

Part Numbering System



① Category code

Type	Code
	1
Electrolytic Capacitor	E
Conductive Polymer	S

② Series code

Series name	Code	
	2	3
WH	W	H
CD11GE	G	E
CD11GES	G	X
CD11GAS	G	W
CD11GHS	G	S
NR	N	R
PZ	P	Z

③ Voltage code

WV (V _{dc})	Code	
	4	5
2.5	0	E
3	0	D
4	0	G
6.3	0	J
6.8	0	C
7	0	Q
7.5	0	A
10	1	A
12	1	T
16	1	C
25	1	E
35	1	V
40	1	G
50	1	H
63	1	J
80	1	B
100	1	K
120	2	B
160	2	C
180	2	L
200	2	D
220	2	N
250	2	E
315	2	F
350	2	V
380	2	P
400	2	G
420	2	T
450	2	W
500	2	H
550	2	J
600	2	K

④ Capacitance tolerance code

Tol. (%)	Code
	6
-10~+10	K
-20~+20	M
-10~+30	Q
-10~+20	V
0~+20	A
-5~+20	C
-10~-20	B
-5~+5	D
0~+10	E
-5~-20	F
-15~+5	N

⑤ Capacitance code

Cap (μF)	Code		
	7	8	9
0.10	R	1	0
0.22	R	2	2
0.33	R	3	3
0.47	R	4	7
0.68	R	6	8
1	0	1	0
2.2	2	R	2
3.3	3	R	3
4.7	4	R	7
6.8	6	R	8
10	1	0	0
22	2	2	0
33	3	3	0
47	4	7	0
68	6	8	0
100	1	0	1
220	2	2	1
330	3	3	1
470	4	7	1
680	6	8	1
1000	1	0	2
2200	2	2	2
3300	3	3	2
4700	4	7	2
6800	6	8	2
10000	1	0	3
22000	2	2	3
33000	3	3	3
68000	6	8	3

⑥ Size code

ΦD (mm)	Code
	10
4	C
5	D
6.3	E
8	F
10	G
11	H
12	J
12.5	W
13	K
14	X
16	L
18	M
19	Z
20	N
22	O
25	P
30	Q
35	R
40	Y
51.6	S
64.3	T
76.9	U
91	V
100	A

L (mm)	Code	
	11	12
5	0	5
7	0	7
11	1	1
12	1	2
16	1	6
20	2	0
25	2	5
30	3	0
35	3	5
40	4	0
46	4	6
50	5	0
60	6	0
80	8	0
100	A	0
115	B	5
120	C	0
130	D	0
140	E	0
160	G	0
200	K	0
220	M	0
236	N	6
250	P	0

⑦ Terminal code

Specification	Code		
	13	14	15
Bulk packing	O	-	-
Taping (SMD Type)	D	0	0
Φ4~8 Taping F=5.0mm	P	5	0
Φ10~12.5 Taping F=5.0mm	B	5	0
Lead Cut L=3.5mm	C	3	5
Lead Cut L=11.0mm	C	B	0
Lead Forming & Cut L=4.5mm	F	-	-
Kink & Cut L=4.5mm	J	-	-
Snap-in type Terminal 4.0mm in length	K	-	-
Three Terminals	T	-	-
Ring clip mounting standard design	A	0	0
Ring clip mounting special design	S	-	-

⑧ Sleeve/Marking code

Sleeve/Marking	Code
	16
PVC	C
PET	T
Dark blue	B
Bright red	R
Sky-blue	S
Light blue	T
Pink	Z
Black	H
Purple-blue	V
Red	O

