

Features

- * Low leakage current,Excellent voltage ratio.
- * Fast respond to the rapidly rising surge voltage.
- * High performance in clamping voltage characteristics.
- * High performance in surge current withstanding capability.

Applications

- * Transistor, diode, IC, Thyristor, and triac semiconductor protection.
- * Surge protection in consumer electronics.
- * Surge protection in industrial electronics.
- * Surge protection in communication, measuring, and controller electronics.
- * Surge protection in home electronic appliances and gas/petroleum appliances.

Part Number Code

MYG
Products Type

XX
Part Diameter
05= 5mm
07= 7mm
10=10mm
14=14mm
20=20mm

K
Voltage Tolerance
K:±10%

XXX
Varistors Voltage

Dimensions (mm)

Case Size	D max	H max	T max	d±0.05	W±0.05
MYG-05K180~680	7.5	11.0	4.5	0.6	5.0
MYG-05K820~471			7.0		
MYG-07K180~680	9.5	13.0	5.3		
MYG-07K820~471			7.0		
MYG-10K180~680	14.0	18.5	5.3	0.8	7.5
MYG-10K820~471			9.5		
MYG-14K180~681	17.5	23.5	5.5		
MYG-14K820~132			14.0		
MYG-20K180~680	24.0	30.0	5.8	1.0	10.0
MYG-20K820~182			14.0		

Guide to Standard Products (Φ5mm) The clamping voltage from 180K to 680K is tested with current 1A.

Spec.	Varistor Voltage V1mA		Maximum Allowable Voltage		Maximum Clamping Voltage V5A (V)max	Withstanding Surge Current(8/20us)		Rated Wattage (W)	Energy 10/1000us (J)	Typical Capacitance 1KHz (PF)
	(V)	Tolerance Min-max	ACrms (V)	DC (V)		1Time (A)	2Times (A)			
MYG-05K180	18	(16-20)	11	14	• 40	100	50	0.01	0.6	2,400
MYG-05K220	22	(20-24)	14	18	• 48	100	50	0.01	0.7	1,800
MYG-05K270	27	(24-30)	17	22	• 60	100	50	0.01	0.9	1,500
MYG-05K330	33	(30-36)	20	26	• 73	100	50	0.01	1.1	1,200
MYG-05K390	39	(35-43)	25	31	• 86	100	50	0.01	1.2	1,000
MYG-05K470	47	(42-52)	30	38	• 104	100	50	0.01	1.5	850
MYG-05K560	56	(50-62)	35	45	• 123	100	50	0.01	1.8	700
MYG-05K680	68	(61-75)	40	56	• 150	100	50	0.01	2.1	560
MYG-05K820	82	(74-90)	50	65	145	400	200	0.1	2.8	480
MYG-05K101	100	(90-110)	60	85	175	400	200	0.1	3.5	420
MYG-05K121	120	(108-132)	75	100	210	400	200	0.1	4.0	360
MYG-05K151	150	(135-165)	95	125	260	400	200	0.1	5.5	280
MYG-05K181	180	(162-198)	115	150	320	400	200	0.1	6.5	200
MYG-05K201	200	(185-225)	130	170	355	400	200	0.1	7.1	160
MYG-05K221	220	(198-242)	140	180	380	400	200	0.1	7.8	100
MYG-05K241	240	(216-264)	150	200	415	400	200	0.1	8.4	80
MYG-05K271	270	(247-303)	175	225	475	400	200	0.1	9.9	75
MYG-05K301	300	(270-330)	195	250	525	400	200	0.1	10.5	66
MYG-05K331	330	(297-363)	210	275	575	400	200	0.1	11.5	60
MYG-05K361	360	(324-396)	230	300	620	400	200	0.1	13.0	55
MYG-05K391	390	(351-429)	250	320	675	400	200	0.1	15.0	53
MYG-05K431	430	(387-473)	275	350	745	400	200	0.1	16.5	50
MYG-05K471	470	(423-517)	300	385	810	400	200	0.1	17.5	45

MYG Varistors Data Sheet

Guide to Standard Products (Φ7mm) The clamping voltage from 180K to 680K is tested with current 2.5A.

