

Military Glass Capacitors



Glass/Glass-K Capacitors

GLASS CAPACITOR MIL-PRF-23269 ESTABLISHED RELIABILITY

M AND S FAILURE RATE LEVEL

100V, 300V, 500V

Style CYR10, CYR15, CYR20, CYR30
CYR51, CYR52, CYR53

Slash Sheets

/01, 3001-3126, 7001-7126
/02, 3001-3057, 7001-7057
/03, 3001-3072, 7001-7057
/04, 3001-3036, 7001-7021
/10, 3001-3150, 3201-3218, 3301-3327

MIL-PRF-11272

300V, 500V

Style CY10, CY15, CY20, CY30, CY06, CY07, CY08

Slash Sheets /01, /02, /03, /04, /13, /14, /15

GLASS-K CAPACITOR MIL-PRF-11015

50V

Style CK31, CK32

Slash Sheet /25

MIL-PRF-39014

50V

Style CKR31, CKR32

Slash Sheet /21

Glass dielectric capacitors have been the capacitors of choice for extreme long-term stability and reliability for almost fifty years. They are available in glass or glass composition, and are covered by MIL-PRF-11272 and MIL-PRF-23269 or MIL-PRF-11015 and MIL-PRF-39014, respectively.

- **CY Series Glass Dielectric capacitors**, available in both axial and radial configurations, offer the industry's highest performance and maximum stability for aerospace, military and satellite applications which require "S" level reliability, radiation hardness and operating temperatures up to +200°C. Capacitance values range from 0.5 pF to 10,000 pF with tolerances to ±0.5%. Rated voltage is from 50 to 2,000 VDC, with a temperature coefficient of 140±25 ppm/°C. Operating temperature range is -75°C to +200°C.

- **CK Series Glass-K capacitors**, available in axial configurations, offer low noise and low dielectric absorption rate (<0.1%), for digital systems and sensor applications where low loss and stability are required. The Glass-K technology features "M" level reliability, radiation resistance and operating temperatures up to +200°C. Capacitance values range from 270 pF to 100,000 pF (0.1 µF) with tolerances to ±5%. Rated voltage is from 25 to 50 VDC, with three temperature characteristics: +2, -10%; +2, -15% and +20, -45%. Operating temperature range is -75°C to +200°C.

CAPACITORS – MILITARY SPECIFICATION CROSS-REFERENCE

Military Specification	Military Part No.	AVX Part No.	Military Specification	Military Part No.	AVX Part No.
MIL-PRF-11015 (Ceramic Capacitors)	CK31	CK31	MIL-PRF-39014 (Established Reliability) (Ceramic Capacitors)	CKR31	CKR31
	CK32	CK32		CKR32	CKR32
MIL-PRF-11272 (Glass Capacitors)	CY06	CY06	MIL-PRF-23269 (Established Reliability)	CYR10	CYR10
	CY07	CY07		CYR15	CYR15
	CY08	CY08		CYR20	CYR20
	CY10	CY10		CYR30	CYR30
	CY15	CY15		CYR51	CYR51
	CY20	CY20		CYR52	CYR52
	CY30	CY30		CYR53	CYR53

Military Glass Capacitors

MIL-PRF-23269/01, /02, /03, /04

CYR10, 15, 20, 30



APPLICATIONS

These precision glass-dielectric capacitors are QPL to Established Reliability specification MIL-PRF-23269. Fused monolithic construction provides excellent electrical performance, environmental immunity, stability and retraceability. These capacitors have axial leads.

PERFORMANCE CHARACTERISTICS

Temperature Coefficient: +140 ±25 ppm/°C from -55°C to +125°C. TC of all units will track and retrace to within ±5 ppm.

