HAMAMATSU

DEC. 2000

DA-TYPE SOCKET ASSEMBLIES
C7246 SERIES

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/ μA.
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	˚C
Storage Temperature	-15 to +60	˚C

GENERAL

Parameter		C7246	C7246-01	Unit
Input Voltage for Amplifier		±12 to ±15ⓐ		V dc
Input Current for Amplifier (at ±15 V)		530		μA Typ.
Recommended Supply Voltage for Dividerⓑ		-400 to -1000	-300 to -1000	V dc
Divider Current (at HV=-1000 V, VR=MIN)ⓒ		174	211	μA Typ.
Current to Voltage Conversion Factor		0.3		V/μA
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		μA
	Pulse	33		μA
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 μA at signal input (anode out).
ⓒ "VR = MIN." means that the PMT gain is set to minimum gain.

Figure 1. Schematic Diagram

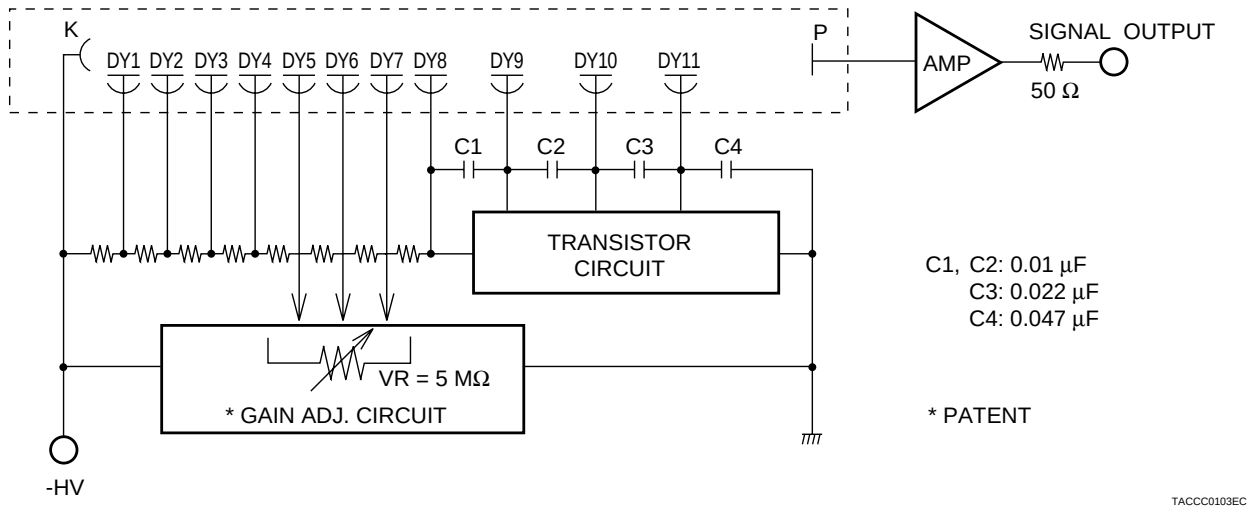


Figure 2. Frequency Response of Built-in Amplifier

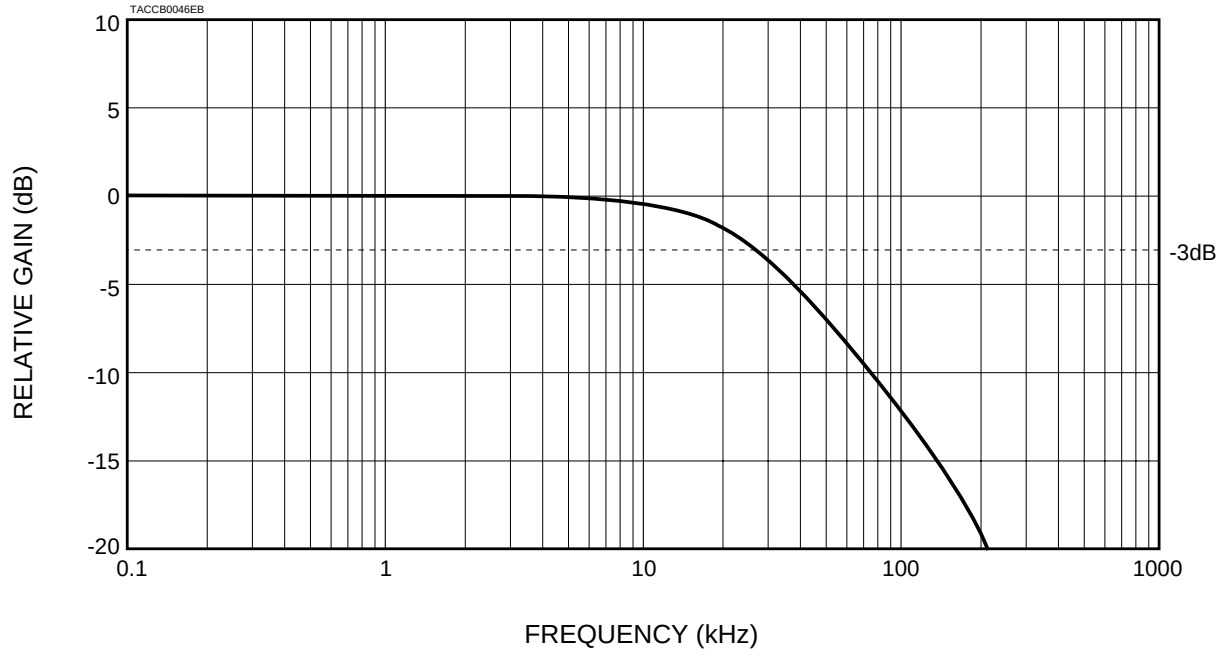
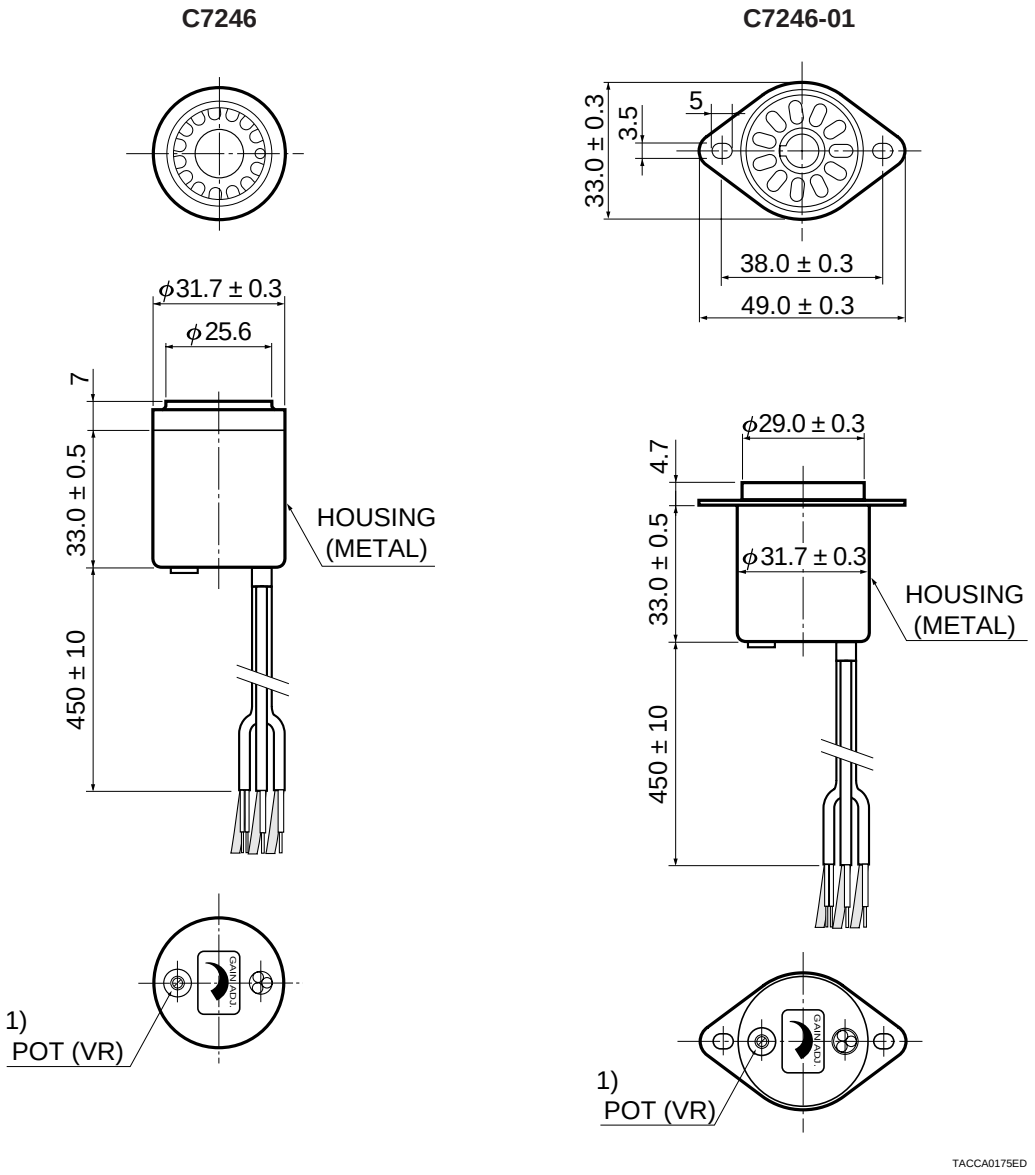