Lead Forming
Taping Specifications

Fig.1 code: X



Fig.2 code: B



Fig.3 code: B



Fig.4 code: P



Lead Forming

Specification Fig.1 & Fig.2 & Fig.3

Items	Symbol	Case size										Tolerance		
		4*5 4*7		5*5 5*7		5*11		6.3*5	6.3*7 6.3*9	6.3*11 6.3*12	8*5/7 8*9/11 8*11.5 8*12		8*16 8*20	10*9/12 10*12.5 10*13/16 10*20/25
Pin Code		X	B	X	B	X	B	B	B	B	B	B	B	
Lead wire diameter	Φd	0.45		0.45		0.5		0.45	0.5	0.5	0.45/0.5	0.6	0.6	±0.05
Pitch of body	P	12.7		12.7		12.7		12.7	12.7	12.7	12.7	12.7	12.7	±1.0
Feed hole pitch	P0	12.7		12.7		12.7		12.7	12.7	12.7	12.7	12.7	12.7	±0.2
Distance from hole center to lead	P1	5.1	5.6	5.1	5.35	5.1	5.35	5.1	5.1	5.1	4.6	4.6	3.85	±0.7
Distance from feed hole center to body center	P2	6.35		6.35		6.35		6.35	6.35	6.35	6.35	6.35	6.35	±1.0
Lead-to-lead distance	F	2.5	1.5	2.5	2.0	2.5	2.0	2.5	2.5	2.5	3.5	3.5	5.0	±0.5
Height of body from tape center	H	18.5		18.5		18.5		18.5	18.5	18.5	18.5	18.5	18.5	±0.75
Base tape width	W	18.0		18.0		18.0		18.0	18.0	18.0	18.0	18.0	18.0	±0.5
Adhesive tape width	W0	6.0		6.0		6.0		6.0	6.0	8.0	8.0	8.0	11.0	min
Hole position	W1	9.0		9.0		9.0		9.0	9.0	9.0	9.0	9.0	9.0	+0.75 -0.5
Hole down tape position	W2	3.0		3.0		3.0		3.0	3.0	3.0	3.0	3.0	3.0	max

Specification Fig.4

Items	Symbol	Case size									Tolerance
		4*5 4*7	5*5	5*7	5*11	6.3*5	6.3*7 6.3*9	6.3*11 6.3*12	8*5/7 8*9/11 8*11.5/12	8*16 8*20	
Pin Code		P	P	P	P	P	P	P	P	P	
Lead wire diameter	Φd	0.45	0.45	0.45	0.5	0.45	0.5	0.5	0.45/0.5	0.6	±0.05
Pitch of body	P	12.7	12.7	12.7	12.7	12.7	12.7	12.7	12.7	12.7	±1.0
Feed hole pitch	P0	12.7	12.7	12.7	12.7	12.7	12.7	12.7	12.7	12.7	±0.2
Distance from hole center to lead	P1	3.85	3.85	3.85	3.85	3.85	3.85	3.85	3.85	3.85	±0.7
Distance from feed hole center to body center	P2	6.35	6.35	6.35	6.35	6.35	6.35	6.35	6.35	6.35	±1.0
Lead-to-lead distance	F	1.5	2.0	2.0	2.0	2.5	2.5	2.5	3.5	3.5	±0.5
Lead to lead distance	F1	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	+0.8 -0.2
Height of body from tape center	H	18.5	18.5	18.5	18.5	18.5	18.5	18.5	18.5	18.5	±0.75
Lead wire clinch height	H0	16.0	16.0	16.0	16.0	16.0	16.0	16.0	16.0	16.0	±0.5
Base tape width	W	18.0	18.0	18.0	18.0	18.0	18.0	18.0	18.0	18.0	±0.5
Adhesive tape width	W0	6.0	6.0	6.0	6.0	6.0	6.0	8.0	8.0	8.0	min
Hole position	W1	9.0	9.0	9.0	9.0	9.0	9.0	9.0	9.0	9.0	+0.75 -0.5
Hole down tape position	W2	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	max

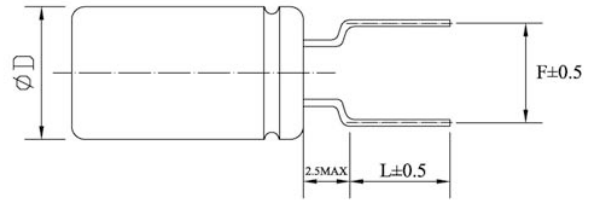
Lead Forming

Lead Forming & Cut

Code:C
RANGE: $\Phi 4\sim\Phi 18$



Code:F
RANGE: $\Phi 4\sim\Phi 8$



ΦD	F	L	ΦD	F	L
4	1.5	3.0~12.0	4	5.0	3.5, 4.5, 5.0, 7.0
5	2.0	3.0~12.0	5	5.0	3.5, 4.5, 5.0, 7.0
6.3	2.5	3.0~12.0	6.3	5.0	3.5, 4.5, 5.0, 7.0
8	3.5	3.0~12.0	8	5.0	3.5, 4.5, 5.0, 7.0
10	5.0	3.0~12.0	-	-	-
12.5	5.0	3.0~12.0	-	-	-
16	7.5	3.0~12.0	-	-	-
18	7.5	3.0~12.0	-	-	-