Life: At rated conditions (100% rated voltage, 125°C), capacitance change is less than:

- ±0.5% after 2,000 hours
- ±2.0% after 30,000 hours

At accelerated conditions (150% rated voltage, 125°C), capacitance change is less than:

- ±0.5% after 2,000 hours
- ±2.0% after 6,000 hours

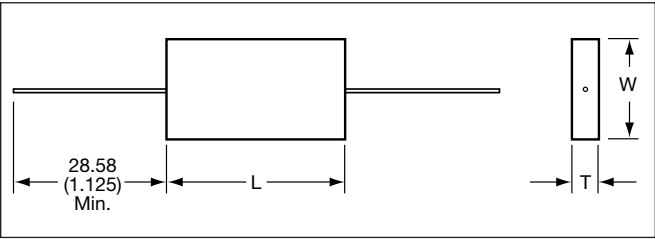
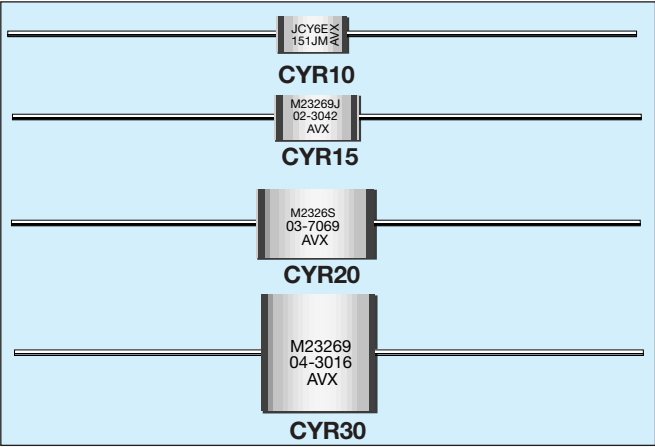
Insulation Resistance: A minimum of 100,000 megohms at 25°C and 10,000 megohms at 125°C.

Voltage/Temperature Rating: Voltage ratings are shown in the part number tables. The operating temperature range is -55°C to +125°C.

Radiation Resistance: The unique materials and construction techniques involved with glass capacitors make them ideal for use in radiation environments. After a total dose of nearly 10⁸ rads (H₂O) glass capacitors exhibit only a minor change in capacitance (.5%) and an 8% change in dissipation factor. Furthermore, glass capacitors can operate in fast neutron flux environments of 10¹⁵ N cm⁻²sec⁻¹ and experience little or no damage in component parameters.

Voltage Coefficient: Zero.

Additional performance details are given in the AVX "Performance Characteristics of Multilayer Glass Dielectric Capacitors" technical paper.



DIMENSIONS: millimeters (inches)

Case Size	L	W	T	Lead Dia. +0.1(+0.004) -0.03(±0.001)
CYR10	8.74 ± 1.19 (0.344 ± 0.047)	4.37 ± .79 (0.172 ± 0.031)	1.98 ± .79 (0.078 ± 0.031)	.51 (0.020)
CYR15	11.91 ± 1.19 (0.469 ± 0.047)	6.76 ± .79 (0.266 ± 0.031)	2.77 ± 1.19 (0.109 ± 0.047)	.51 (0.020)
CYR20	18.64 ± 1.57 (0.734 ± 0.062)	10.72 ± 1.19 (0.422 ± 0.047)	3.58 ± 1.19 (0.141 ± 0.047)	.63 (0.025)
CYR30	19.46 ± 1.57 (0.766 ± 0.062)	19.05 ± 1.98 (0.750 ± 0.078)	3.58 ± 1.19 (0.141 ± 0.047)	.63 (0.025)

Note: Standard leads are solder-coated Dumet.



Military Glass Capacitors

MIL-PRF-23269/01, /02, /03, /04

CYR10, 15, 20, 30



HOW TO ORDER

Military Type Designation: Styles CYR10, CYR15, CYR20, CYR30

Dash Number Option: MIL-PRF-23269/01, 02, 03, 04 (Add Appropriate Dash Number)

M23269

Style

Military Specification
Established Reliability
Glass Capacitor

01

Case Size

01 = CYR10
02 = CYR15
03 = CYR20
04 = CYR30

3

Failure Rate

3 = M level 1%/1000 hrs.
7 = S level .001%/1000 hrs.
(100 volt rating only)

001

Capacitance Code

Capacitance value
coded in accordance
with MIL-PRF-23269 –
(see Part Number section)

