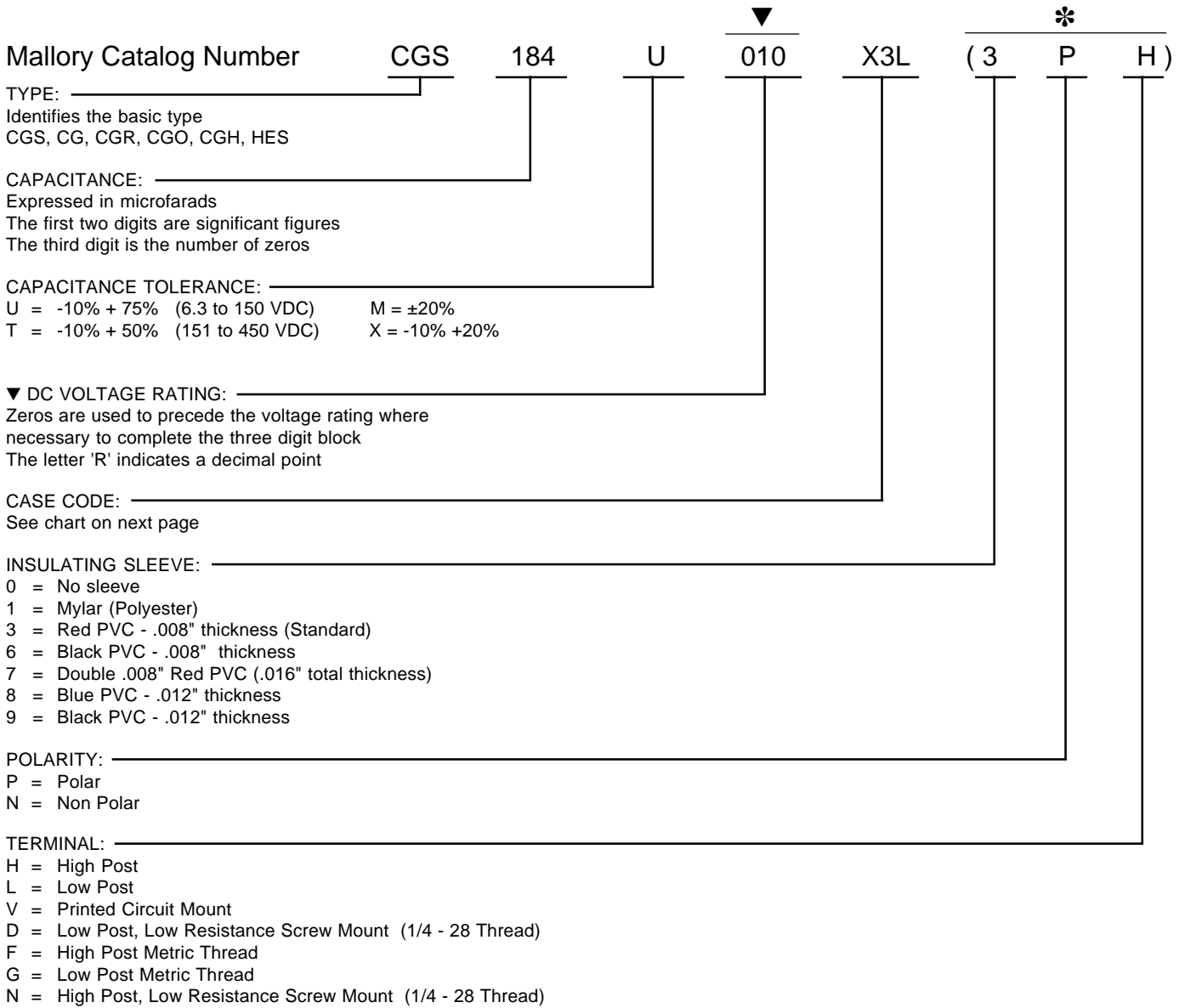


# MALLORY Types CGS, CG, CGR, CGO, CGH, HES

## Part Number Information



Aluminum Capacitors

**NOTE:** \* Mollory maintains a 15 digit maximum for its part numbering system.  
Most parts shown in the General Catalog have PVC sleeving and are polar, with high post terminals.  
The 3PH is left off the part number, but is assumed.  
Type CGO has a 'L' at the end of the part number which stands for 'low post', while the case code has been omitted.  
Check Standard Parts List for case size.

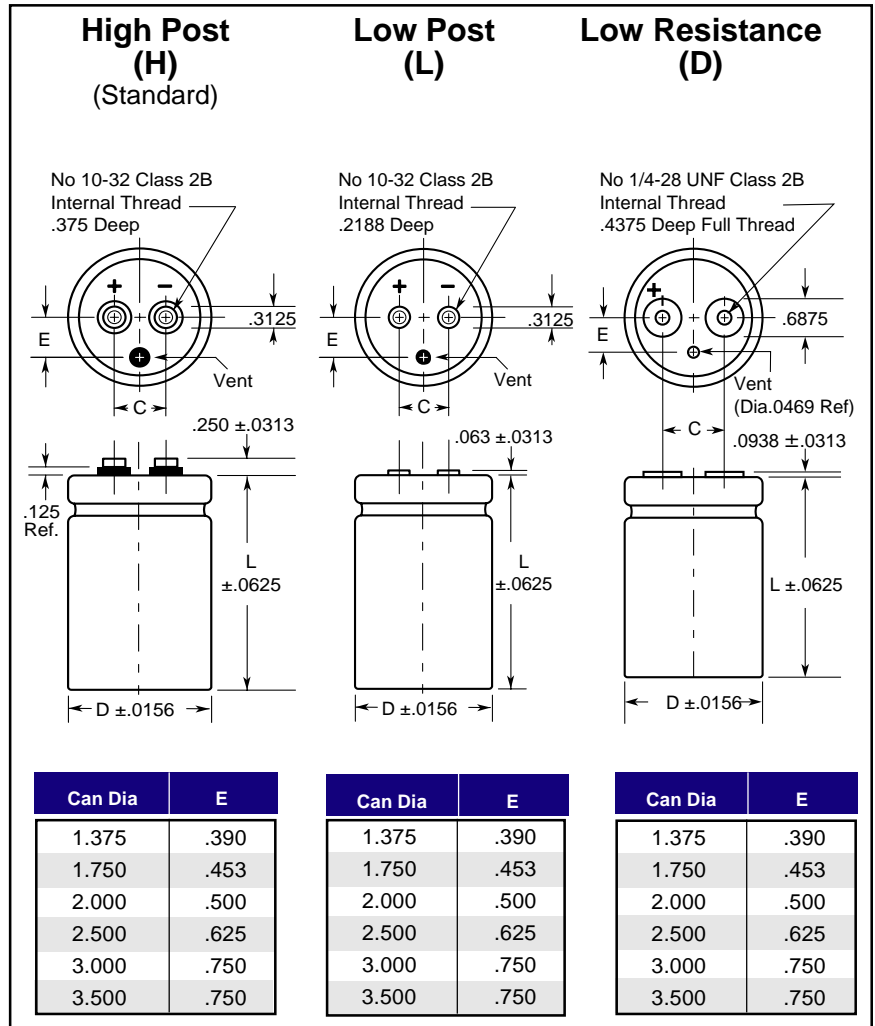
▼ Non-standard part numbers may require coding of the voltage to properly describe the part within the 15 digit limit.  
Voltage codes are shown below.

Contact sales@duracap.com if help is needed to properly set up a non-standard part number.

