High Voltage Ceramic Capacitors

HZ Type - Strontium-based Dielectric

FEATURES

- Good energy pulses ability
- Excellent heat-proof, humidity-proof characteristics
- High dielectric strength
- Epoxy coating
- High insulation resistance
- Small size and low cost
- Excellent Corona-proof

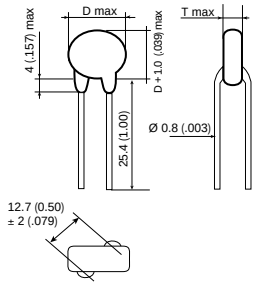
APPLICATIONS

- High-voltage DC Supply (X-Ray, Gas laser, ...)
- Lightning arrester in voltage distribution systems
- TV doubler & tripler
- Electrostatic copying machines

MARKING

- On each part: type (HZ), capacitance
- On packaging: reference, lot number

Style



HZ RANGE – RADIAL TYPE (Ue=1.5XUR)

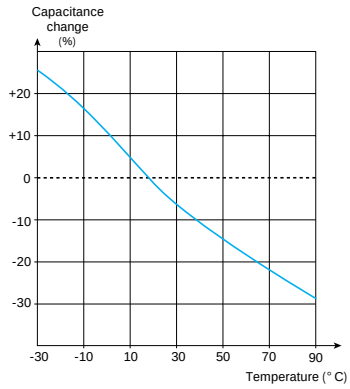
Reference Size	Cap. ±20% (pF)	UR (kVdc) T 6	U 9	W 12	Dimensions millimeters (inches) D	T
HZ09...	100				9.50 (0.374)	9.00 (0.354)
	150				9.50 (0.374)	9.00 (0.354)
	220				9.50 (0.374)	9.00 (0.354)
HZ12...	250				12.00 (0.472)	9.00 (0.354)
	330				12.00 (0.472)	9.00 (0.354)
	430				12.00 (0.472)	9.00 (0.354)
HZ16...	500				16.00 (0.630)	9.00 (0.354)
	680				16.00 (0.630)	9.00 (0.354)
	820				16.00 (0.630)	9.00 (0.354)
HZ18...	750				18.00 (0.709)	9.00 (0.354)
	1000				18.00 (0.709)	9.00 (0.354)
	1300				18.00 (0.709)	9.00 (0.354)
HZ20...	1000				20.00 (0.787)	9.00 (0.354)
	1300				20.00 (0.787)	9.00 (0.354)
	1800				20.00 (0.787)	9.00 (0.354)
HZ22...	1250				22.00 (0.866)	10.00 (0.394)
	1600				22.00 (0.866)	10.00 (0.394)
	2200				22.00 (0.866)	10.00 (0.394)
HZ26...	1500				26.00 (1.024)	11.00 (0.433)
	2000				26.00 (1.024)	11.00 (0.433)
	2700				26.00 (1.024)	11.00 (0.433)

ELECTRICAL CHARACTERISTICS

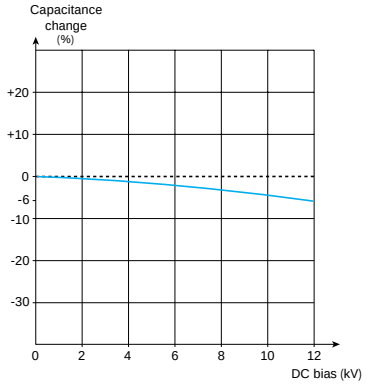
• Rated voltage	6.9, 12 kVdc
• Test voltage (in oil)	1.5xUR
• Capacitance change vs DC voltage	±10%
• Temperature characteristic within +10, +85°C	N4700
• Dissipation factor	< 10.10^{-4}
• Insulation resistance (1000 V_{DC} / 60 s)	> 10 G Ω
• Capacitance range (25°C - 1 kHz - 1 V_{rms})	100pF to 2700pF
• Tolerance on capacitance	±20% (M)

TYPICAL CURVES

Capacitance changes vs temperature



Capacitance change vs DC bias



High Voltage Ceramic Capacitors

How To Order

ORDERING CODE

HP40	E	3	0102	M	— —
Type/Size	Class	Voltage	Capacitance (EIA code)	Tolerance	Suffix