Code:J
RANGE: $\Phi 10\sim\Phi 18$



ΦD	F	L
10	5.0	4.0, 4.5, 5.0
12.5	5.0	4.0, 4.5, 5.0
16	7.5	4.0, 4.5, 5.0
18	7.5	4.0, 4.5, 5.0

Solering Recommendation

■ Flow Soldering(Radial Lead Type)



■ Reflow Soldering

- (For Polymer SMD Type)

Recommended Reflow Profile



Item	Preheating	T1(°C)	T2(°C)	T3(°C)	t1(sec.)	t2(sec.)	t3(sec.)	Reflow cycle
Condition 1	150°C to 180°C Within 90sec.	≤260	230	200	≤10	≤40	≤60	1
Condition 2		≤250	230	200	≤10	≤40	≤60	2

● (For Liquid SMD Type)

Case size: $\Phi 6.3$ – $\Phi 10$ mm:

- Temperature at surface of capacitor shall not exceed $T^{\circ}\text{C}$.
- The duration for over 200°C temperature and $T_1^{\circ}\text{C}$ at surface of capacitor shall not exceed t and t_1 seconds, respectively.
- Preheat shall be done at 100°C to 200°C and for Maximum 180 seconds.

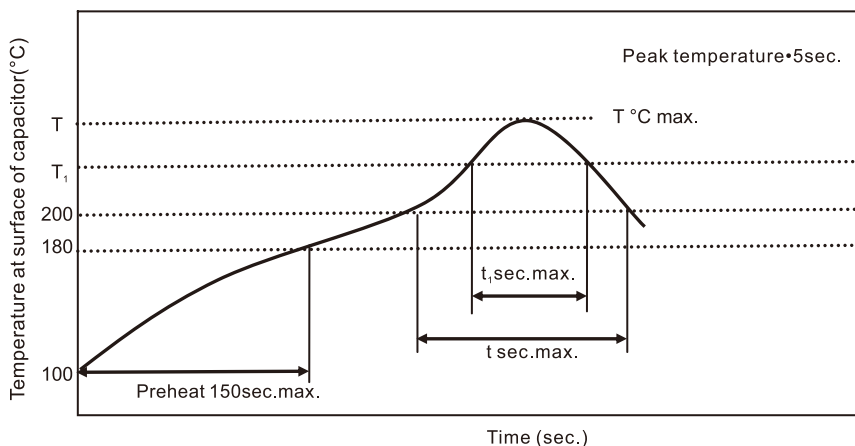


Case size (mm)	$T(^{\circ}\text{C})$ ①	$T_1(^{\circ}\text{C})$	$t(\text{sec.})$ ②	$t_1(\text{sec.})$ ③	Reflow cycle
$\Phi 6.3$	250	230	90	40	1
$\Phi 8$	240	230	90	30	1
$\Phi 10$	235	230	60	30	1

- ① Peak temperature
- ② The duration over 200°C (max.)
- ③ The duration over $T_1^{\circ}\text{C}$
- Please contact us if capacitors are subject to the conditions other than the allowable range of reflow.

Case size: $\Phi 12.5$ – $\Phi 18$ mm:

- Temperature at surface of capacitor shall not exceed $T^{\circ}\text{C}$.
- The duration for over 200°C temperature and $T_1^{\circ}\text{C}$ at surface of capacitor shall not exceed t and t_1 seconds, respectively.
- Preheat shall be done at 100°C to 180°C and for Maximum 150 seconds.