Voltage	Code	Voltage	Code	Voltage	Code	Voltage	Code	Voltage	Code	Voltage	Code
5	A	15-16	F	35	K	60-63	P	200	U	450	Z
6.3	B	20	G	40	L	75	Q	250	V	500	ZZ
7.5	C	25	H	45	M	80	R	300	W		
10	D	28	I	50	N	100	S	350	X		
12	E	30	J	55	O	150	T	400	Y		

### Case Code Chart

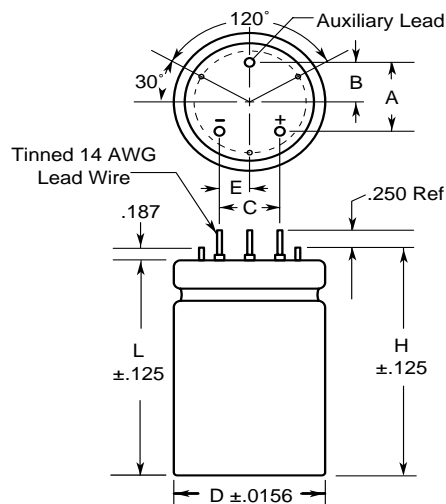
Case Code	Uninsulated Can						Mounting Bracket
	Inches		mm		Inches	mm	
	D	L	D	L	C	C	
R2C	1.375	2.125	35	54	.500	12.7	VR3
R2L	1.375	2.625	35	67	.500	12.7	VR3
R3C	1.375	3.125	35	79.4	.500	12.7	VR3
R3L	1.375	3.625	35	92	.500	12.7	VR3
R4C	1.375	4.125	35	105	.500	12.7	VR3
R4L	1.375	4.625	35	117.5	.500	12.7	VR3
R5C	1.375	5.125	35	130	.500	12.7	VR3
R5L	1.375	5.625	35	143	.500	12.7	VR3
U2C	1.750	2.125	44.5	54	.750	19	VR6
U2L	1.750	2.625	44.5	67	.750	19	VR6
U3C	1.750	3.125	44.5	79.4	.750	19	VR6
U3L	1.750	3.625	44.5	92	.750	19	VR6
U4C	1.750	4.125	44.5	105	.750	19	VR6
U4L	1.750	4.625	44.5	117.5	.750	19	VR6
U5C	1.750	5.125	44.5	130	.750	19	VR6
U5L	1.750	5.625	44.5	143	.750	19	VR6
V2C	2.000	2.125	50.8	54	.875	22.2	VR8
V2L	2.000	2.625	50.8	67	.875	22.2	VR8
V3C	2.000	3.125	50.8	79.4	.875	22.2	VR8
V3L	2.000	3.625	50.8	92	.875	22.2	VR8
V4C	2.000	4.125	50.8	105	.875	22.2	VR8
V4L	2.000	4.625	50.8	117.5	.875	22.2	VR8
V5C	2.000	5.125	50.8	130	.875	22.2	VR8
V5L	2.000	5.625	50.8	143	.875	22.2	VR8
W3C	2.500	3.125	63.5	79.4	1.125	28.6	VR10
W3L	2.500	3.625	63.5	92	1.125	28.6	VR10
W4C	2.500	4.125	63.5	105	1.125	28.6	VR10
W4L	2.500	4.625	63.5	117.5	1.125	28.6	VR10
W5C	2.500	5.125	63.5	130	1.125	28.6	VR10
W5L	2.500	5.625	63.5	143	1.125	28.6	VR10
X3L	3.000	3.625	76.2	92	1.250	31.7	VR12
X4C	3.000	4.125	76.2	105	1.250	31.7	VR12
X4L	3.000	4.625	76.2	117.5	1.250	31.7	VR12
X5C	3.000	5.125	76.2	130	1.250	31.7	VR12
X5L	3.000	5.625	76.2	143	1.250	31.7	VR12
X5R	3.000	5.875	76.2	149	1.250	31.7	VR12
X6L	3.000	6.625	76.2	168	1.250	31.7	VR12
X7L	3.000	7.625	76.2	194	1.250	31.7	VR12
X8L	3.000	8.625	76.2	219	1.250	31.7	VR12
Y3L	3.500	3.625	88.9	92	1.25	31.7	N/A
Y4C	3.500	4.125	88.9	105	1.25	31.7	N/A
Y4L	3.500	4.625	88.9	117.5	1.25	31.7	N/A
Y5C	3.500	5.125	88.9	130	1.25	31.7	N/A
Y5L	3.500	5.625	88.9	143	1.25	31.7	N/A
Y5R	3.500	5.875	88.9	149	1.25	31.7	N/A
Y6L	3.500	6.625	88.9	168	1.25	31.7	N/A
Y7L	3.500	7.625	88.9	194	1.25	31.7	N/A
Y8L	3.500	8.625	88.9	219	1.25	31.7	N/A



Add .015 inches to diameter and .045 inches to length for PVC insulating sleeve.

### PC Mounting Board Dimensions

Case Code	Uninsulated Can						
	Inches						
	D	L	H	A	B	C	E
R1N	1.375	1.750	1.937	.550	.375	.500	.250
R2C	1.375	2.125	2.312	.550	.375	.500	.250
R2L	1.375	2.625	2.812	.550	.375	.500	.250
R3C	1.375	3.125	3.312	.550	.375	.500	.250
R3L	1.375	3.625	3.812	.550	.375	.500	.250
R4C	1.375	4.125	4.312	.550	.375	.500	.250
R4L	1.375	4.625	4.812	.550	.375	.500	.250
R5C	1.375	5.125	5.312	.550	.375	.500	.250
R5L	1.375	5.625	5.812	.550	.375	.500	.250
V2C	2.000	2.125	2.312	1.000	.575	.800	.400
V2L	2.000	2.625	2.812	1.000	.575	.800	.400
V3C	2.000	3.125	3.312	1.000	.575	.800	.400
V3L	2.000	3.625	3.812	1.000	.575	.800	.400
V4C	2.000	4.125	4.312	1.000	.575	.800	.400
V4L	2.000	4.625	4.812	1.000	.575	.800	.400
V5C	2.000	5.125	5.312	1.000	.575	.800	.400
V5L	2.000	5.625	5.812	1.000	.575	.800	.400



### Printed Circuit Board (V)

# Selector Guide & Performance Specifications Computer Grade Capacitors



Type	Temperature Range	VDC Range	Life Test Hours @°C	High Cap	Low ESR	Low Hi-Freq. Imped.	High Ripple	Long Life	Low Cost	Comment
CGS / CGH	-40°C to +85°C	10 to 500	1000 +85	Good	Good	Good	Good		Best	Max Cap, Best Value Standard Life & Ripple
CG	-40°C to +85°C	10 to 450	2000 +85	Best		Good	Good		Good	Max Cap, Long Life Max Ripple, Low ESR
HES	-40°C to +105°C	350 to 400	1000 +105	Good	Good	Good	Good	Good	Good	Motor Control, Ultra High Ripple High Voltage
CGR	-40°C to +105°C	7.5 to 200	2000 +105	Good	Good	Good	Good	Good	Good	Wide Temperature Range, MIL-C-39018/04, 06, 10 equivalent
CGO	-40°C to +85°C	5 to 55	1000 +85		Best				Good	Lowest ESR

**Storage:** From -55°C to maximum operating temperature up to 200,000 feet above sea level.

## Test Conditions

**Surge Test:** Connect capacitor in series with resistor as follows:

C = 0 - 2500 $\mu$ F R = 1000 $\Omega$

C = 2500 - 25k $\mu$ F R = 500 $\Omega$

C  $\geq$  25,001 $\mu$ F R = 100 $\Omega$

Subject the series combination to rated surge voltage. For capacitors rated at +85°C, apply surge voltage for 30 seconds. Allow capacitor to discharge through resistor. Apply voltage again after 9.5 minutes. Repeat 10 minute cycle for 24 hours. For capacitors rated at +105°C, apply voltage for 30 seconds and off for 5.5 minutes for 1,000 cycles. Following surge test, allow capacitors to cool to room temperature and measure DCL. DCL is not to increase from initial requirement and no electrolyte shall have leaked.

**Load Life Test:** Use a circulating air oven set to capacitor(s) maximum operating temperature. Separate capacitors to maintain temperature -0°C +3°C. Apply rated VDC for rated life  $\pm$ 12 hours using regulated power supply free from turn-on / turn-off voltage transients. At end of test, return capacitors to room temperature for 24 hours (minimum).

DCL is not to exceed initial requirement.

Capacitance must not be less than 85% of initial measured value.

ESR must not be greater than:

Type	% of Initial Requirement
CGS / CGH	175
CG / HES	175
CGR	100
CGO	175

**Full Ripple Life Test:** Use a circulating air oven as in Load Life Test. Apply DC voltage with rated ripple current from AC source and reduce DC voltage unit sum of DC voltage and peak AC voltage equals capacitor's rated voltage. At end of life test return capacitors to room temperature for 24 hours (minimum). Capacitance, ESR and DCL must meet Load Life Test requirements.

**Shelf Life Test:** Use a circulating air oven as above for rated shelf life  $\pm$ 6 hours. Allow capacitors to cool to room temperature and stabilize for a minimum of 16 hours. Capacitance, ESR and DCL will meet initial requirements.

