

# photomultiplier voltage divider (resistive) C637 series



## 1 description

Voltage dividers provide the set of voltages required to operate a photomultiplier.

The C637 series of voltage dividers is designed for 30 mm diameter, 11 stage photomultiplier tubes. Built onto an epoxy glass circuit board using a combination of surface mount and leaded components, the C637 series covers a range of applications with the following variants:

- C637A uniform voltage divider for general purpose applications
- C637B divider specifically for box and grid photomultipliers
- C637C tapered distribution for pulsed light applications

Terminal posts T1 to T4 are provided for solder connection to high voltage power supply and signal leads. Leads to customer specification, with or without connectors, are available at an extra cost. It is recommended that any electromagnetic screening around the photomultiplier tube is connected to photocathode potential via terminal post T5.

C637 voltage dividers are available as a board only, or mounted on a B14B socket, either unflanged or flanged.

## 2 applications

The C637 series is suitable for the following applications using 30 mm diameter, 11 stage photomultiplier tubes:

- analogue
- pulsed light
- photon counting

## 3 features

- compact
- low cost
- high reliability
- positive or negative high voltage
- ac/dc coupled versions of the negative option
- tapered distribution option for pulsed applications

## 4 specification

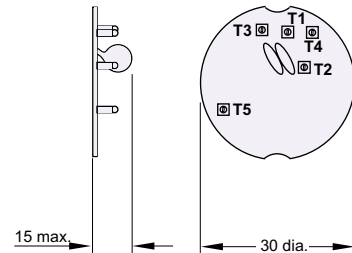
<b>operating position</b>	any
<b>weight:</b>	
board only	4 g
with socket, no flange	10 g
with socket and flange	14 g
<b>resistor tolerances</b>	± 2%
<b>operating temperature range</b>	-25 °C to +70 °C
<b>humidity (non-condensing)</b>	93% RH maximum at 30 °C
<b>atmospheric pressure range</b>	100 kPa (1 bar) to 68 kPa (0.68 bar)
<b>applied voltage</b>	1850 V maximum (subject to not exceeding max. rating of photomultiplier tube)



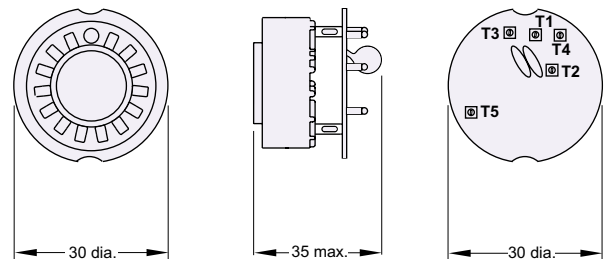
Examples of the Electron Tubes range of Voltage Dividers

## 5 outline drawing (mm)

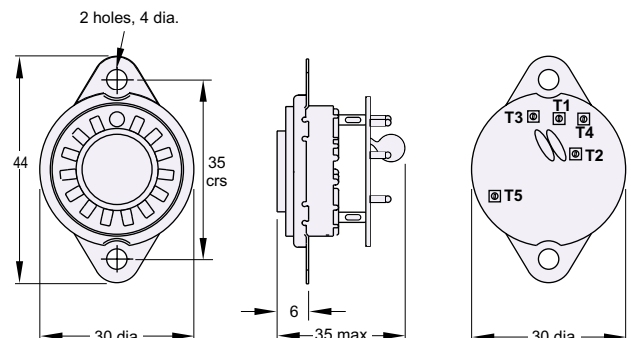
mounting option **O** (ie. C637AO)



mounting option **S** (ie. C637AS)

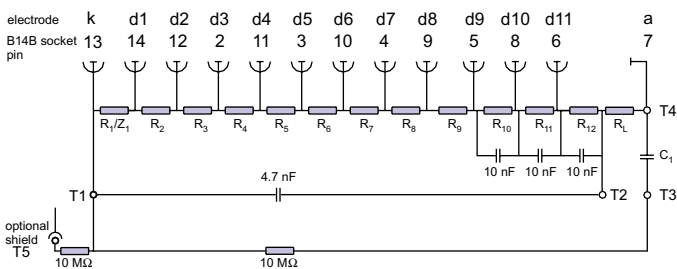


mounting option **F** (ie. C637AF)



## 6 schematic diagram

Shown for +HV, ac coupled



## 7 configuration

	application example	Connections				config. suffix
		T1	T2	T3	T4	
Positive HV, ac coupled	Scintillation counters	0 V ground	+HV	Signal output	-	P
Negative HV, dc coupled, no anode load $R_L$ omitted*	Electrometers	-HV	0 V ground	-	Signal output	N1
Negative HV, dc coupled, anode load $R_L = 100 \text{ k}^*$	Photon counting, high energy physics	-HV	0 V ground	-	Signal output	N2

\* $C_1$  is omitted for negative HV.

## 8 series options

	$R_1/Z_1^{**}$	$R_2$	.....	$R_8$	$R_9$	$R_{10}$	$R_{11}$	$R_{12}$
C637A	2R	R	.....	R	R	R	R	R
C637B	150 V	R	.....	R	R	R	2R	R
C637C	2R	R	.....	R	2R	3R	4R	3R

\*\*The C637B has a 150 V Zener diode  $Z_1$  to maintain the optimum k-d<sub>1</sub> potential for box and grid photomultipliers over a wide range of operating gain.

## 9 ordering information

In order to fully specify the voltage divider that you require, please select a variant, mounting option and configuration from the list below:

**C637** ■ ■ ■

### variants

- A** voltage divider for general purposes
- B** voltage divider specifically for box and grid photomultipliers
- C** voltage divider with tapered distribution for pulsed light applications

### mounting options

- O** voltage divider board only
- S** voltage divider with B14B socket, no flange
- F** voltage divider with B14B socket, with flange

### configuration

- P** positive HV, ac coupled
- N1** negative HV, dc coupled, no anode load
- N2** negative HV, dc coupled, anode load  $R_L = 100 \text{ k}\Omega$

### Example

C637CFN1: C637 with tapered distribution for pulsed applications, fitted with a B14B socket, with flange, configured for negative HV, dc coupled, no anode load.

As standard  $R=330 \text{ k}\Omega$ . Special versions can be made with values in the range of  $100 \text{ k}\Omega$  to  $10 \text{ M}\Omega$ . Please contact us to discuss your requirements. More information is available: refer to Technical Reprint RP069 available on our website at [www.electrontubes.com](http://www.electrontubes.com).

## 10 warning

The high voltage used by these products presents an electrical shock hazard. They should be installed and serviced only by qualified personnel and operated in accordance with the specified ratings.

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© Electron Tubes Limited, 2006  
DS\_C637 series Issue 2  
29 september 2006