Figure 3. Dimensional Outline (Unit: mm)



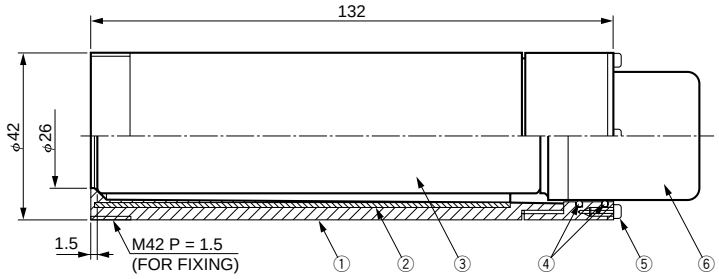
-HV	SHIELD CABLE 2)	RED
SIGNAL OUTPUT	COAX RG-174/U	BLACK
±15 V	SHIELDED CABLE (COVERING TWISTED PAIR) 3)	GRAY

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

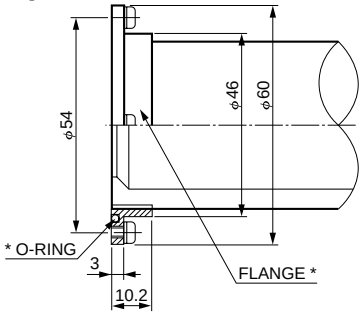
OPTIONS

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

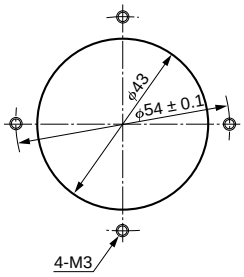


① HOUSING
② MAGNETIC SHIELD CASE
③ PMT
④ O-RINGS
⑤ 4-M2 SCREWS L = 6
⑥ C7246

[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.

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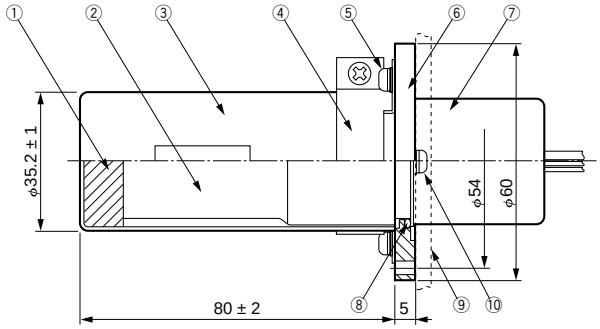
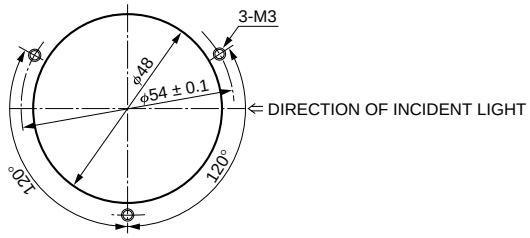
●FLANGE SET A7709 FOR C7246-01 (INCLUDING PART #①, ④, ⑤, ⑥, ⑧ AND ⑩) (Unit: mm)



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]



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

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