**Vibration:** Clamp capacitor to a vibrating platform and subject it to a simple harmonic motion with a maximum peak-to-peak amplitude of 0.06" and maximum acceleration of 10g. Vary the frequency linearly between 10 and 55Hz. Entire range of 10-55Hz must be traversed in one minute. Vibrate capacitor for 1-1/2 hours with the direction of motion being parallel to the axis of the capacitor. Then move the capacitor so the direction of motion is perpendicular to the axis of the capacitor and continue the vibration for an additional 1-1/2 hours. During the last 30 minutes of the test connect the capacitor to a bridge and observe for 3 minutes. There will be no evidence of loosening of the capacitor element within the case when shaken by hand following the test. No indication of intermittent contact, open or shorting is allowed during the 3 minute observation period.

**Container Seal:** Following the vibration test, each capacitor for seal tightness as follows:

Subject the capacitors to two successive temperature cycles in circulating air. One temperature cycle is:

- A. 85°C for 30 minutes
- B. 25°C for 30 minutes
- C. -40°C for 30 minutes
- D. 25°C for 30 minutes

Following the second cycle, immerse the capacitor in 90-95°C water for five minutes. A failure is a continuous chain of bubbles when immersed.

**Vent Test:** Apply reverse DC voltage to a capacitor at 15-25 Amperes. If the capacitor is open or shorts and the vent has not operated, test additional capacitors. The vent must operate and there must be no explosion.

**Shelf Life:** Capacitors stored more than 5 years should be checked for DCL to see if they meet requirements. Apply rated VDC for 30 minutes through a 1000 $\Omega$  resistor to bring DCL within limits.

**Voltage Reversal:** Capacitors will withstand a maximum 1.5 VDC reverse bias.

**Mounting:** The preferred mounting for large computer grade capacitors is in the vertical position with the pressure relief vent up or horizontal with the pressure relief valve up. Be sure to allow 1/2 inch (minimum) clearance to permit the vent to operate.

# MALLORY Type CGS by DuraCap International Inc. Computer Grade Capacitors



- High CV Product
- Screw Terminals
- Suitable for use in most demanding applications requiring high current filtering or energy storage
- Custom Designs Available Upon Request

## GENERAL SPECIFICATIONS

Operating Temperature:  
-40°C to +85°C

Voltage Range:  
6.3 WVDC to 500 WVDC

Capacitance Range:  
75 $\mu$ F to 1,500,000 $\mu$ F

Capacitance Tolerance:  
-10% +75% (6.3-150 WVDC)  
-10% +50% (200-450 WVDC)

DC Leakage Current:  
I = .006  $\sqrt{CV}$  after 30 minutes  
Not to exceed 6mA  
C = Capacitance in  $\mu$ F  
V = Rated Voltage  
I = Leakage Current in mA

QA Stability Test:  
Apply WVDC for 1,000 hrs at 85°C

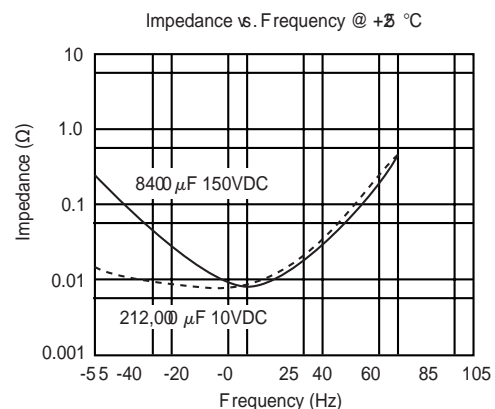
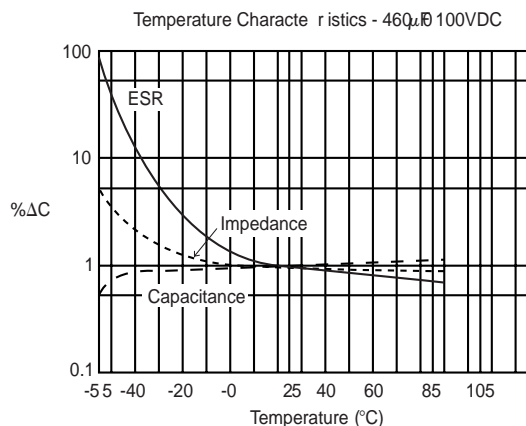
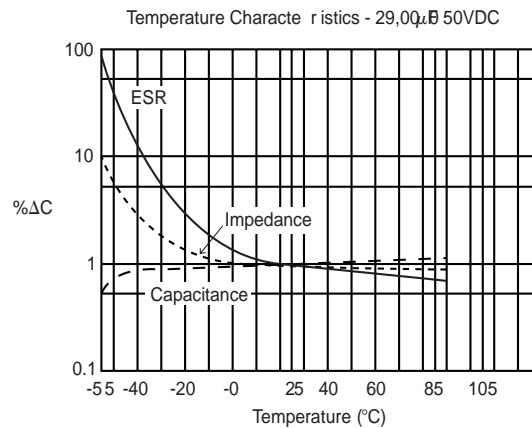
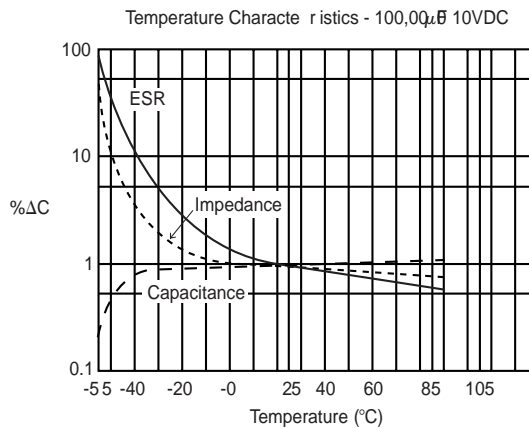
- Capacitance change  $\leq$ 10% from initial limits
- DC leakage current meets initial limits
- ESR  $\leq$  175% of initial measured value

The maximum ripple current at 85°C and 120 Hz for CGS capacitors is shown in the Standard Rating Table. Maximum ripple current may be adjusted by the multipliers in the following tables:

Rated WVDC	Ripple Multipliers				
	60 Hz	120 Hz	400 Hz	1000Hz	2500KHz
3 to 50	0.8	1.0	1.05	1.10	1.14
51 to 150	0.8	1.0	1.08	1.13	1.16
151 & Up	0.8	1.0	1.15	1.21	1.25

Ambient Temperature	Ripple Multiplier
+85°C	1.00
+75°C	1.4
+65°C	1.7
+55°C	2.0
+45°C	2.2

## Typical Performance















# MALLORY Type CGS by DuraCap International Inc.

## Computer Grade Capacitors



Cap $\mu$ F	Max ESR (ohms) @ 120Hz	Max Ripple RMS Amps @ 120Hz +85°C	Dia	Length	Catalog Number
-------------	------------------------	-----------------------------------	-----	--------	----------------

### 400 WVDC; 450 VDC Surge

1,700	0.060	5.7	2.000	4.125	CGS172T400V4C
2,600	0.040	7.8	2.000	5.625	CGS262T400V5L
2,800	0.042	7.8	2.500	4.125	CGS282T400W4C
4,200	0.035	9.6	3.000	4.125	CGS422T400W5L
4,300	0.028	10.8	2.500	5.625	CGS432T400W5L
5,700	0.026	11.9	3.000	5.125	CGS572T400X5C
6,400	0.024	13.0	3.000	5.625	CGS642T400X5L
7,000	0.022	13.5	3.000	5.875	CGS702T400X5R
11,000	0.015	19.8	3.000	8.265	CGS113T400X8L