Spec. Part No.	Varistor Voltage V1mA		Maximum Allowable Voltage		Maximum Clamping Voltage	Withstanding Surge Current(8/20us)		Rated Wattage	Energy 10/1000us	Typical Capacitance
	(V)	Tolerance Min-max	ACrms (V)	DC (V)	V10A (V)max	1Time (A)	2Times (A)	(W)	(J)	1KHz (PF)
MYG-07K180	18	(16-20)	11	14	• 38	250	125	0.02	1.2	3,500
MYG-07K220	22	(20-24)	14	18	• 43	250	125	0.02	1.4	2,800
MYG-07K270	27	(24-30)	17	22	• 53	250	125	0.02	1.7	2,200
MYG-07K330	33	(30-36)	20	26	• 65	250	125	0.02	2.2	1,800
MYG-07K390	39	(35-43)	25	31	• 77	250	125	0.02	2.4	1,450
MYG-07K470	47	(42-52)	30	38	• 93	250	125	0.02	3.0	1,150
MYG-07K560	56	(50-62)	35	45	• 110	250	125	0.02	3.5	1,050
MYG-07K680	68	(61-75)	40	56	• 135	250	125	0.02	4.3	970
MYG-07K820	82	(74-90)	50	65	135	1200	600	0.25	5.5	930
MYG-07K101	100	(90-110)	60	85	165	1200	600	0.25	7.0	860
MYG-07K121	120	(108-132)	75	100	200	1200	600	0.25	8.0	670
MYG-07K151	150	(135-165)	95	125	250	1200	600	0.25	11.0	490
MYG-07K181	180	(162-198)	115	150	300	1200	600	0.25	13.0	330
MYG-07K201	200	(185-225)	130	170	340	1200	600	0.25	14.3	240
MYG-07K221	220	(198-242)	140	180	360	1200	600	0.25	15.5	190
MYG-07K241	240	(216-264)	150	200	395	1200	600	0.25	16.8	165
MYG-07K271	270	(247-303)	175	225	455	1200	600	0.25	19.8	150
MYG-07K301	300	(270-330)	195	250	505	1200	600	0.25	21.0	135
MYG-07K331	330	(297-363)	210	275	550	1200	600	0.25	23.0	130
MYG-07K361	360	(324-396)	230	300	595	1200	600	0.25	26.0	125
MYG-07K391	390	(351-429)	250	320	650	1200	600	0.25	30.0	105
MYG-07K431	430	(387-473)	275	350	710	1200	600	0.25	33.0	100
MYG-07K471	470	(423-517)	300	385	775	1200	600	0.25	35.0	90

Guide to Standard Products (Φ10mm) The clamping voltage from 180K to 680K is tested with current 5A.

MYG-10K180	18	(16-20)	11	14	• 38	500	250	0.05	2.4	7,500
MYG-10K220	22	(20-24)	14	18	• 43	500	250	0.05	2.7	6,000
MYG-10K270	27	(24-30)	17	22	• 53	500	250	0.05	3.5	4,800
MYG-10K330	33	(30-36)	20	26	• 65	500	250	0.05	4.4	4,200
MYG-10K390	39	(35-43)	25	31	• 77	500	250	0.05	4.7	3,700
MYG-10K470	47	(42-52)	30	38	• 93	500	250	0.05	6.0	3,300
MYG-10K560	56	(50-62)	35	45	• 110	500	250	0.05	7.0	2,900
MYG-10K680	68	(61-75)	40	56	• 135	500	250	0.05	8.5	2,500
MYG-10K820	82	(74-90)	50	65	135	2500	1250	0.4	11.0	2,100
MYG-10K101	100	(90-110)	60	85	165	2500	1250	0.4	14.0	1,700
MYG-10K121	120	(108-132)	75	100	200	2500	1250	0.4	16.0	1,500
MYG-10K151	150	(135-165)	95	125	250	2500	1250	0.4	22.0	1,300
MYG-10K181	180	(162-198)	115	150	300	2500	1250	0.4	26.0	470
MYG-10K201	200	(185-225)	130	170	340	2500	1250	0.4	28.5	430
MYG-10K221	220	(198-242)	140	180	360	2500	1250	0.4	31.0	390
MYG-10K241	240	(216-264)	150	200	395	2500	1250	0.4	33.5	360
MYG-10K271	270	(247-303)	175	225	455	2500	1250	0.4	39.5	330
MYG-10K301	300	(270-330)	195	250	505	2500	1250	0.4	42.0	290
MYG-10K331	330	(297-363)	210	275	550	2500	1250	0.4	46.0	280
MYG-10K361	360	(324-396)	230	300	595	2500	1250	0.4	52.0	260
MYG-10K391	390	(351-429)	250	320	650	2500	1250	0.4	60.0	240
MYG-10K431	430	(387-473)	275	350	710	2500	1250	0.4	66.0	220
MYG-10K471	470	(423-517)	300	385	775	2500	1250	0.4	70.0	190
MYG-10K511	510	(459-561)	320	418	842	2500	1250	0.4	74.0	180
MYG-10K561	560	(504-616)	350	460	920	2500	1250	0.4	78.0	180
MYG-10K621	620	(558-682)	385	505	1,025	2500	1250	0.4	82.0	160
MYG-10K681	680	(612-748)	420	560	1,120	2500	1250	0.4	86.0	140
MYG-10K751	750	(675-825)	460	615	1,240	2500	1250	0.4	90.0	130
MYG-10K781	780	(702-858)	485	640	1,290	2500	1250	0.4	92.0	130
MYG-10K821	820	(738-902)	510	670	1,355	2500	1250	0.4	94.0	130
MYG-10K911	910	(819-1001)	550	745	1,500	2500	1250	0.4	102.0	120
MYG-10K102	100	(900-1100)	625	825	1,650	2500	1250	0.4	112.0	100
MYG-10K112	110	(990-1210)	680	895	1,815	2500	1250	0.4	124.0	90