Type/Size

High Voltage Radial-leaded Discs

09
12
HZ 16
20
22

Coated Discs

HT 30
HD 40
HR 60

30
HP 40
50
60

Uncoated Discs

HU 30
HE 40
HS 60

Rods

HB 30
HF 40
60

Class

Type I

A = P 100
C = NP0
H = N33
T = N470
U = N750
V = N1500

Type II

E = N4700
N = N10000
W = +22 -56%
X = +22 -82%

Voltage

1000 V: L
1600 V: M
2000 V: N
2500 V: P
3000 V: Q
4000 V: R
5000 V: S
6000/6300 V: T
8000/9000 V: U
10,000 V: V
12,500 V: W
15/16 kV: X
20/25 kV: Y
30 kV: 3
40 kV: 4
50 kV: 5

For the following types whose class or voltage is not specified but inferred by the type, the size and the value: write 0 (zero) in the 5th (class) or 6th digit case (voltage).

Class not specified

HD
HE
HR
HS
HB
HF

Voltage not specified

HT
HU
HB
HF

Capacitance (EIA code)

Capacitance expressed by 2 significant figures

1st digit: 0 (zero)

2nd and 3rd digits: the 2 significant figures of the capacitance value.

4th digit:

- for values ≥ 10pF and ≤ 990µF: the number of ZEROS to be added to the capacitance values
- for values ≥ 1pF and ≤ 9.9pF: the figure 9 signifying that the capacitance value is to be multiplied by 0.1

Examples: 1000pF: 0102
8.2pF: 0829

Capacitance expressed by 3 significant figures

1st, 2nd and 3rd digits: the 3 significant figures of the capacitance value.

4th digit:

- for values > 100pF and ≤ 999 µF: the number of ZEROS to be added to the capacitance value
- for values > 10pF and < 100pF: the figure 9 signifying that the capacitance value is to be multiplied by 0.01.
- for values > 1pF and ≤ 10pF: the figure 8 signifying that the capacitance value is to be multiplied by 0.01.

Examples: 196pF: 1960
47.2pF: 4729
8.28pF: 8288

Tolerance

C < 10pF	Code
± 1pF	F
± 2pF	G

C ≥10pF	Code
±5%	J
±10%	K
±20%	M
-20 +50%	S
-20 +80%	Z

Suffix

--
PY
WH

NOTE: Special drawing number

If customer requirements differ from the standard type, the codification of the product is modified as follows:

5th, 6th digit: –
7th digit: H for high voltage types
8th, 9th, 10th digit: drawing number
11th digit: –
12th, 13th digit: two digits number for revised edition number

High Voltage Ceramic Capacitors

Marking - Packaging - Identification

MARKING

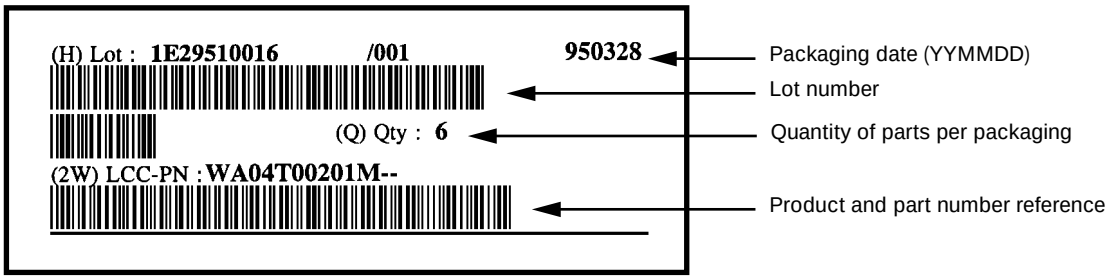
Each part is marked with the following indications:

- Logo
- Reference
- Rated capacitance (EIA code)
- Tolerance on capacitance (EIA code)
- Rated voltage

IDENTIFICATION - TRACEABILITY

On the packaging of all shipped capacitors, you will find a bar code label (code 39). This label gives systematic information on the type of product, part number, lot number, packing date and quantity.

An example is given below:



This information allows traceability of the entire manufacturing process, from critical raw materials to shipment. This is extremely useful for any information request, customer complaint or product return.

CROSS REFERENCES PREVIOUS REFERENCES / NEW REFERENCES

High Voltage	
Previous Reference	**New Reference**
HT030 ... 060	HT30 ... 60
HT030D ... 060D	HU30 ... 60
HTD230 ... 360	HD30 ... 60
HTD230D ... 360D	HE30 ... 60
HTX230 ... 360	HR30 ... 60
HTX230D ... 360D	HS30 ... 60
HTZ130 ... 160	HB30 ... 60
HTZ131 ... 161	HF30 ... 60