

PATENT

The C7246 series is a DA type socket assembly designed for 28 mm (1-1/8 inch) diameter side-on and head-on photomultiplier tubes. The C7246 series socket assembly incorporates a voltage-divider circuit and a current-to-voltage conversion circuit along with an amplifier that has a narrow but practical bandwidth (0 kHz to 20 kHz) to improve the effective S/N ratio.

The C7246 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/ μ A.

Since the C7246 series employs an active voltage-divider circuit, it ensures an excellent DC linearity at low power consumption and a gain adjustment function that does not affect the frequency bandwidth of the amplifier.

FEATURES

- Low power consumption
- Low offset voltage
- Adjustable gain function
- Compact and light weight

SPECIFICATIONS

Parameter	C7246	C7246-01	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	± 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	C7246	C7246-01	Unit
Input Voltage for Amplifier	± 12 to ± 15 [Ⓐ]		V dc
Input Current for Amplifier (at ± 15 V)	530		μ A Typ.
Recommended Supply Voltage for Divider [Ⓑ]	-400 to -1000	-300 to -1000	V dc
Divider Current (at HV=-1000 V, VR=MIN) [Ⓒ]	174	211	μ A Typ.
Current to Voltage Conversion Factor	0.3		V/ μ A
Maximum Output Voltage (with no load resistor)	10		V
Output Voltage (with 50 Ω load resistor)	0.9		V
Maximum Input Signal Current (at 10 V output, HV=-1000 V with no load resistor)	DC	33	μ A
	Pulse	33	μ A
Frequency Bandwidth (-3 dB)	0 Hz to 20 kHz		—
Output Impedance	50		Ω
Offset Voltage	± 0.3		mV Max.
Output Noise Voltage	0.09		mV rms. Typ.
Adjustable Gain Range	10	30	dB Min.
Total Power Consumption (at ± 15 V, HV=-1000 V, VR=MIN)	190	227	mW Typ.
Weight	55	50	g Typ.

Ⓐ To be also practicable even with ± 5 V of input supply voltage except for narrow output range (2 V max).

Ⓑ Use more than 600 V at negative high voltage input from view-points of output linearity, when giving more than 10 μ A at signal input (anode out).

Ⓒ "VR = MIN." means that the PMT gain is set to minimum gain.

