circuit, it ensures an excellent DC linearity at low power consumption.

### FEATURES

- Low power consumption
- Low offset voltage
- Wide frequency band
- Compact and light weight

### SPECIFICATIONS

| Parameter                        | C7247                          | C7247-01                       | Unit |
|----------------------------------|--------------------------------|--------------------------------|------|
| Applicable Photomultiplier Tubes | 28 mm Dia. Head-on             | 28 mm Dia. Side-on             | —    |
|                                  | R374, R2228, R5929, R6095, etc | R928, R3788, R3896, R4220, etc | —    |

### MAXIMUM RATINGS

| Parameter                   | Value      | Unit         |
|-----------------------------|------------|--------------|
| Input Voltage for Amplifier | $\pm 18$   | V dc         |
| Supply Voltage for Divider  | -1500      | V dc         |
| Operating Temperature       | 0 to +40   | $^{\circ}$ C |
| Storage Temperature         | -15 to +60 | $^{\circ}$ C |

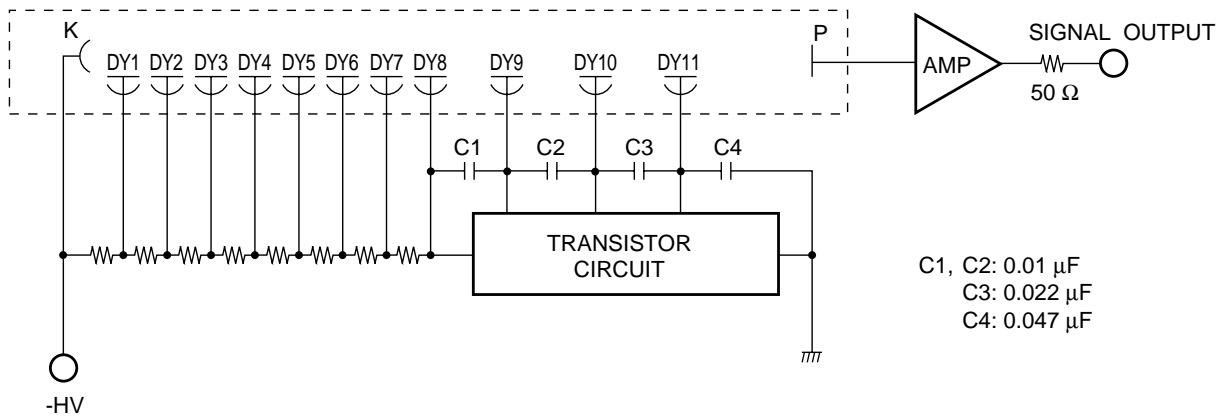
### GENERAL

| Parameter  | C7247                             | C7247-01           | Unit         |
|--|-----------------------------------|--------------------|--------------|
| Input Voltage for Amplifier  | $\pm 12$ to $\pm 15$ <sup>①</sup> |                    | V dc         |
| Input Current for Amplifier (at $\pm 15$ V)  | 12                                |                    | mA Typ.      |
| Recommended Supply Voltage for Divider   | -400 to -900                      | -300 to -600       | V dc         |
| Divider Current  | 219 (at HV=-900 V)                | 166 (at HV=-600 V) | $\mu$ A Typ. |
| Current to Voltage Conversion Factor   | 0.3                               |                    | V/ $\mu$ A   |
| Maximum Output Voltage (with no load resistor)                                     | 10                                |                    | V            |
| Output Voltage (with 50 $\Omega$ load resistor)                                    | 3                                 |                    | V            |
| Maximum Input Signal Current<br>(at 10 V output, HV=-1000 V with no load resistor) | DC                                | 33                 | $\mu$ A      |
|  | Pulse                             | 33                 | $\mu$ A      |
| Frequency Bandwidth (-3 dB)  | 0 Hz to 5 MHz                     |                    | —            |
| Output Impedance   | 50                                |                    | $\Omega$     |
| Offset Voltage   | $\pm 3$                           |                    | mV Max.      |
| Output Noise Voltage   | 9                                 |                    | mV rms. Typ. |
| Total Power Consumption (at $\pm 15$ V)  | 558 (at HV=-900 V)                | 460 (at HV=-600 V) | mW Typ.      |
| Weight   | 55                                | 50                 | g Typ.       |

① To be also practicable even with  $\pm 5$  V of input supply voltage except for narrow output range (2 V max).