MARKING

<p>CYR10</p> <div style="border: 1px solid black; padding: 5px; width: fit-content; margin: auto;"> <p>JCY3A 0R5JM AVX</p> </div>	<p>CYR15-30</p> <div style="border: 1px solid black; padding: 5px; width: fit-content; margin: auto;"> <p>M23269J 02-3057 AVX 03 B</p> </div>
<p>J = JAN Trademark 0R5 = Capacitance code – C = Capacitor 0R5 = 0.5pF Y = Glass Dielectric J = Capacitance tolerance – 3 = Last digit of year J = ±5%, G = ±2%, F = ±1% A = 4 week lot code M = Failure level AVX = AVX Corporation</p>	<p>M23269 = Military specification established reliability glass capacitor J = JAN Trademark 02 = Case size (CYR15) 3 = Failure rate (M level)</p> <p>057 = Dash Number – (capacitance in pF and capacitance tolerance) AVX = AVX Corporation 03 = Year B = Lot Code</p>

MILITARY PART NUMBER IDENTIFICATION

Cap. Value (pF)	Part Number* Capacitance Tolerance		
CYR10 M23269/01-			
500 Volts**	±.25pF	±.5pF	±5%
.5	*.001	—	—
1.0	—	—	—
1.5	—	—	—
2.2	—	—	—
2.7	—	—	—
3.0	—	—	—
3.3	—	—	—
3.6	—	—	—
3.9	—	—	—
4.3	—	—	—
4.7	—	—	—
5.1	—	—	—
5.6	—	—	—
6.2	—	—	—
6.8	—	—	—
7.5	—	—	—
8.2	—	—	—
9.1	—	—	—
10	—	—	—
11	—	—	—
12	—	—	—
	±1%	±2%	±5%
13	—	*.035	*.036
15	—	—	—
16	—	—	—
18	—	—	—
20	—	—	—
22	—	—	—
24	—	—	—
27	—	—	—
30	—	—	—
33	—	—	—
36	—	—	—
39	—	—	—
43	—	—	—
47	—	—	—
51	—	—	—
56	—	—	—
62	—	—	—

* Add first digit to indicate failure rate.
** S LEVEL = 100V rating for all values.

Cap. Value (pF)	Part Number* Capacitance Tolerance		
CYR10 M23269/01- (cont'd.)			
500 Volts**	±1%	±2%	±5%
68	*.079	*.080	*.081
75	—	—	—
82	—	—	—
91	—	—	—
100	—	—	—
110	—	—	—
120	—	—	—
130	—	—	—
150	—	—	—
160	—	—	—
180	—	—	—
200	—	—	—
300 Volts**	±1%	±2%	±5%
220	—	—	—
240	—	—	—
270	—	—	—
300	—	—	—
CYR15 M23269/02-			
500 Volts**	±1%	±2%	±5%
220	*.001	*.002	*.003
240	—	—	—
270	—	—	—
300	—	—	—
330	—	—	—
360	—	—	—
390	—	—	—
430	—	—	—
470	—	—	—
510	—	—	—
300 Volts**	±1%	±2%	±5%
560	—	—	—
620	—	—	—
680	—	—	—
750	—	—	—
820	—	—	—
910	—	—	—
1,000	—	—	—
1,100	—	—	—
1,200	—	—	—

* Add first digit to indicate failure rate.
** S LEVEL = 100V rating for all values.

Cap. Value (pF)	Part Number* Capacitance Tolerance		
CYR20 M23269/03-			
500 Volts**	±1%	±2%	±5%
560	*.001	*.002	*.003
620	—	—	—
680	—	—	—
750	—	—	—
820	—	—	—
910	—	—	—
1,000	—	—	—
1,100	—	—	—
1,200	—	—	—
1,300	—	—	—
1,500	—	—	—
1,600	—	—	—
1,800	—	—	—
2,000	—	—	—
2,200	—	—	—
2,400	—	—	—
2,700	—	—	—
3,000	—	—	—
3,300	—	—	—
300 Volts**	±1%	±2%	±5%
3,600	3058	3059	3060
3,900	3061	3062	3063
4,300	3064	3065	3066
4,700	3067	3068	3069
5,100	3070	3071	3072
CYR30 M23269/04-			
500 Volts**	±1%	±2%	±5%
3,600	*.001	*.002	*.003
3,900	—	—	—
4,300	—	—	—
4,700	—	—	—
5,100	—	—	—
5,600	—	—	—
6,200	—	—	—
300 Volts**	±1%	±2%	±5%
6,800	3022	3023	3024
7,500	3025	3026	3027
8,200	3028	3029	3030
9,100	3031	3032	3033
10,000	3034	3035	3036

* Add first digit to indicate failure rate.
** S LEVEL = 100V rating for all values.