Case size (mm)	$T(^{\circ}\text{C})$ ①	$T_1(^{\circ}\text{C})$	$t(\text{sec.})$ ②	$t_1(\text{sec.})$ ③	Reflow cycle
$\Phi 12.5$ – $\Phi 18$	240	230	60	30	1

- ① Peak temperature
- ② The duration over 200°C (max.)
- ③ The duration over $T_1^{\circ}\text{C}$
- Please contact us if capacitors are subject to the conditions other than the allowable range of reflow.

GH series

- Endurance: +105°C 5,000~10,000 hours
- Especially designed for electronic ballast, intelligent instrument, etc.
- RoHS Compliant

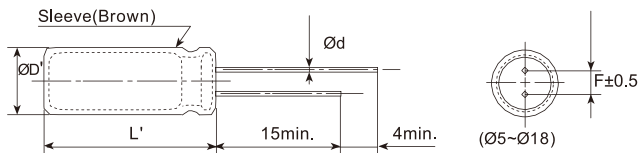
Upgrade



SPECIFICATIONS

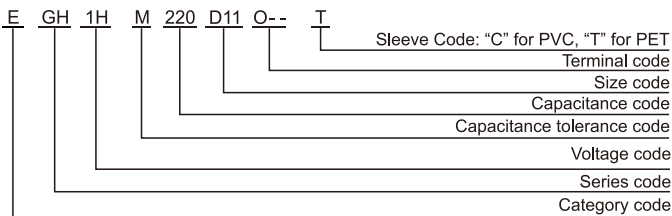
Items	Characteristics													
Category Temperature Range	-40~+105°C													
Rated Voltage Range	6.3~450 V _{dc}													
Capacitance Tolerance	±20%(M) (at 20°C, 120Hz)													
Leakage Current	6.3~100V _{dc}				160~450V _{dc}				Where, I: Max. leakage current (μA), C: Nominal capacitance (μF), V: Rated voltage (V) (at 20°C)					
	I ≤ 0.01CV or 3μA (2 minutes) Whichever is greater.				CV		After 1 minute						After 5 minutes	
					CV ≤ 1,000		I ≤ 0.1CV + 40μA						I ≤ 0.03CV + 15μA	
Dissipation Factor (tanδ)	Rated Voltage(V _{dc})	6.3	10	16	25	35	50	63	100	160~250	350~450			
	tanδ(max.)	0.30	0.24	0.20	0.18	0.16	0.14	0.12	0.10	0.15	0.20			
	When nominal capacitance exceeds 1,000μF, add 0.02 to the value above for each 1,000μF increase. (at 20°C, 120Hz)													
Low Temperature Characteristics (Max. Impedance Ratio)	Rated Voltage(V _{dc})	6.3	10	16	25	35	50	63	100	160~250	350~450			
	Z(-25°C)/Z(+20°C)	5	4	3	2				3	6				
	Z(-40°C)/Z(+20°C)	12	10	8	5	4	3			7	7			
Endurance	The following specifications shall be satisfied when the capacitors are restored to 20°C after DC voltage plus the rated ripple current is applied for a specified period of time at 105°C.													
	Capacitance Change	≤ ±20% of the initial value(6.3V, 10V: ≤ ±30%)									Case Dia.		Load life (hours)	
	D.F. (tanδ)	≤ 200% of the initial specified value									ØD ≤ 6.3	6.3~10V	16~100V	160~450V
	Leakage Current	≤ The initial specified value									ØD = 8 & 10	6,000	7,000	10,000
											ØD ≥ 12.5	8,000		
Shelf Life	The following specifications shall be satisfied when the capacitors are restored to 20°C after exposing them for 1,000 hours at 105°C without voltage applied.													
	Capacitance Change	≤ ±20% of the initial value(6.3V, 10V: ≤ ±30%)												
	D.F. (tanδ)	≤ 200% of the initial specified value												
	Leakage Current	≤ 200% of the initial specified value												

DIMENSIONS [mm]



ØD	5	6.3	8	10	12.5	16	18
Ød	0.5	0.5	0.5	0.6	0.6	0.6	0.8
F	2.0	2.5	3.5	5.0	5.0	7.5	7.5
ØD'	ØD + 0.5 max.						
L'	L + 2 max.						