### 450 WVDC; 525 VDC Surge

75	0.835	0.9	1.375	2.125	CGS750T450R2C
100	0.737	1.0	1.375	2.125	CGS101T450R2C
140	0.496	1.4	1.375	3.125	CGS141T450R3C
170	0.456	1.5	1.375	3.125	CGS171T450R3C
210	0.332	1.9	1.375	4.125	CGS211T450R4C
240	0.416	1.3	1.375	2.125	CGS241T450R2C
250	0.308	2.0	1.375	4.125	CGS251T450R4C
320	0.253	2.5	2.000	3.125	CGS321T450V3C
350	0.288	1.7	1.375	2.625	CGS351T450R2L
350	0.226	3.2	1.375	5.125	CGS351T450R5C
400	0.198	2.9	1.375	5.625	CGS401T450R5L
450	0.188	2.9	2.000	3.125	CGS451T450V3C
460	0.221	2.1	1.375	3.125	CGS461T450R3C
480	0.171	3.4	2.000	4.125	CGS481T450V4C
620	0.201	2.6	2.000	2.625	CGS621T450V2L
650	0.154	3.7	2.000	4.125	CGS651T450V4C
680	0.151	2.9	1.375	4.125	CGS681T450R4C
800	0.108	4.4	2.000	4.625	CGS801T450V4L
930	0.116	3.7	2.000	3.125	CGS931T450V3C
970	0.096	4.5	2.000	4.125	CGS971T450V4C
1,000	0.103	4.0	1.375	5.625	CGS102T450R5L
1,000	0.100	4.1	2.000	3.625	CGS102T450V3L
1,000	0.082	5.5	2.500	4.125	CGS102T450W4C
1,100	0.094	4.1	1.750	4.125	CGS112T450U4C
1,100	0.076	6.5	3.000	4.125	CGS112T450X4C
1,400	0.076	5.0	2.000	4.125	CGS142T450V4C
1,400	0.069	5.5	2.000	4.625	CGS142T450V4L
1,400	0.059	6.5	2.000	5.625	CGS142T450V5L
1,400	0.060	7.1	2.500	5.125	CGS142T450W5C
1,500	0.059	7.4	3.000	4.125	CGS152T450X4C
1,500	0.057	8.1	3.000	5.125	CGS152T450X5C
1,700	0.063	6.0	2.500	3.625	CGS172T450W3L
1,800	0.054	5.4	2.000	5.625	CGS182T450V5L
1,800	0.048	9.3	3.000	5.875	CGS182T450X5R
1,900	0.052	7.6	3.000	5.625	CGS192T450X5L
2,000	0.045	9.1	3.000	5.125	CGS202T450X5C
2,200	0.051	6.9	2.000	5.625	CGS222T450V5L
2,200	0.045	8.4	3.000	4.125	CGS222T450X4C
2,300	0.052	7.0	2.500	4.125	CGS232T450W4C
2,400	0.048	7.2	2.500	4.125	CGS242T450W4C
2,400	0.055	7.1	2.500	4.625	CGS242T450W4L
2,400	0.038	10.3	3.000	5.625	CGS242T450X5L
2,500	0.058	7.0	3.000	3.625	CGS252T450X3L
3,100	0.043	7.2	2.500	5.625	CGS312T450W5L
3,300	0.031	11.4	3.000	5.625	CGS332T450X5L
3,500	0.042	8.8	3.000	4.125	CGS352T450W5L
3,600	0.035	9.7	2.500	5.625	CGS362T450W5L
3,600	0.041	9.2	3.000	4.625	CGS362T450X4L
4,600	0.032	9.6	3.000	5.625	CGS462T450X5L
4,700	0.031	10.9	3.000	5.125	CGS472T450X5C
5,300	0.028	12.0	3.000	5.625	CGS532T450X5L
5,800	0.026	12.4	3.000	5.875	CGS582T450X5R
7,700	0.020	16.7	3.000	8.625	CGS772T450X8L
9,000	0.017	18.2	3.000	8.625	CGS902T450X8L

Cap $\mu$ F	Max ESR (ohms) @ 120Hz	Max Ripple RMS Amps @ 120Hz +85°C	Dia	Length	Catalog Number
-------------	------------------------	-----------------------------------	-----	--------	----------------

### 500 WVDC; 550 VDC Surge

160	.610	1.1	1.375	2.125	CGS161T500R2C
240	.422	1.4	1.375	2.625	CGS241T500R2L
240	.416	1.6	1.750	2.125	CGS241T500U2C
310	.323	1.8	1.375	3.125	CGS311T500R3C
310	.322	2.0	2.000	2.125	CGS311T500V2C
361	.282	2.1	1.750	2.625	CGS361T500U2L
380	.262	2.1	1.375	3.625	CGS381T500R3L
450	.220	2.4	1.375	4.125	CGS451T500R4C
460	.225	2.6	2.000	2.625	CGS461T500V2L
530	.190	2.7	1.375	4.625	CGS531T500R4L
600	.167	3.0	1.375	5.125	CGS601T500R5C
620	.164	3.2	1.750	3.625	CGS621T500U3L
620	.165	3.2	2.000	3.125	CGS621T500V3C
670	.150	3.5	1.375	5.625	CGS671T500R5L
750	.136	3.6	1.750	4.125	CGS751T500U4C
790	.131	3.8	2.000	3.625	CGS791T500V3L
880	.116	4.1	1.750	4.625	CGS881T500U4L
950	.108	4.4	2.000	4.125	CGS951T500V4C
1000	.101	4.6	1.750	5.125	CGS102T500U5C
1000	.101	4.7	2.500	3.125	CGS102T500W3C
1100	.089	5.1	1.750	5.625	CGS112T500U5L
1100	.092	5.0	2.000	4.625	CGS112T500V4L
1300	.081	5.6	2.000	5.125	CGS132T500V5C
1300	.080	5.6	2.500	3.625	CGS132T500W3L
1500	.072	6.1	2.000	5.625	CGS152T500V5L
1600	.066	6.5	2.500	4.125	CGS162T500W4C
1800	.057	7.3	2.500	4.625	CGS182T500W4L
1900	.057	7.5	3.000	3.625	CGS192T500X3L
2100	.049	8.2	2.500	5.125	CGS212T500W5C
2300	.047	8.7	3.000	4.125	CGS232T500X4C
2400	.044	9.0	2.500	5.625	CGS242T500W5L
2700	.041	9.8	3.500	3.625	CGS272T500Y3L
2800	.040	9.8	3.000	4.625	CGS282T500X4L
3200	.035	20.3	3.000	5.125	CGS322T500X5C
3300	.034	11.2	3.500	4.125	CGS332T500Y4C
3500	.030	12.1	3.000	5.625	CGS352T500X5L
4400	.025	14.1	3.500	5.125	CGS442T500Y5C
4800	.023	15.2	3.500	5.625	CGS482T500Y5L
6000	.018	18.7	3.000	8.625	CGS602T500X8L
8300	.014	23.1	3.500	8.625	CGS832T500Y8L

Aluminum Capacitors

# MALLORY Type CG by DuraCap International Inc. Computer Grade Capacitors



- High Reliability 85°C
- Screw Terminals
- Long Life
- Custom Designs Available Upon Request

**GENERAL SPECIFICATIONS**  
 Operating Temperature:  
 -40°C to +85°C

Voltage Range:  
 10 WVDC to 450 WVDC

Capacitance Range:  
 40 µF to 160,000 µF

Capacitance Tolerance:  
 -10% +75% (10 - 150 WVDC)  
 -10% +50% (151 - 450 WVDC)

DC Leakage Current:  
 $I = 6 \times 10^{-6} CV$  after 30 minutes  
 Not to exceed 4.0mA  
 C = Capacitance in µF  
 V = Rated Voltage  
 I = Leakage Current in mA

QA Stability Test:  
 Apply WVDC for 2,000 hrs at 85°C

- Capacitance change ≤15% from initial limits
- DC leakage current meets initial limits
- ESR ≤ 175% of initial measured value

The maximum ripple current at 85°C and 120 Hz for CG capacitors is shown in the Standard Rating Table. Maximum ripple current may be adjusted by the multipliers in the following tables:

Rated WVDC	Ripple Multipliers				
	120 Hz	400 Hz	1000 Hz	2500Hz	10KHz
10 to 75	1.0	1.050	1.085	1.135	1.150
76 to 250	1.0	1.075	1.125	1.155	1.210
251 to 450	1.0	1.080	1.130	1.175	1.230

Ambient Temperature	Ripple Multiplier
+85°C	1.00
+65°C	1.42
+55°C	1.58
+45°C	1.72
+35°C	1.88
+25°C	2.00

Cap µF	Max ESR (ohms) @ 120Hz	Max Ripple RMS Amps @ 120Hz +85°C	Dia	Length	Catalog Number
--------	------------------------	-----------------------------------	-----	--------	----------------

### 10 WVDC; 15 VDC Surge

160,000	.006	27.10	3.000	5.625	CG164U010X5L
---------	------	-------	-------	-------	--------------

### 16 WVDC; 20 VDC Surge

2,500	.047	3.90	1.375	2.125	CG252U016R2C
6,500	.039	4.30	1.375	2.125	CG652U016R2C
10,500	.027	7.60	2.000	3.125	CG1052U016V3C
12,000	.024	6.40	1.375	3.125	CG123U016R3C
18,000	.018	8.30	1.375	4.125	CG183U016R4C
21,000	.012	10.50	1.750	3.125	CG213U016U3C
27,000	.012	11.40	2.000	3.125	CG273U016V3C
40,000	.009	14.70	2.000	4.125	CG403U016V4C