DA-TYPE SOCKET ASSEMBLIES C7246 SERIES

Figure 1. Schematic Diagram

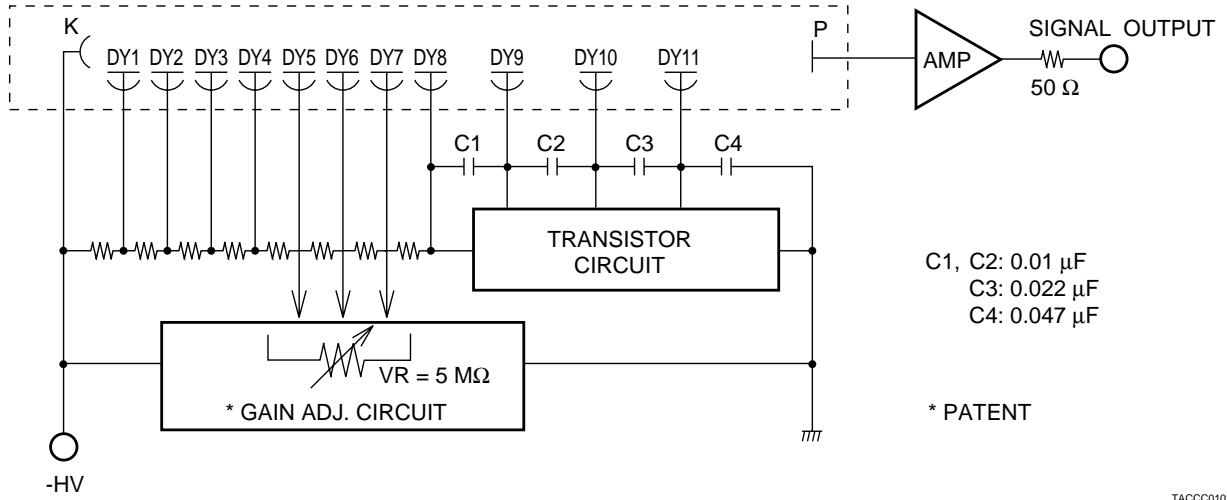


Figure 2. Frequency Response of Built-in Amplifier

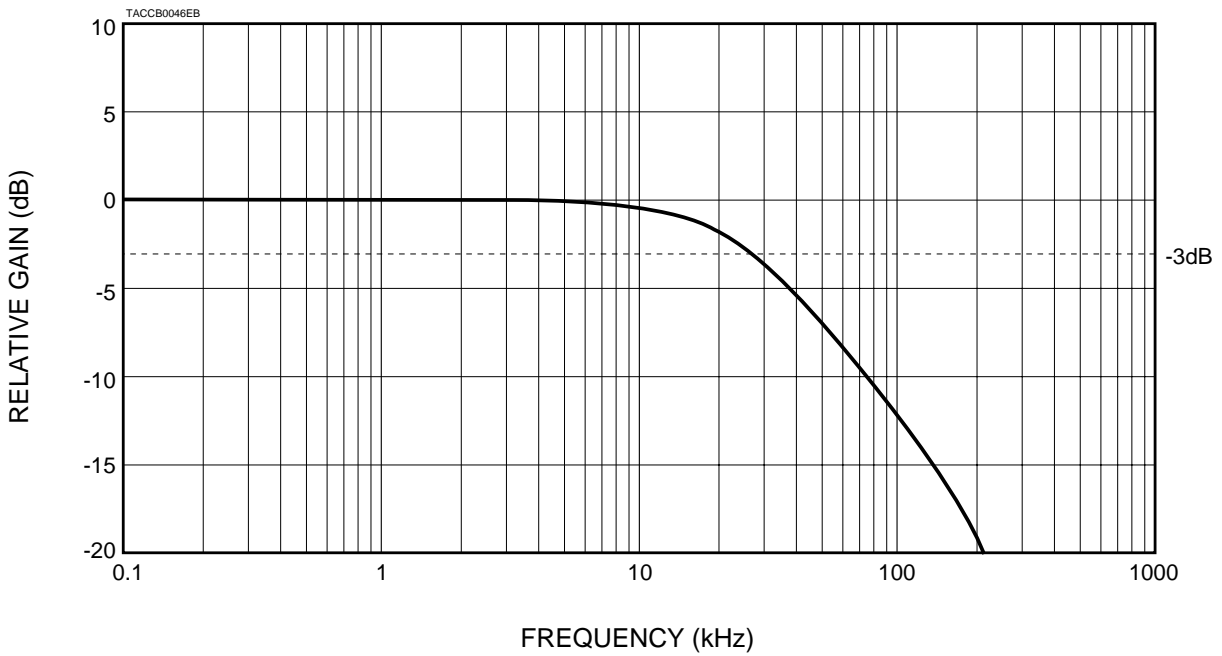
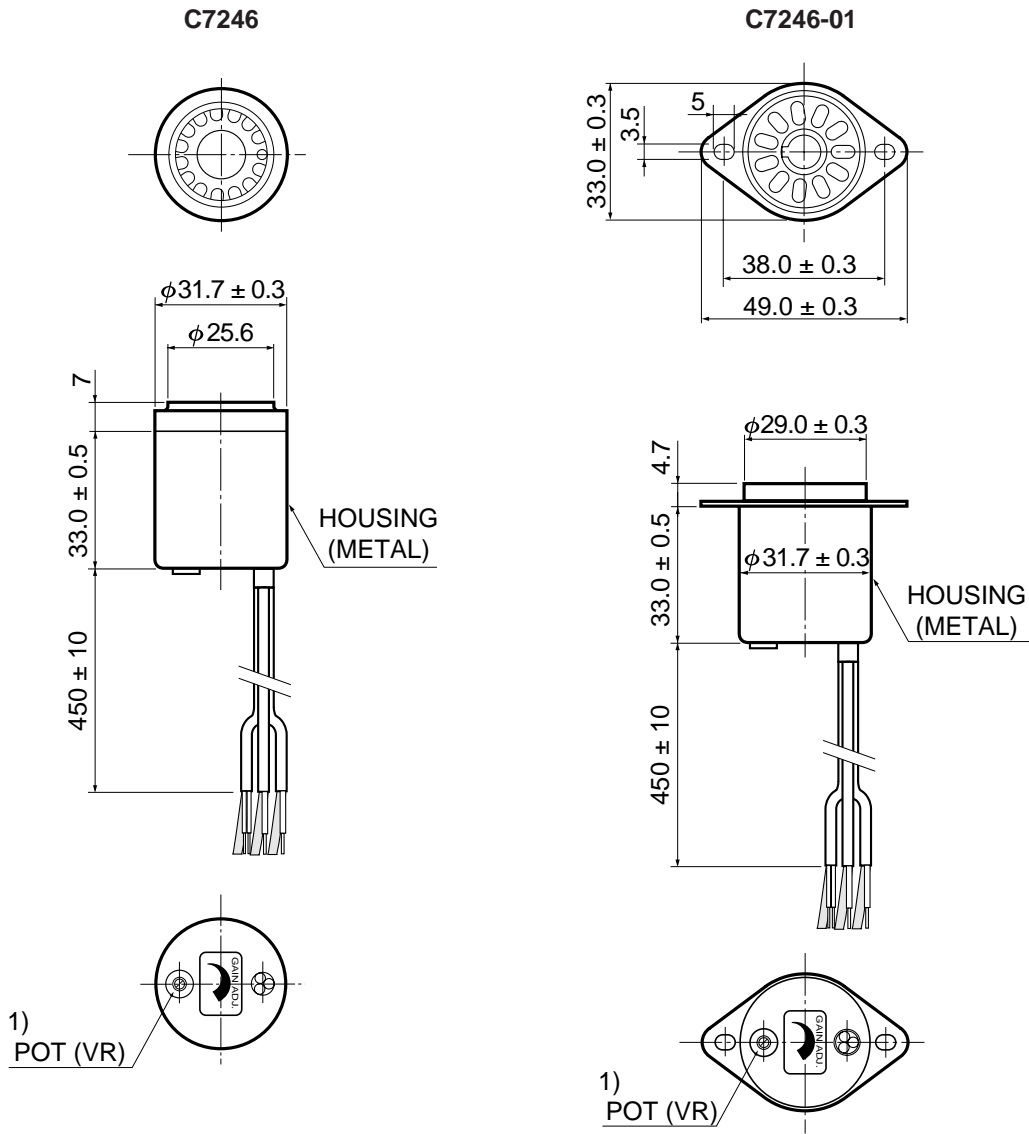