PART NUMBERING SYSTEM



RATED RIPPLE CURRENT MULTIPLIERS

Frequency correction factor for ripple current

Rated Voltage(V)	Freq.(Hz)				
	Cap.(μF)	120	1k	10k	100k
6.3~100	Cap.<100	0.40	0.68	0.78	1.00
	100≤Cap.<220	0.50	0.76	0.87	1.00
	220≤Cap.<1000	0.70	0.85	0.90	1.00
	1000≤Cap.	0.85	0.95	0.98	1.00
160~450	Cap.<100	0.40	0.70	0.90	1.00
	Cap.≥100	0.44	0.74	0.91	1.00

The endurance of capacitors is shortened with internal heating produced by ripple current at the rate of halving the lifetime with every 5°C rise. When long life performance is required in actual use, the rms ripple current has to be reduced.

GH series

■ STANDARD RATINGS

WV (V _{dc})	Cap (μF)	Size ΦDxL(mm)	tanδ	Rated ripple current (mArms/105°C, 100kHz)
6.3(0J)	150	5*11	0.30	91
	330	6.3*11	0.30	151
	680	8*12	0.30	228
	820	10*12.5	0.30	256
	1000	8*16	0.30	272
	1200	8*20	0.30	386
		10*16	0.30	386
	1500	10*20	0.30	513
	1800	12.5*16	0.30	513
	2200	10*25	0.32	580
	2700	10*30	0.32	630
		16*15	0.32	630
	3300	12.5*20	0.34	665
	3900	12.5*25	0.34	807
		18*15	0.34	807
	4700	12.5*30	0.36	902
	5600	12.5*35	0.38	1034
		16*20	0.38	1034
	6800	12.5*40	0.40	1190
		16*25	0.40	1190
8200	18*20	0.40	1190	
	16*30	0.44	1400	
10000	16*35	0.48	1600	
	18*25	0.48	1600	
12000	16*40	0.52	1850	
	18*30	0.52	1850	
15000	18*35	0.58	1850	
18000	18*40	0.64	2000	
10(1A)	100	5*11	0.24	91
	220	6.3*11	0.24	151
	470	8*12	0.24	228
	680	8*16	0.24	256
		10*12.5	0.24	272
	1000	8*20	0.24	400
		10*16	0.24	430
	1200	10*20	0.24	513
	1500	10*25	0.24	580
		12.5*16	0.24	580
	2200	10*30	0.26	630
		12.5*20	0.26	681
	2700	16*15	0.26	681
		18*15	0.26	807
	3300	12.5*25	0.28	807
		12.5*30	0.28	902
	3900	16*20	0.28	902
		16*25	0.30	1116
	4700	12.5*40	0.32	1190
		16*25	0.32	1190
5600	18*20	0.32	1190	
	16*30	0.34	1400	
6800	18*25	0.34	1400	
	16*35	0.38	1600	
8200	18*30	0.38	1600	
	16*40	0.42	1850	
10000	18*35	0.42	1850	
	18*40	0.46	2000	

WV (V _{dc})	Cap (μF)	Size ΦDxL(mm)	tanδ	Rated ripple current (mArms/105°C, 100kHz)
16(1C)	56	5*11	0.20	100
	120	6.3*11	0.20	118
	330	8*12	0.20	205
	470	8*16	0.20	256
		10*12.5	0.20	272
	680	8*20	0.20	386
		10*16	0.20	386
	1000	10*20	0.20	513
		12.5*16	0.20	513
	1200	10*25	0.20	580
	1500	10*30	0.20	630
		12.5*20	0.20	665
	2200	16*15	0.20	665
		12.5*25	0.22	807
	2700	18*15	0.22	807
		12.5*30	0.22	902
	3300	16*20	0.22	902
		12.5*35	0.24	1034
	3900	12.5*40	0.24	1190
		16*25	0.24	1190
4700	18*20	0.24	1190	
	16*30	0.26	1400	
5600	18*25	0.26	1400	
	16*35	0.28	1600	
6800	18*30	0.28	1600	
	16*40	0.30	1850	
8200	18*35	0.34	1850	
10000	18*40	0.38	2000	
25(1E)	47	5*11	0.18	124
	100	6.3*11	0.18	138
	220	8*12	0.18	205
	330	8*16	0.18	225
		10*12.5	0.18	245
	470	8*20	0.18	320
		10*16	0.18	340
	680	10*20	0.18	345
		12.5*16	0.18	345
	820	10*25	0.18	450
	1000	10*30	0.18	540
		12.5*20	0.18	540
	1200	16*15	0.18	540
		18*15	0.18	560
	1500	12.5*25	0.18	665
		12.5*30	0.18	790
	1800	16*20	0.18	800
		12.5*35	0.20	860
	2200	18*20	0.20	880
		12.5*40	0.20	960
2700	16*25	0.20	980	
	16*30	0.22	1190	
3300	18*25	0.22	1190	
	16*35	0.22	1400	
3900	18*30	0.22	1400	
	16*40	0.24	1600	
4700	18*35	0.24	1600	
	18*40	0.26	1850	