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Figure 1. Schematic Diagram



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Figure 2. Frequency Response of Built-in Amplifier

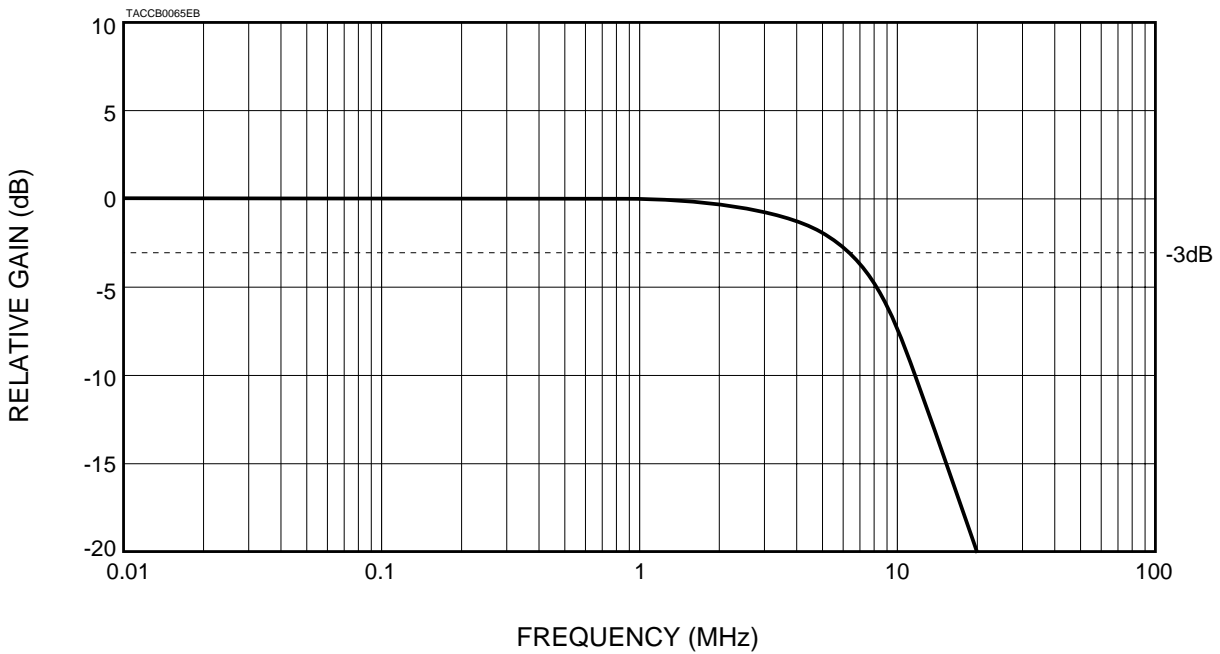
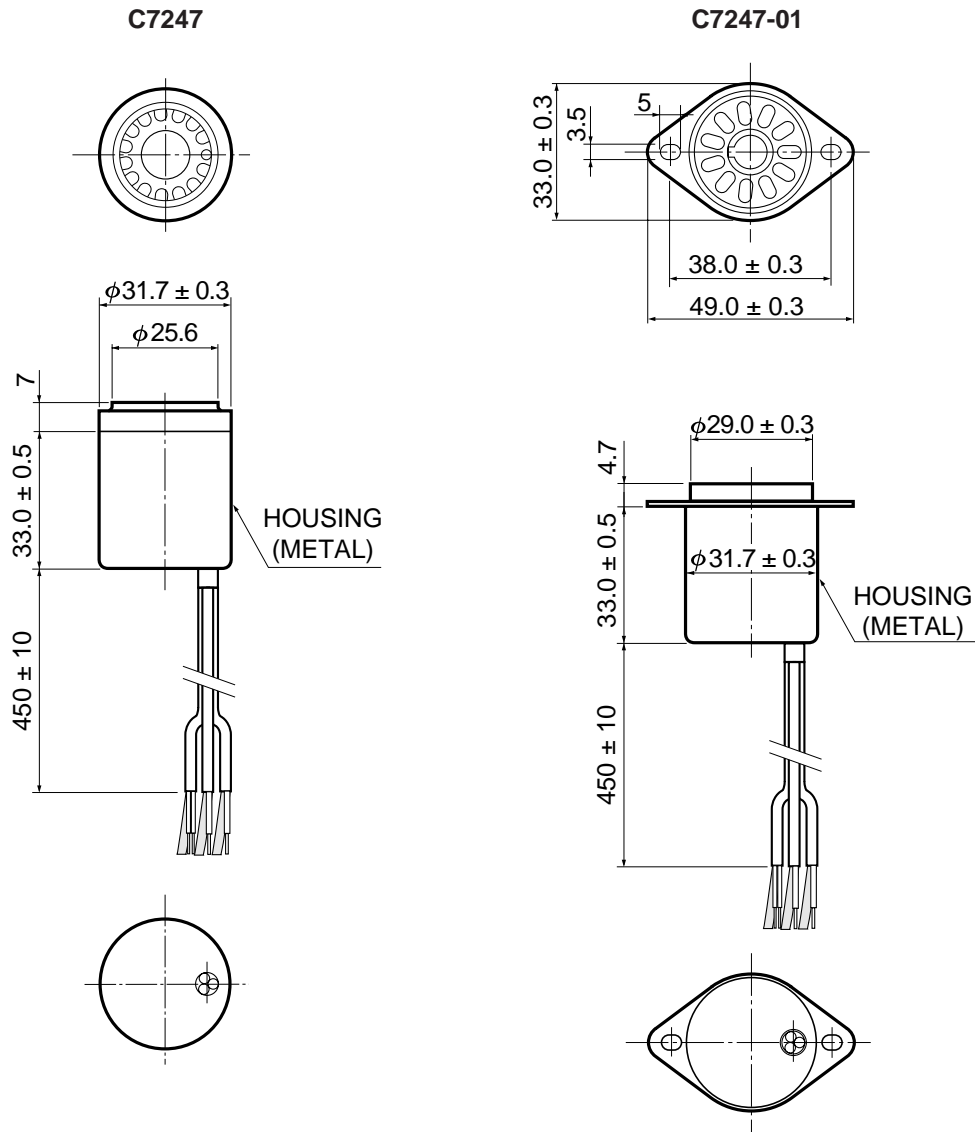