Figure 3. Dimensional Outline (Unit: mm)



TACCA0175ED

-HV	SHIELD CABLE ²⁾	RED
SIGNAL OUTPUT	COAX RG-174/U	BLACK
±15 V	SHIELDED CABLE (COVERING TWISTED PAIR) ³⁾	GRAY

NOTES: 1) Turning this pot clockwise increases the PMT gain. (25 turns max.)

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

3) Connect as follows.

Orange Lead +15 V

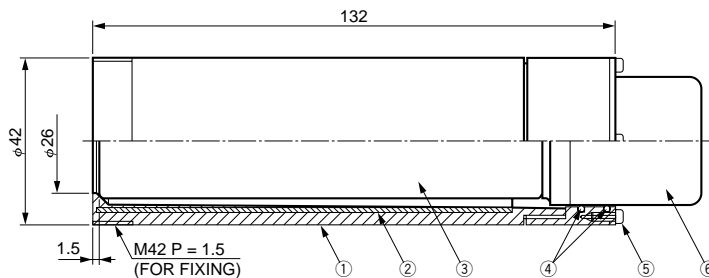
White Lead -15 V

Shield GND

DA-TYPE SOCKET ASSEMBLIES C7246 SERIES

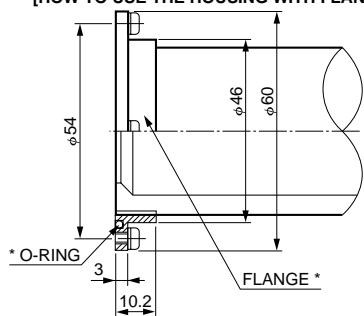
OPTIONS

● HOUSING E7718 FOR C7246 (INCLUDING PART #①, ②, ④ AND ⑤) (Unit: mm)

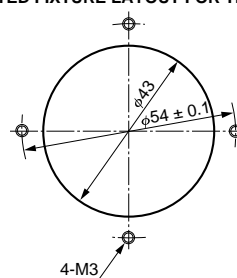


- ① HOUSING
- ② MAGNETIC SHIELD CASE
- ③ PMT
- ④ O-RINGS
- ⑤ 4-M2 SCREWS L = 6
- ⑥ C7246

[HOW TO USE THE HOUSING WITH FLANGE]



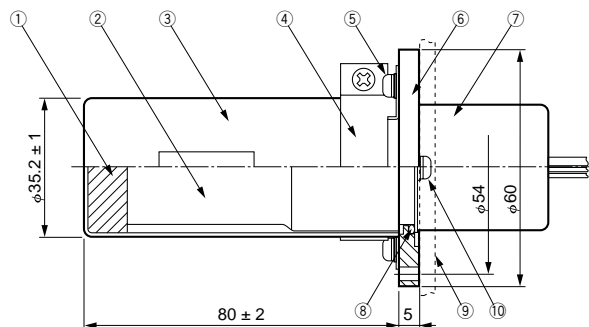
[SUGGESTED FIXTURE LAYOUT FOR THE FLANGE]



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

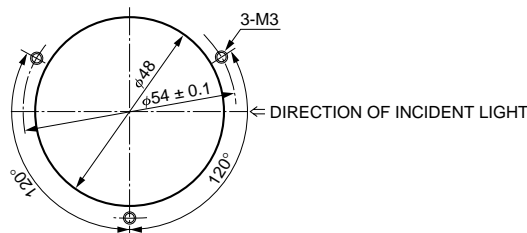
TACCA0195EA

● FLANGE SET A7709 FOR C7246-01 (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 C7246-01
- ⑧ O-RING
- ⑨ FIXTURE
- ⑩ 2-M3 SCREWS L = 5

[SUGGESTED FIXTURE LAYOUT FOR THE FLANGE]



TACCA0196EA

* PATENT: JAPAN 1 [No.2963393], USA 1 [No.5880457]

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