Radial Type

GH series

■ STANDARD RATINGS

WV (V _{dc})	Cap (μF)	Size ΦDxL(mm)	tanδ	Rated ripple current (mA _{rms} /105°C,100kHz)
35(1V)	33	5*11	0.16	90
	56	6.3*11	0.16	110
	150	8*12	0.16	180
	220	8*16	0.16	240
		10*12.5	0.16	252
	270	8*20	0.16	280
	330	10*16	0.16	312
	470	10*20	0.16	386
		12.5*16	0.16	394
	560	10*25	0.16	450
	680	10*30	0.16	496
		12.5*20	0.16	520
	1000	16*15	0.16	520
		12.5*25	0.16	810
	1200	18*15	0.16	810
		12.5*30	0.16	860
	1500	16*25	0.16	880
		12.5*35	0.16	880
	1800	12.5*40	0.16	960
		16*20	0.16	900
2200	18*20	0.16	960	
	16*30	0.18	1190	
2700	18*25	0.18	1190	
	16*35	0.18	1400	
3300	18*30	0.18	1400	
	16*40	0.20	1600	
3900	18*35	0.20	1600	
	18*40	0.20	1850	
50(1H)	22	5*11	0.14	84
	56	6.3*11	0.14	146
	100	8*12	0.14	152
	120	8*16	0.14	180
	150	10*12.5	0.14	215
	180	8*20	0.14	246
	220	10*16	0.14	291
	270	10*20	0.14	330
		12.5*16	0.14	330
	330	10*25	0.14	386
	470	10*30	0.14	460
		12.5*20	0.14	475
	560	16*15	0.14	475
		12.5*25	0.14	520
	680	18*15	0.14	520
		12.5*30	0.14	665
	820	12.5*35	0.14	800
		16*20	0.14	800
	1000	12.5*40	0.14	880
		16*25	0.14	880
1200	18*20	0.14	880	
	16*30	0.14	1190	
1500	18*25	0.14	1190	
	16*35	0.14	1400	
1800	16*40	0.14	1600	
	18*30	0.14	1600	
2200	18*35	0.16	1800	
2700	18*40	0.16	1850	

WV (V _{dc})	Cap (μF)	Size ΦDxL(mm)	tanδ	Rated ripple current (mA _{rms} /105°C,100kHz)
63(1J)	15	5*11	0.12	62
	33	6.3*11	0.12	126
	56	8*12	0.12	198
	82	8*16	0.12	246
		10*12.5	0.12	252
	120	8*20	0.12	300
		10*16	0.12	310
	180	10*20	0.12	386
		12.5*16	0.12	394
	220	10*25	0.12	450
	270	12.5*20	0.12	520
	330	12.5*25	0.12	665
	470	12.5*30	0.12	790
		16*20	0.12	800
	560	12.5*35	0.12	860
		16*25	0.12	880
	680	12.5*40	0.12	960
		18*20	0.12	980
	820	16*30	0.12	1190
		18*25	0.12	1190
1000	16*35	0.12	1400	
	18*30	0.12	1400	
1200	16*40	0.12	1600	
	18*35	0.12	1600	
1500	18*40	0.12	1850	
100(1K)	6.8	5*11	0.10	62
	15	6.3*11	0.10	126
	27	8*12	0.10	198
	39	8*16	0.10	246
	47	10*12.5	0.10	252
	56	8*20	0.10	300
	68	10*16	0.10	330
	82	10*20	0.10	386
		12.5*16	0.10	394
	100	10*25	0.10	450
	120	12.5*20	0.10	520
	180	12.5*25	0.10	665
	220	16*20	0.10	800
		12.5*30	0.10	790
	270	12.5*35	0.10	860
		16*25	0.10	880
	330	18*20	0.10	980
		12.5*40	0.10	960
	390	16*30	0.10	1190
		18*25	0.10	1190
470	16*35	0.10	1400	
	18*30	0.10	1400	
560	16*40	0.10	1600	
680	18*35	0.10	1600	
820	18*40	0.10	1850	