Guide to Standard Products (Φ14mm) The clamping voltage from 180K to 680K is tested with current 10A.

Spec. Part No.	Varistor Voltage V1mA		Maximum Allowable Voltage		Maximum Clamping Voltage	Withstanding Surge Current(8/20us)		Rated Wattage	Energy 10/1000us	Typical Capacitance
	(V)	Tolerance Min-max	ACrms (V)	DC (V)	V50A (V)max	1Time (A)	2Times (A)	(W)	(J)	1KHz (PF)
MYG-14K180	18	(16-20)	11	14	• 38	1000	500	0.1	4.7	18,000
MYG-14K220	22	(20-24)	14	18	• 43	1000	500	0.1	5.4	15,000
MYG-14K270	27	(24-30)	17	22	• 53	1000	500	0.1	6.9	10,000
MYG-14K330	33	(30-36)	20	26	• 65	1000	500	0.1	8.8	8,500
MYG-14K390	39	(35-43)	25	31	• 77	1000	500	0.1	9.4	7,500
MYG-14K470	47	(42-52)	30	38	• 93	1000	500	0.1	12.0	6,500
MYG-14K560	56	(50-62)	35	45	• 110	1000	500	0.1	14.0	5,600
MYG-14K680	68	(61-75)	40	56	• 135	1000	500	0.1	17.0	4,700
MYG-14K820	82	(74-90)	50	65	135	4500	2500	0.6	22.0	3,900
MYG-14K101	100	(90-110)	60	85	165	4500	2500	0.6	28.0	3,400
MYG-14K121	120	(108-132)	75	100	200	4500	2500	0.6	32.0	3,100
MYG-14K151	150	(135-165)	95	125	250	4500	2500	0.6	44.0	3,000
MYG-14K181	180	(162-198)	115	150	300	4500	2500	0.6	52.0	1,030
MYG-14K201	200	(185-225)	130	170	340	4500	2500	0.6	57.0	970
MYG-14K221	220	(198-242)	140	180	360	4500	2500	0.6	62.0	840
MYG-14K241	240	(216-264)	150	200	395	4500	2500	0.6	67.0	710
MYG-14K271	270	(247-303)	175	225	455	4500	2500	0.6	79.0	650
MYG-14K301	300	(270-330)	195	250	505	4500	2500	0.6	84.0	600
MYG-14K331	330	(297-363)	210	275	550	4500	2500	0.6	92.0	550
MYG-14K361	360	(324-396)	230	300	595	4500	2500	0.6	104.0	500
MYG-14K391	390	(351-429)	250	320	650	4500	2500	0.6	120.0	480
MYG-14K431	430	(387-473)	275	350	710	4500	2500	0.6	132.0	440
MYG-14K471	470	(423-517)	300	385	775	4500	2500	0.6	140.0	420
MYG-14K511	510	(459-561)	320	418	842	4500	2500	0.6	148.0	390
MYG-14K561	560	(504-616)	350	460	920	4500	2500	0.6	156.0	360
MYG-14K621	620	(558-682)	385	505	1,025	4500	2500	0.6	164.0	320
MYG-14K681	680	(612-748)	420	560	1,120	4500	2500	0.6	172.0	290
MYG-14K751	750	(675-825)	460	615	1,240	4500	2500	0.6	180.0	260
MYG-14K781	780	(702-858)	485	640	1,290	4500	2500	0.6	184.0	230
MYG-14K821	820	(738-902)	510	670	1,355	4500	2500	0.6	188.0	230
MYG-14K911	910	(819-1001)	550	745	1,500	4500	2500	0.6	204.0	200
MYG-14K102	1000	(900-1100)	625	825	1,650	4500	2500	0.6	224.0	180
MYG-14K112	1100	(990-1210)	680	895	1,815	4500	2500	0.6	248.0	150

