

photomultiplier voltage divider

C637 series data sheet

1 description

Voltage dividers provide the voltage distribution 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 conventional components, the C637 series covers a range of applications with the following variants:

- C637A uniform voltage divider for general purpose applications
- C637B tapered distribution for pulsed light applications
- C637C uniform voltage divider for general purpose applications but with 150V Zener diode k-d₁
- C637D tapered distribution for pulsed light applications but with 150V Zener diode k-d₁
- C637E divider specifically for box and grid photomultipliers
- C637F divider specifically for box and grid photomultipliers but with 150V Zener diode k-d₁

C637 voltage dividers are supplied mounted on a B14B socket, either unflanged or flanged. It is soldered to the circuit board for direct connection to the photomultiplier. Conformal coating is available on request.

2 applications

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

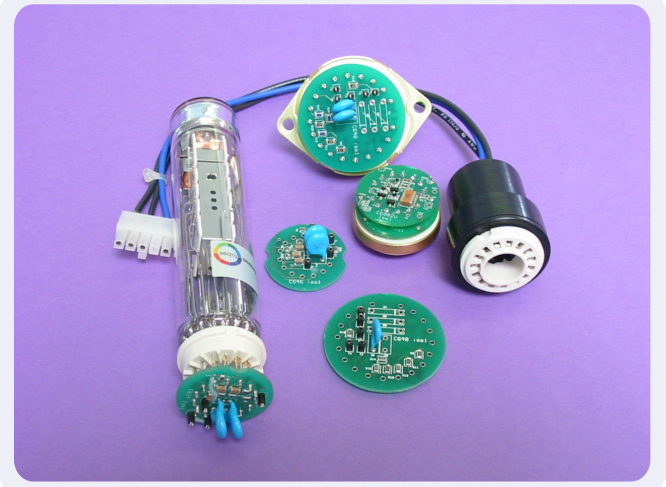
- analogue
- pulsed light
- photon counting

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 specifications

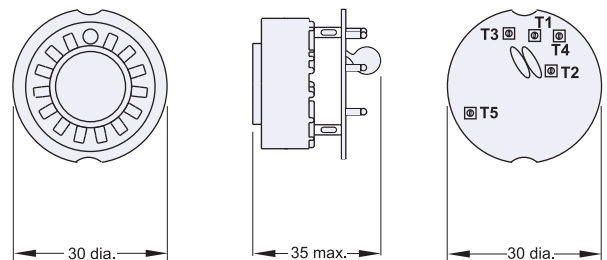
operating position	any
weight:	
board only	4g
with socket, no flange	10g
with socket and flange	14g
resistor tolerances	±2%
operating temperature range	-25° C to + 70° C
humidity (non-condensing)	93% RH maximum at 30° C
atmospheric pressure range	100 kPa (1 bar) to 68 kPa (0.68 bar)
applied voltage	1850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



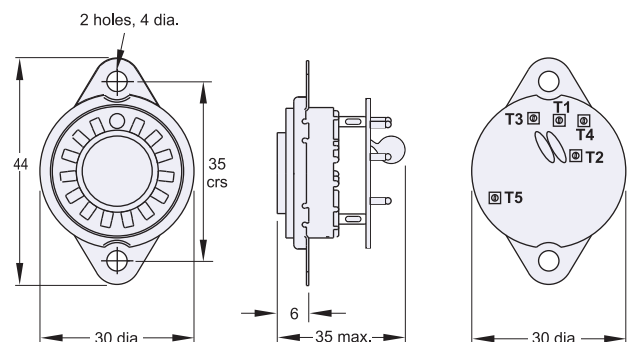
Examples of the ET Enterprises range of Voltage Dividers

5 outline drawings (mm)

mounting option S (ie. C637AS)



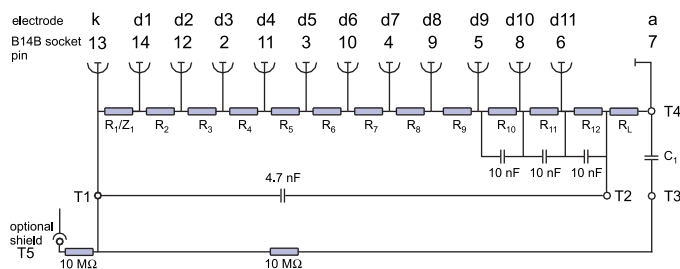
mounting option F (ie. C637AF)



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

6 schematic diagram

Shown for +HV, ac coupled



7 configuration

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

*C₁ 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	2R	R		R	2R	3R	4R	3R
C637C	150 V	R		R	R	R	2R	R
C637D	150 V	R		R	2R	3R	4R	3R
C637E	2R	R		R	R	R	2R	R
C637F	150 V	R		R	R	R	2R	R

****The C637C and C637D have a 150 V Zener diode Z₁ to maintain the optimum k-d₁ potential over a wide range of operating gain.**

9 ordering information

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

C637

variants

A, B, C, D, E, F see section 8 for different voltage divider options

mounting options

S	voltage divider with B14B socket, no flange
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F	voltage divider with B14B socket, with flange
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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

C637BFN1: 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 k. Special versions can be made with values in the range of 100 kΩ to 10 MΩ. Please contact us to discuss your requirements. More information is available: refer to Technical Reprint RP069 available on our website at www.et-enterprises.com

10 warning

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