Figure 3. Dimensional Outline (Unit: mm)



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|               |  |       |
|---------------|--|-------|
| -HV           | SHIELD CABLE <sup>1)</sup>                           | RED   |
| SIGNAL OUTPUT | COAX RG-174/U  | BLACK |
| $\pm 15$ V    | SHIELDED CABLE (COVERING TWISTED PAIR) <sup>2)</sup> | GRAY  |

NOTES: 1) At the end of HV cable, it's possible to attach SHV connector fitting RG-174/U.

2) Connect as follows.

Orange Lead ..... +15 V

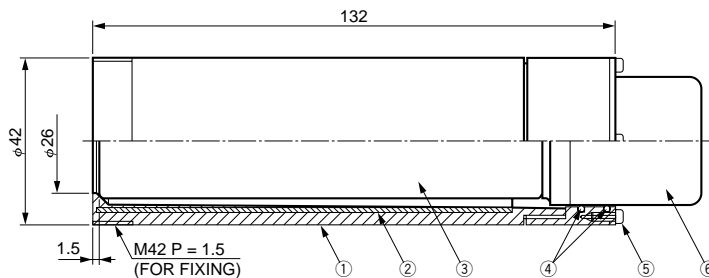
White Lead ..... -15 V

Shield ..... GND.

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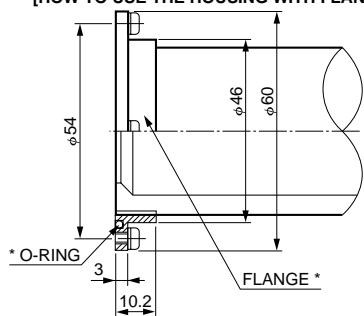
## OPTIONS

### ● HOUSING E7718 FOR C7247 (INCLUDING PART #①, ②, ④ AND ⑤) (Unit: mm)

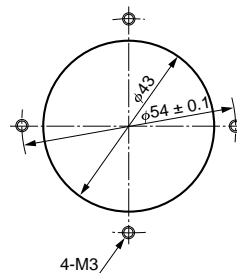


- ① HOUSING
- ② MAGNETIC SHIELD CASE
- ③ PMT
- ④ O-RINGS
- ⑤ 4-M2 SCREWS L = 6
- ⑥ C7247

[HOW TO USE THE HOUSING WITH FLANGE]



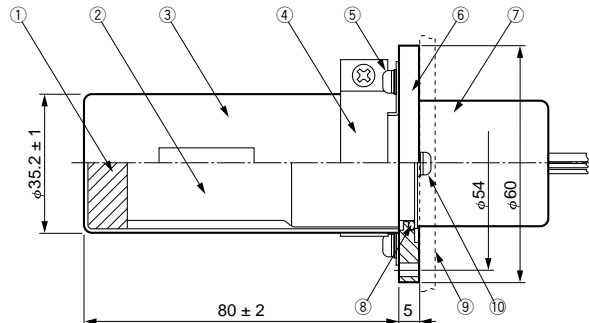
[SUGGESTED FIXTURE LAYOUT FOR THE FLANGE]



\* THE FLANGE AND O-RING ARE AVAILABLE TO ORDER SEPARATELY AS P/N; A7719.

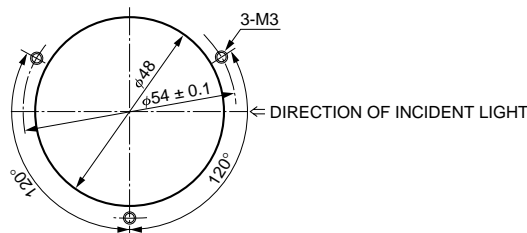
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### ● FLANGE SET A7709 FOR C7247-01 (INCLUDING PART #①, ④, ⑤, ⑥, ⑧ AND ⑩) (Unit: mm)



- ① INSULATOR (CUSHION)
- ② PMT
- ③ E989 MAGNETIC SHIELD CASE
- ④ CLAMPING METAL PARTS
- ⑤ 2-M3 SCREWS L = 5
- ⑥ FLANGE
- ⑦ C7247-01
- ⑧ O-RING
- ⑨ FIXTURE
- ⑩ 2-M3 SCREWS L = 5

[SUGGESTED FIXTURE LAYOUT FOR THE FLANGE]



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