Guide to Standard Products (Φ20mm)

MYG-20K820	82	(74-90)	50	65	135	6500	4000	1.0	44	5,800
MYG-20K101	100	(90-110)	60	85	165	6500	4000	1.0	56	4,800
MYG-20K121	120	(108-132)	75	100	200	6500	4000	1.0	64	3,800
MYG-20K151	150	(135-165)	95	125	250	6500	4000	1.0	88	3,000
MYG-20K181	180	(162-198)	115	150	300	6500	4000	1.0	104	2,600
MYG-20K201	200	(185-225)	130	170	340	6500	4000	1.0	114	2,400
MYG-20K221	220	(198-242)	140	180	360	6500	4000	1.0	124	1,800
MYG-20K241	240	(216-264)	150	200	395	6500	4000	1.0	134	1,500
MYG-20K271	270	(247-303)	175	225	455	6000	4000	1.0	185	1,400
MYG-20K301	300	(270-330)	195	250	505	6500	4000	1.0	168	1,350
MYG-20K331	330	(297-363)	210	275	550	6500	4000	1.0	184	1,300
MYG-20K361	360	(324-396)	230	300	595	6500	4000	1.0	208	1,250
MYG-20K391	390	(351-429)	250	320	650	6500	4000	1.0	240	1,180
MYG-20K431	430	(387-473)	275	350	710	6500	4000	1.0	364	1,100
MYG-20K471	470	(423-517)	300	385	775	6500	4000	1.0	280	1,050
MYG-20K511	510	(459-561)	320	418	842	6500	4000	1.0	296	1,000
MYG-20K561	560	(504-616)	350	460	920	6500	4000	1.0	312	970
MYG-20K621	620	(558-682)	385	505	1,025	6500	4000	1.0	328	950
MYG-20K681	680	(612-748)	420	560	1,120	6500	4000	1.0	344	900
MYG-20K751	750	(675-825)	460	615	1,240	6500	4000	1.0	360	850
MYG-20K781	780	(702-858)	485	640	1,290	6500	4000	1.0	368	750
MYG-20K821	820	(738-902)	510	670	1,355	6500	4000	1.0	376	700
MYG-20K911	910	(819-1001)	550	745	1,500	6500	4000	1.0	408	600
MYG-20K102	1000	(900-1100)	625	825	1,650	6500	4000	1.0	448	500
MYG-20K112	1100	(990-1210)	680	895	1,815	6500	4000	1.0	496	450
MYG-20K182	1800	(1620-1980)	1000	1465	2,970	6500	4000	1.0	682	220