### 25 WVDC; 40 VDC Surge

1,500	.058	3.50	1.375	2.125	CG152U025R2C
2,800	.036	5.20	1.375	3.125	CG282U025R3C
3,300	.043	4.10	1.375	2.125	CG332U025R2C
4,500	.006	14.80	1.750	3.125	CG452U025U3C
6,000	.029	7.30	2.000	3.125	CG602U025V3C
6,300	.028	5.90	1.375	3.125	CG632U025R3C
8,500	.022	9.40	2.000	4.125	CG852U025V4C
9,200	.022	7.50	1.375	4.125	CG922U025R4C
10,000	.026	7.10	1.750	3.125	CG103U025U3C
13,000	.024	8.00	2.000	3.125	CG133U025V3C
20,000	.019	10.10	2.000	4.125	CG203U025V4C
20,000	.019	12.90	3.000	4.125	CG203U025X4C
32,000	.010	15.90	2.500	4.125	CG323U025W4C
48,000	.005	25.20	3.000	4.125	CG483U025X4C

### 35 WVDC; 50 VDC Surge

1,100	0.063	3.40	1.375	2.125	CG112U035R2C
2,100	0.039	5.00	1.375	3.125	CG212U035R3C
2,300	0.051	3.80	1.375	2.125	CG232U035R2C
4,300	0.030	5.70	1.375	3.125	CG432U035R3C
9,500	0.025	7.90	2.000	3.125	CG952U035V3C

Cap µF	Max ESR (ohms) @ 120Hz	Max Ripple RMS Amps @ 120Hz +85°C	Dia	Length	Catalog Number
--------	------------------------	-----------------------------------	-----	--------	----------------

### 35 WVDC; 50 VDC Surge

11,000	0.021	11.00	2.500	4.125	CG113U035W4C
11,000	0.020	9.10	1.750	4.125	CG113U035U4C
14,000	0.018	10.40	2.000	4.125	CG143U035V4C
22,000	0.011	15.20	2.500	4.125	CG223U035W4C
33,000	0.006	23.00	3.000	4.125	CG333U035X4C

### 50 WVDC; 75 VDC Surge

800	0.072	3.20	1.375	2.125	CG801U050R2C
1,500	0.058	3.50	1.375	2.125	CG152U050R2C
1,500	0.044	4.70	1.375	3.125	CG152U050R3C
2,000	0.033	6.10	1.375	4.125	CG202U050R4C
2,500	0.037	6.00	1.750	3.125	CG252U050U3C
2,900	0.036	5.20	1.375	3.125	CG292U050R3C
3,300	0.035	6.70	2.000	3.125	CG332U050V3C
4,300	0.026	6.90	1.375	4.125	CG432U050R4C
4,500	0.026	8.60	2.000	4.125	CG452U050V4C
5,000	0.029	6.70	1.750	3.125	CG502U050U3C
6,500	0.017	9.60	2.000	3.125	CG652U050V3C
7,300	0.023	10.50	2.500	4.125	CG732U050W4C
7,400	0.022	8.70	1.750	4.125	CG742U050U4C
9,500	0.013	12.20	2.000	4.125	CG952U050V4C
10,000	0.013	15.60	3.000	4.125	CG103U050X4C
15,000	0.009	16.80	2.500	4.125	CG153U050W4C
16,500	0.010	20.50	3.000	5.625	CG1652U050X5L
22,000	0.006	22.50	3.000	4.125	CG223U050X4C
33,000	0.005	29.00	3.000	5.625	CG333U050X5L

### 75 WVDC; 100 VDC Surge

600	0.085	2.90	1.375	2.125	CG601U075R2C
800	0.072	3.20	1.375	2.125	CG801U075R2C
1,000	0.053	4.30	1.375	3.125	CG102U075R3C
1,500	0.037	5.80	1.375	4.125	CG152U075R4C
1,500	0.045	4.70	1.375	3.125	CG152U075R3C
2,000	0.039	5.80	1.750	3.125	CG202U075U3C
2,500	0.036	6.60	2.000	3.125	CG252U075V3C

Aluminum Capacitors

# MALLORY Type CG by DuraCap International Inc. Computer Grade Capacitors



Cap μF	Max ESR (ohms) @ 120Hz	Max Ripple RMS Amps @ 120Hz +85°C	Dia	Length	Catalog Number
<b>75 WVDC; 100 VDC Surge</b>					
2,600	0.035	6.10	1.750	3.125	CG262U075U3C
3,300	0.022	8.40	2.000	3.125	CG332U075V3C
3,450	0.027	8.50	2.000	4.125	CG3451U075V4C
4,900	0.015	11.30	2.000	4.125	CG492U075V4C
7,900	0.012	14.50	2.500	4.125	CG792U075W4C
8,200	0.012	16.30	3.000	4.125	CG822U075X4C
11,000	0.009	18.80	3.000	4.125	CG113U075X4C
12,500	0.009	21.80	3.000	5.625	CG1252U075X5L
<b>100 WVDC; 135 VDC Surge</b>					
400	0.180	2.00	1.375	2.125	CG401U100R2C
1,000	0.068	4.30	1.375	4.125	CG102U100R4C
1,300	0.066	4.50	1.750	3.125	CG132U100U3C
1,700	0.050	5.70	1.750	4.125	CG172U100W4C
2,250	0.036	7.30	2.000	4.125	CG2251U100V4C
2,500	0.030	8.00	2.000	4.125	CG252U100V4C
3,600	0.020	11.30	2.500	4.125	CG362U100W4C
4,000	0.019	11.50	2.500	4.125	CG402U100W4C
<b>150 WVDC; 185 VDC Surge</b>					
275	0.170	2.10	1.375	2.125	CG2750U150R2C
500	0.103	3.10	1.375	3.125	CG501U150R3C
1,550	0.052	6.10	2.000	4.125	CG1551U150V4C
2,500	0.030	9.20	2.500	4.125	CG252U150W4C
3,600	0.022	9.40	3.000	4.125	CG362U150X4C
5,600	0.014	17.00	3.000	3.625	CG562U150X3L
<b>200 WVDC; 250 VDC Surge</b>					
180	0.280	1.60	1.375	2.125	CG181T200R2C
450	0.120	3.20	1.375	4.125	CG451T200R4C
550	0.150	3.00	1.750	3.125	CG551T200U3C
750	0.085	4.80	2.000	3.125	CG751T200V3C
1,000	0.050	7.10	2.000	4.125	CG102T200V4C
1,650	0.102	3.90	2.500	4.125	CG1651T200W4C
2,450	0.034	9.70	3.000	4.125	CG2451T200X4C
3,800	0.023	13.20	3.000	5.625	CG382T200X5L

Cap μF	Max ESR (ohms) @ 120Hz	Max Ripple RMS Amps @ 120Hz +85°C	Dia	Length	Catalog Number
<b>250 WVDC; 300 VDC Surge</b>					
140	0.310	1.50	1.375	2.125	CG141T250R2C
375	0.130	3.10	1.375	4.125	CG3750T250R4C
600	0.091	4.10	2.000	3.125	CG601T250V3C
800	0.072	4.60	2.000	4.125	CG801T250V4C
3,000	0.020	14.20	3.000	5.625	CG302T250X5L
<b>300 WVDC; 350 VDC Surge</b>					
525	0.095	4.00	2.000	3.125	CG5250T300V3C
<b>350 WVDC; 400 VDC Surge</b>					
100	0.720	1.00	1.375	2.125	CG101T350R2C
180	0.500	1.40	1.375	3.125	CG181T350R3C
250	0.290	2.10	1.375	4.125	CG251T350R4C
400	0.260	2.40	2.000	3.125	CG401T350V3C
550	0.180	3.30	2.000	4.125	CG551T350V4C
2,000	0.061	8.10	3.000	5.625	CG202T350X5L
<b>400 WVDC; 475 VDC Surge</b>					
325	0.220	3.00	2.000	4.125	CG3250T400V4C
<b>450 WVDC; 525 VDC Surge</b>					
40	3.240	0.50	1.375	2.125	CG400T450R2C
110	1.220	1.00	1.375	4.125	CG111T450R4C
240	0.330	2.40	2.000	4.125	CG241T450V4C

Aluminum Capacitors

# MALLORY Type CGH by DuraCap International Inc. Computer Grade Capacitors



- High Ripple Current
- Very High Capacitance
- High Reliability
- Suitable for Use in Most AC Drive and UPS Applications

## GENERAL SPECIFICATIONS

Operating Temperature:  
-40°C to +85°C

Voltage Range:  
250 WVDC to 500 WVDC

Capacitance Range:  
350  $\mu$ F to 22,000  $\mu$ F

Capacitance Tolerance:  
-10% +50%

DC Leakage Current:

$I = .006 \sqrt{CV}$  after 5 minutes  
Not to exceed 6mA

C = Capacitance in  $\mu$ F  
V = Rated Voltage

I = Leakage Current in mA

QA Stability Test:

Apply WVDC for 1,000 hrs at 85°C

- Capacitance change  $\leq 10\%$  from initial limits
- DC leakage current meets initial limits
- ESR  $\leq 175\%$  of initial measured value

The maximum ripple current at 85°C and 120 Hz for CGH capacitors is shown in the Standard Rating Table. Maximum ripple current may be adjusted by the multipliers in the following tables.

Rated WVDC	Ripple Multipliers				
	120Hz	400Hz	1000Hz	2500Hz	10kHz
250 to 500	1.00	1.08	1.113	1.175	1.23

Ambient Temperature	Ripple Multiplier
+85°C	1.0
+75°C	1.4
+65°C	1.7
+55°C	2.0
+45°C	2.25
+35°C	2.45

Aluminum Capacitors

Cap $\mu$ F	Max ESR (mOHMS)		Max Ripple RMS Amps		Dia	Length	Catalog Number High Post
	120 Hz	20 kHz	120 Hz	20 kHz			
<b>250 WVDC; 300 VDC Surge</b>							
1,700	65.8	42.1	4.0	5.0	2.000	2.625	CGH172T250V2L
2,900	53.1	34.0	5.7	7.1	2.000	3.625	CGH292T250V3L
4,100	25.7	16.4	9.1	11.4	2.000	4.625	CGH412T250V4L
5,000	26.9	17.2	9.2	11.5	2.500	3.625	CGH502T250W3L
5,300	20.6	13.2	11.0	13.8	2.000	5.625	CGH532T250V5L
7,000	20.1	12.9	11.7	14.6	2.500	4.625	CGH702T250W4L
7,400	27.1	17.3	10.3	12.9	3.000	3.625	CGH742T250X3L
9,000	16.3	10.4	14.1	17.6	2.500	5.625	CGH902T250W5L
10,000	20.4	13.1	13.0	16.3	3.000	4.625	CGH103T250X4L
13,000	16.8	10.8	15.6	19.5	3.000	5.625	CGH133T250X5L
22,000	11.5	7.4	22.3	27.9	3.000	8.625	CGH223T250X8L

Cap $\mu$ F	Max ESR (mOHMS)		Max Ripple RMS Amps		Dia	Length	Catalog Number High Post
	120 Hz	20 kHz	120 Hz	20 kHz			
<b>450 WVDC; 525 VDC Surge</b>							
620	159.6	102.1	2.9	3.6	2.000	2.625	CGH621T450V2L
1,000	83.4	53.4	4.8	6.0	2.000	3.625	CGH102T450V3L
1,400	60.3	38.6	5.9	7.4	2.000	4.625	CGH142T450V4L
1,700	55.3	35.4	6.4	8.0	2.500	3.625	CGH172T450W3L
1,800	47.6	30.5	7.2	9.0	2.000	5.625	CGH182T450V5L
2,400	40.1	25.7	8.3	10.4	2.500	4.625	CGH242T450W4L
2,500	44.9	28.7	8.0	10.0	3.000	3.625	CGH252T450X3L
3,100	31.7	20.3	10.1	12.6	2.500	5.625	CGH312T450W5L
3,600	32.6	20.9	10.3	12.9	3.000	4.625	CGH362T450X4L
4,600	26.2	16.8	12.4	15.5	3.000	5.625	CGH462T450X5L
7,700	17.3	11.1	18.2	22.8	3.000	8.625	CGH772T450X8L

Cap $\mu$ F	Max ESR (mOHMS)		Max Ripple RMS Amps		Dia	Length	Catalog Number High Post
	120 Hz	20 kHz	120 Hz	20 kHz			
<b>350 WVDC; 400 VDC Surge</b>							
1,000	162.6	104.1	2.9	3.6	2.000	2.625	CGH102T350V2L
1,700	81.9	52.4	4.6	5.8	2.000	3.625	CGH172T350V3L
2,400	58.8	37.6	6.0	7.5	2.000	4.625	CGH242T350V4L
2,700	54.3	34.8	6.5	8.1	2.500	3.625	CGH272T350W3L
2,900	53.1	34.0	6.8	8.5	2.500	3.625	CGH292T350W3L
3,100	46.2	29.6	7.4	9.3	2.000	5.625	CGH312T350V5L
3,800	39.3	25.2	8.4	10.5	2.500	4.625	CGH382T350W4L
4,000	44.3	28.4	8.1	10.1	3.000	3.625	CGH402T350X3L
4,100	38.6	24.7	8.6	10.8	2.500	4.625	CGH412T350W4L
4,300	43.5	27.8	8.4	10.5	3.000	3.625	CGH432T350X3L
4,900	31.5	20.2	10.1	12.6	2.500	5.625	CGH492T350W5L
5,200	31.1	19.9	10.3	12.9	2.500	5.625	CGH522T350W5L
5,700	32.5	20.8	10.3	12.9	3.000	4.625	CGH572T350X4L
6,000	32.3	20.7	10.6	13.3	3.000	4.625	CGH602T350X4L
7,300	25.9	16.6	12.5	15.6	3.000	5.625	CGH732T350X5L
7,800	25.6	16.4	12.8	16.0	3.000	5.625	CGH782T350X5L
10,000	20.7	13.2	16.6	20.8	3.000	8.625	CGH103T350X8L

Cap $\mu$ F	Max ESR (mOHMS)		Max Ripple RMS Amps		Dia	Length	Catalog Number High Post
	120 Hz	20 kHz	120 Hz	20 kHz			
<b>500 WVDC; 550 VDC Surge</b>							
350	692.0	612.0	1.3	1.5	2.000	2.125	CGH351T500V2C
520	470.0	416.0	1.7	1.9	2.000	2.625	CGH521T500V2L
710	345.0	305.0	2.1	2.4	2.000	3.125	CGH711T500V3C
900	272.0	241.0	2.5	2.8	2.000	3.625	CGH901T500V3L
1100	225.0	199.0	3.1	3.3	2.000	4.125	CGH112T500V4C
1200	218.0	196.0	3.1	3.4	2.500	3.125	CGH122T500W3C
1300	192.0	170.0	3.3	3.7	2.000	4.625	CGH132T500V4L
1500	168.0	148.0	3.7	4.1	2.000	5.125	CGH152T500V5C
1500	172.0	153.0	3.6	4.1	2.500	3.625	CGH152T500X3L
1700	149.0	132.0	4.0	4.5	2.000	5.625	CGH172T500V5L
1800	142.0	126.0	4.2	4.7	2.500	4.125	CGH182T500W4C
2100	121.0	108.0	4.8	5.3	2.500	4.625	CGH212T500W4L
2200	124.0	111.0	4.8	5.4	3.000	3.625	CGH222T500X3L
2400	106.0	94.1	5.3	6.0	2.500	5.125	CGH242T500W5C
2700	93.9	83.5	5.9	6.6	2.500	5.625	CGH272T500W5L
2700	103.0	91.8	5.6	6.3	3.000	4.125	CGH272T500X4C
3100	87.4	78.4	6.3	7.0	3.000	4.625	CGH312T500X4L
3600	76.3	68.4	7.0	7.8	3.000	5.125	CGH362T500X5C
4100	67.8	60.8	7.7	8.6	3.000	5.625	CGH412T500X5L
6900	41.0	36.9	11.9	13.2	3.000	8.625	CGH692T500X8L

# MALLORY Type CGO by DuraCap International Inc. Computer Grade Capacitors



- Output Filter for SMPS Applications
- Extremely Low Symmetrically Controlled ESR
- 35 mm Diameter

## GENERAL SPECIFICATIONS

Operating Temperature:  
-40°C to +85°C

Voltage Range:  
5 WVDC to 55 WVDC

Capacitance Range:  
2,800  $\mu\text{F}$  to 45,000  $\mu\text{F}$

Capacitance Tolerance:  
 $\pm 20\%$

DC Leakage Current:  
 $I = .0015 \sqrt{CV}$  after 5 minutes  
C = Capacitance in  $\mu\text{F}$   
V = Rated Voltage  
I = Leakage Current in mA

QA Stability Test:  
Apply WVDC for 1,000 hrs at 85°C

- Capacitance change  $\leq 15\%$  from initial limits
- DC leakage current meets initial limits
- ESR  $\leq 175\%$  of initial measured value