Electrical Performance Characteristics

Characteristics	Test Method	Specifications
Standard test condition	Environmental conditions under which every measuring is done without doubt on the measuring results. Unless specified, the temperature, and relative humidity should be 5 to 35°C and 45 to 85% respectively.	
Varistor voltage	The varistor voltage is measured with an impressed current of 1mA (exception, 5Φ:0.1mA) and serves to characterize each varistor type.	To meet the specified value
Maximum operating voltage	The maximum sinusoidal RMS voltage or maximum DC voltage that can be applied continuously in the specified environmental temperature range.	
Maximum clamping voltage	Maximum clamping voltage is the maximum voltage V_P between two terminals with the specified standard impulse current I_P (8/20μS).	
Withstanding surge current	The maximum current within the varistor voltage change of ±10% with the standard impulse current (8/20μS) applied one or two times.	
Energy	The maximum energy within the varistor voltage change of ±10% when one impulse of 10/1000μs m-sec is applied.	
Rated power	The maximum power that can be applied within the specified ambient temperature.	
Capacitance	The capacitance of varistor is the typical value measured at 1 KHz, 1Vrms max, OV bias and 25±2°C.	
varistor Voltage	$(V_C \text{ at } 85^\circ\text{C} - V_C \text{ at } 25^\circ\text{C}) / (V_C \text{ at } 25^\circ\text{C}) * 1 / 60 * 100 (\%/^\circ\text{C})$	-0.05%/°C max.

Mechanical Performance Characteristics

Characteristics	Test Methods	Specifications								
Robustness of Terminations (Tensile)	After gradually applying the force specified below and keeping the unit fixed for ten seconds, the terminal shall be visually examined for any damage. <table border="1" style="margin-left: auto; margin-right: auto;"> <thead> <tr> <th>Terminal diameter</th> <th>Force</th> </tr> </thead> <tbody> <tr> <td>Φ0.6mm</td> <td>9.8N (1.0kgf)</td> </tr> <tr> <td>Φ0.8mm</td> <td>9.8N (1.0kgf)</td> </tr> <tr> <td>Φ1.0mm</td> <td>19.6N (2.0kgf)</td> </tr> </tbody> </table>	Terminal diameter	Force	Φ0.6mm	9.8N (1.0kgf)	Φ0.8mm	9.8N (1.0kgf)	Φ1.0mm	19.6N (2.0kgf)	No outstanding damage
Terminal diameter	Force									
Φ0.6mm	9.8N (1.0kgf)									
Φ0.8mm	9.8N (1.0kgf)									
Φ1.0mm	19.6N (2.0kgf)									
Robustness of Terminations (Bending)	The unit shall be secured with its terminal kept vertical and the force specified below be applied in the axial direction. The terminal shall gradually be bent by 90° in one direction, then 90° in the opposite direction, and again back to the original position. The damage of the terminal shall be visually examined. <table border="1" style="margin-left: auto; margin-right: auto;"> <thead> <tr> <th>Terminal diameter</th> <th>Force</th> </tr> </thead> <tbody> <tr> <td>Φ0.6mm</td> <td>4.9N (0.5kgf)</td> </tr> <tr> <td>Φ0.8mm</td> <td>4.9N (0.5kgf)</td> </tr> <tr> <td>Φ1.0mm</td> <td>9.8N (1.0kgf)</td> </tr> </tbody> </table>	Terminal diameter	Force	Φ0.6mm	4.9N (0.5kgf)	Φ0.8mm	4.9N (0.5kgf)	Φ1.0mm	9.8N (1.0kgf)	
Terminal diameter	Force									
Φ0.6mm	4.9N (0.5kgf)									
Φ0.8mm	4.9N (0.5kgf)									
Φ1.0mm	9.8N (1.0kgf)									
Vibration	After repeatedly applying a single harmonic vibration (amplitude: 0.75 mm): double amplitude: 1.5 mm with 1 minute vibration frequency cycles (10 Hz to 55 Hz to 10 Hz) to each of three perpendicular directions for 2 hours. Thereafter, the unit shall be visually examined.									
Solderability	After dipping the terminals to a depth of approximately 3 mm from the body in a soldering bath of 235±5°C for 2±0.5 seconds, the terminal shall be visually examined.	Approximately 95% of the terminals shall be covered with solder uniformly.								
Resistance to Soldering Heat	After each lead shall be dipped into a solder bath having a temperature 260±5°C to a point 2.0 to 2.5 mm from the body of the unit, using shielding board (t=1.5mm), be held there for specified time (5 series: 5±1 s and others: 10±1 s), and then be stored at room temperature and humidity for 1 to 2 hours. The change of Vc and mechanical damages are examined.	$\Delta V_{cmA} / V_{cmA} \leq \pm 5\%$ No outstanding damage								