The maximum ripple current at 85°C and 20 kHz for CGO capacitors is shown in the Standard Rating Table. Maximum ripple current may be adjusted by the multipliers in the following tables:

Rated WVDC	Ripple Multipliers				
	120 Hz	400 Hz	1000Hz	2500 kHz	10 kHz
5 to 55	.84	.85	.86	.87	.95

Ambient Temperature	Ripple Multiplier
+85°C	1.00
+75°C	1.30
+65°C	1.50
+55°C	1.72
+45°C	1.93
+35°C	2.15

Cap $\mu\text{F}$	Max ESR (ohms)		Max Ripple RMS Amps @ 20 kHz +85°C	Dia	Length	Catalog Number
	@ 120Hz 25°C	@ 20kHz 25°C				
<b>5 WVDC; 6 VDC Surge</b>						
18000	.0166	.0099	9.8	1.375	2.125	CGO183M005L
<b>7.5 WVDC; 9 VDC Surge</b>						
15000	.0158	.0096	9.4	1.375	2.125	CGO153M7R5L
21000	.0131	.0083	10.9	1.375	2.625	CGO213M7R5L
27000	.0108	.0071	12.7	1.375	3.125	CGO273M7R5L
33000	.0094	.0064	14.2	1.375	3.625	CGO333M7R5L
39000	.0086	.0060	15.5	1.375	4.125	CGO393M7R5L
45000	.0076	.0052	17.5	1.375	4.625	CGO453M7R5L
<b>10 WVDC; 12 VDC Surge</b>						
14000	.0180	.0103	9.3	1.375	2.125	CGO143M010L
19000	.0133	.0083	10.9	1.375	2.625	CGO193M010L
<b>16 WVDC; 18 VDC Surge</b>						
10000	.0167	.0096	9.3	1.375	2.125	CGO103M016L
14000	.0079	.0055	10.9	1.375	2.625	CGO143M016L
18000	.0113	.0071	12.6	1.375	3.125	CGO183M016L
22000	.0098	.0064	14.2	1.375	3.625	CGO223M016L
<b>20 WVDC; 22 VDC Surge</b>						
12000	.0142	.0085	10.8	1.375	2.625	CGO123M020L
16000	.0115	.0072	12.6	1.375	3.125	CGO163M020L
20000	.0100	.0065	14.1	1.375	3.625	CGO203M020L
22000	.0093	.0061	15.4	1.375	4.125	CGO223M020L
27000	.0080	.0053	17.4	1.375	4.625	CGO273M020L
34000	.0071	.0049	19.6	1.375	5.625	CGO343M020L

Cap $\mu\text{F}$	Max ESR (ohms)		Max Ripple RMS Amps @ 20 kHz +85°C	Dia	Length	Catalog Number
	@ 120Hz 25°C	@ 20kHz 25°C				
<b>28 WVDC; 32 VDC Surge</b>						
6300	.0213	.0121	8.3	1.375	2.125	CGO632M028L
8800	.0170	.0101	9.9	1.375	2.625	CGO882M028L
8900	.0165	.0100	10.1	1.375	2.625	CGO892M028L
14000	.0119	.0075	13.1	1.375	3.625	CGO143M028L
<b>35 WVDC; 40 VDC Surge</b>						
4500	.0235	.0124	8.2	1.375	2.125	CGO452M035L
6300	.0185	.0104	9.8	1.375	2.625	CGO632M035L
8100	.0150	.0087	11.5	1.375	3.125	CGO812M035L
10000	.0129	.0077	13.0	1.375	3.625	CGO103M035L
14000	.0100	.0061	16.1	1.375	4.625	CGO143M035L
<b>45 WVDC; 50 VDC Surge</b>						
3800	.0320	.0177	8.1	1.375	2.125	CGO382M045L
4600	.0242	.0134	9.7	1.375	2.625	CGO462M045L
10000	.0219	.0128	15.6	1.375	4.625	CGO103M045L
<b>55 WVDC; 64 VDC Surge</b>						
2800	.0302	.0150	7.5	1.375	2.125	CGO282M055L
3900	.0233	.0123	9.0	1.375	2.625	CGO392M055L
5000	.0188	.0102	10.6	1.375	3.125	CGO502M055L
10000	.0109	.0064	17.2	1.375	5.625	CGO103M055L

Aluminum Capacitors

# MALLORY Type CGR by DuraCap International Inc. Computer Grade Capacitors



- High Ripple Current
- Very Low ESR
- 105°C Operation
- Custom Designs Available Upon Request
- Commercial Equivalent of MIL-C-35018/04, 06, 10

## GENERAL SPECIFICATIONS

Operating Temperature:  
-40°C to +105°C

Voltage Range:  
7.5 WVDC to 200 WVDC

Capacitance Range:  
330 μF to 100,000 μF

Capacitance Tolerance:  
-10% +75% (7.5 - 50 WVDC)  
-10% +50% (51 - 200 WVDC)

DC Leakage Current:

$I = 6 \times 10^{-6} CV$  after 5 minutes  
Not to exceed 4 mA

C = Capacitance in μF  
V = Rated Voltage

I = Leakage Current in mA

QA Stability Test:

Apply WVDC for 2,000 hrs at 105°C

- Capacitance change ≤15% from initial limits
- DC leakage current meets initial limits
- ESR ≤175% of initial measured value

The maximum ripple current at 85°C and 120 Hz for CGR capacitors is shown in the Standard Rating Table. Maximum ripple current may be adjusted by the multipliers in the following tables:

Rated WVDC	Ripple Multipliers				
	120 Hz	400 Hz	1000 Hz	2500Hz	10KHz
10 to 75	1.0	1.050	1.085	1.135	1.150
76 to 250	1.0	1.075	1.125	1.155	1.210

Ambient Temperature	Ripple Multiplier
+85°C	1.00
+65°C	1.42
+55°C	1.58
+45°C	1.72
+35°C	1.88
+25°C	2.00

Cap μF	Max ESR (ohms) @ 120 Hz	Max Ripple RMS Amps @ 120 Hz +85°C	Dia	Length	Catalog Number
--------	-------------------------	------------------------------------	-----	--------	----------------

### 7.5 WVDC; 12 VDC Surge

34,000	.0128	14.4	1.750	3.125	CGR343U7R5U3C
47,000	.0098	17.8	2.000	3.125	CGR473U7R5V3C
66,000	.0068	23.8	2.000	4.125	CGR663U7R5V4C

### 10 WVDC; 12 VDC Surge

24,000	.0110	9.5	1.375	3.125	CGR243U010R3C
--------	-------	-----	-------	-------	---------------

### 12 WVDC; 15 VDC Surge

12,000	.0154	10.6	1.375	2.625	CGR123U012R2L
100,000	.0043	30.0	2.500	5.125	CGR104U012W5C

### 16 WVDC; 20 VDC Surge

7,700	.0231	7.9	1.375	2.125	CGR772U016R2C
11,000	.0161	10.3	1.375	2.625	CGR113U016R2L
14,000	.0119	12.9	1.375	3.125	CGR143U016R3C
16,000	.0173	11.6	1.750	2.625	CGR163U016U2L
20,000	.0084	17.2	1.375	4.125	CGR203U016R4C
30,000	.0098	17.8	2.000	3.125	CGR303U016V3C
42,000	.0075	22.7	2.000	4.125	CGR423U016V4C
51,000	.0085	22.0	2.500	3.125	CGR513U016W3C

### 20 WVDC; 30 VDC Surge

4,600	.0224	8.1	1.375	2.125	CGR462U020R2C
10,000	.0105	14.6	1.375	3.625	CGR103U020R3L
21,000	.0090	19.7	2.000	3.625	CGR213U020V3L

Cap μF	Max ESR (ohms) @ 120 Hz	Max Ripple RMS Amps @ 120 Hz +85°C	Dia	Length	Catalog Number
--------	-------------------------	------------------------------------	-----	--------	----------------

### 30 WVDC; 45 VDC Surge

2,200	.0350	5.9	1.375	1.875	CGR222U030R1N
4,900	.0248	10.3	1.750	2.125	CGR492U030U2C
7,400	.0105	14.6	1.375	3.625	CGR742U030R3L
10,000	.0077	18.9	1.375	4.625	CGR103U030R4L
12,000	.0098	17.8	2.000	3.125	CGR123U030V3C
15,000	.0090	19.7	2.000	3.625	CGR153U030V3L
27,000	.0053	30.0	2.000	5.625	CGR273U030V5L
30,000	.0060	29.1	2.500	4.125	CGR303U030W4C

### 40 WVDC; 60 VDC Surge

2,100	.0245	7.7	1.375	2.125	CGR212U040R2C
3,900	.0133	12.2	1.375	3.125	CGR392U040R3C
5,600	.0091	16.6	1.375	4.125	CGR562U040R4C
7,400	.0100	12.3	1.375	5.125	CGR742U040R5C
9,600	.0090	19.7	2.000	3.625	CGR962U040V3L
13,000	.0068	25.0	2.000	4.625	CGR133U040V4L
22,000	.0060	30.0	2.500	4.625	CGR223U040W4L
31,000	.0051	30.0	3.000	4.625	CGR313U040X4L

### 50 WVDC; 75 VDC Surge

1,000	.1001	3.5	1.375	1.875	CGR102U050R1N
1,500	.0672	4.7	1.375	2.125	CGR152U050R2C
2,900	.0357	7.4	1.375	3.125	CGR292U050R3C
4,100	.0180	8.3	1.375	4.125	CGR412U050R4C
6,200	.0168	14.0	1.375	5.625	CGR622U050R5L
7,600	.0165	13.7	2.000	3.125	CGR762U050V3C
10,000	.0113	18.5	2.000	4.125	CGR103U050V4C
16,000	.0085	24.2	2.000	5.625	CGR163U050V5L
21,000	.0077	26.8	2.500	4.625	CGR213U050W4L
27,000	.0060	30.0	2.500	5.625	CGR273U050W5L
37,000	.0051	30.0	3.000	5.625	CGR373U050X5L

# MALLORY Type CGR by DuraCap International Inc. Computer Grade Capacitors



Cap $\mu$ F	Max ESR (ohms) @ 120 Hz	Max Ripple RMS Amps @ 120 Hz +85°C	Dia	Length	Catalog Number
<b>75 WVDC; 100 VDC Surge</b>					
1,200	.0497	5.9	1.375	2.625	CGR122T075R2L
1,800	.0329	8.2	1.375	3.625	CGR182T075R3L
2,000	.0220	6.7	1.375	3.125	CGR202U075R3C
2,200	.0200	7.9	1.375	4.125	CGR222T075R4C
3,100	.0350	11.0	2.000	2.625	CGR312T075V2L
4,100	.0140	10.9	1.750	4.125	CGR412T075U4C
4,700	.0150	15.2	2.000	3.625	CGR472T075V3L
7,500	.0095	16.2	2.000	5.625	CGR752U075V5L
8,000	.0085	16.4	2.500	3.625	CGR802T075W3L
9,600	.0094	23.2	2.500	4.125	CGR962T075W4C
11,000	.0102	23.8	3.000	3.625	CGR113T075X3L
19,000	.0056	30.0	3.000	5.625	CGR193T075X5L

Cap $\mu$ F	Max ESR (ohms) @ 120 Hz	Max Ripple RMS Amps @ 120 Hz +85°C	Dia	Length	Catalog Number
<b>100 WVDC; 135 VDC Surge</b>					
330	.0940	2.8	1.375	2.125	CGR331T100R2C
2,700	.0120	18.8	2.000	4.625	CGR272T100V4L
4,500	.0094	24.3	2.500	4.625	CGR452T100W4L
8,000	.0085	21.8	3.000	5.625	CGR802T100X5L
<b>200 WVDC; 250 VDC Surge</b>					
3,500	.0240	11.5	3.000	4.125	CGR352T200X4C
5,200	.0170	15.4	3.000	5.625	CGR522T200X5L



# MALLORY Type HES by DuraCap International Inc. Computer Grade Capacitors



- High Reliability
- 105°C Operation
- Custom Designs Available Upon Request
- Charge-Discharge Applications
  - Welders
  - Photoflash
  - Strobe Lights
  - Magnetizers
  - Demagnetizers
  - Laser Activation
- Ideal for High Power Input Filter Applications

**GENERAL SPECIFICATIONS**  
 Operating Temperature:  
 -40°C to +105°C

Voltage Range:  
 350 WVDC to 450 WVDC

Capacitance Range:  
 300  $\mu$ F to 5,600  $\mu$ F

Capacitance Tolerance:  
 -0 +50%

DC Leakage Current:  
 $I = \leq 3 \sqrt{CV}$  mA  
 Not to exceed 4.0 mA  
 C = Capacitance in  $\mu$ F  
 V = Rated Voltage  
 I = Leakage Current in mA

- QA Stability Test:
- Life Test:  
1000 Hrs. @+105°C
  - Ripple Test:  
2000 Hrs. full load @+85°C
  - Shelf Test:  
500 Hrs. @+105°C

The maximum ripple current at 85°C and 120 Hz for HES capacitors is shown in the Standard Rating Table. Maximum ripple current may be adjusted by the multipliers in the following tables:

Rated WVDC	Ripple Multipliers				
	120Hz	400Hz	1000Hz	2500Hz	10kHz
350 to 450	1.00	1.08	1.113	1.175	1.23

Ambient Temperature	Ripple Multiplier
+85°C	1.00
+65°C	1.42
+55°C	1.58
+45°C	1.72
+35°C	1.88
+25°C	2.00

Aluminum Capacitors

Cap $\mu$ F	Max ESR (ohms) @ 120 Hz	Max Ripple RMS Amps @ 120 Hz +85°C	Dia	Length	Catalog Number
<b>350 WVDC; 400 VDC Surge</b>					
600	0.173	2.60	2.000	2.125	HES601G350V2C
900	0.110	4.60	2.000	5.125	HES901G350V5C
1,100	0.099	4.00	2.000	3.125	HES112G350V3C
1,400	0.080	6.20	2.500	5.125	HES142G350W5C
1,600	0.062	5.60	2.000	4.125	HES162G350V4C
1,900	0.053	6.40	2.000	4.625	HES192G350V4L
2,500	0.045	7.40	2.500	4.125	HES252G350W4C
3,100	0.040	8.60	3.000	3.625	HES312G350X3L
3,400	0.034	9.40	2.500	5.125	HES342G350W5C
3,700	0.034	9.80	3.000	4.125	HES372G350X4C
4,400	0.029	11.00	3.000	4.625	HES442G350X4L
5,000	0.026	12.10	3.000	5.125	HES502G350X5C
5,600	0.024	13.20	3.000	5.625	HES562G350X5L

Cap $\mu$ F	Max ESR (ohms) @ 120 Hz	Max Ripple RMS Amps @ 120 Hz +85°C	Dia	Length	Catalog Number
<b>450 WVDC; 525 VDC Surge</b>					
300	0.268	2.40	2.000	3.125	HES301G450V3C
400	0.203	2.90	2.000	3.625	HES401G450V3L
550	0.150	3.60	2.000	4.125	HES551G450V4C
700	0.125	3.50	2.000	3.125	HES701G450V3C
1,200	0.069	7.10	3.000	4.625	HES122G450X4L
1,500	0.056	8.50	3.000	5.625	HES152G450X5L
1,600	0.053	6.90	2.000	5.625	HES162G450V5L
1,700	0.051	7.10	2.500	4.125	HES172G450W4C
2,000	0.041	9.70	3.000	5.625	HES202G450X5L
2,200	0.040	10.10	3.000	5.625	HES222G450X5L
2,400	0.038	9.00	2.500	5.125	HES242G450W5C
2,700	0.034	9.90	2.500	5.625	HES272G450W5L
3,600	0.028	11.70	3.000	5.125	HES362G450X5C
4,000	0.025	12.70	3.000	5.625	HES402G450X5L

Cap $\mu$ F	Max ESR (ohms) @ 120 Hz	Max Ripple RMS Amps @ 120 Hz +85°C	Dia	Length	Catalog Number
<b>400 WVDC; 450 VDC Surge</b>					
300	0.275	2.20	1.750	3.125	HES301G400U3C
500	0.180	2.60	2.000	2.125	HES501G400V2C
1,300	0.066	5.40	2.000	4.125	HES132G400V4C
2,000	0.044	14.30	2.000	5.625	HES202G400V5L
2,000	0.048	7.30	2.500	4.125	HES202G400W4C
2,100	0.045	9.50	3.000	5.625	HES212G400X5L
3,000	0.033	9.90	2.500	5.625	HES302G400W5L
3,500	0.031	10.70	3.000	4.625	HES352G400X4L
4,100	0.027	11.90	3.000	5.125	HES412G400X5C
4,600	0.025	13.00	3.000	5.625	HES462G400X5L