GH series

■ STANDARD RATINGS

WV (V _{dc})	Cap (μF)	Size ΦDxL(mm)	tanδ	Rated ripple current (mArms/105°C,100kHz)
160(2C)	10	8*12	0.15	320
	12	10*12	0.15	375
	15	10*16	0.15	438
	22	10*16	0.15	500
	33	10*20	0.15	663
	39	10*20	0.15	688
	47	10*20	0.15	750
		12.5*20	0.15	788
	56	12.5*20	0.15	950
	68	12.5*20	0.15	1195
		12.5*20	0.15	1275
	82	16*20	0.15	1313
		12.5*25	0.15	1432
	100	16*20	0.15	1443
		16*20	0.15	1750
	150	16*25	0.15	1795
	16*25	0.15	2318	
220	18*25	0.15	2375	
330	18*30	0.15	2959	
200(2D)	10	10*16	0.15	290
	12	10*16	0.15	300
	15	10*16	0.15	413
	22	10*20	0.15	513
	33	10*20	0.15	638
		12.5*20	0.15	663
	39	12.5*20	0.15	795
	47	12.5*20	0.15	980
		12.5*20	0.15	1188
	68	12.5*25	0.15	1238
	82	16*20	0.15	1385
		16*20	0.15	1436
	100	16*25	0.15	1489
		16*25	0.15	1920
	150	16*30	0.15	1966
		18*25	0.15	1977
220	18*25	0.15	2386	
	18*30	0.15	2455	
330	18*35	0.15	2795	
	18*40	0.15	2864	
250(2E)	4.7	8*12	0.15	175
	5.6	10*12	0.15	213
	6.8	10*12	0.15	275
	10	10*20	0.15	350
	22	10*20	0.15	513
	33	12.5*20	0.15	763
	39	12.5*20	0.15	813
	47	12.5*20	0.15	950
		12.5*25	0.15	1013
	68	16*20	0.15	1295
		16*20	0.15	1375
	82	16*30	0.15	1425
		16*25	0.15	1545
	100	18*25	0.15	1591
	150	18*25	0.15	1968
	220	18*31	0.15	2341
	18*40	0.15	2591	

WV (V _{dc})	Cap (μF)	Size ΦDxL(mm)	tanδ	Rated ripple current (mArms/105°C,100kHz)
350(2V)	4.7	8*12	0.20	163
	5.6	10*12	0.20	225
	6.8	10*12	0.20	265
	10	10*16	0.20	313
	22	12.5*20	0.20	563
	33	16*20	0.20	885
	39	16*20	0.20	963
	47	16*20	0.20	1075
		16*25	0.20	1113
		16*25	0.20	1413
	68	18*20	0.20	1375
		18*25	0.20	1425
	82	18*25	0.20	1520
	100	18*25	0.20	1591
		18*30	0.20	1648
	120	18*30	0.20	1877
150	18*35	0.20	2045	
400(2G)	1	8*12	0.20	75
	2.2	8*12	0.20	113
	3.3	10*12	0.20	200
	4.7	10*12	0.20	238
	6.8	10*12	0.20	255
	10	10*16	0.20	325
	15	12.5*20	0.20	463
	22	12.5*20	0.20	613
		12.5*25	0.20	638
	33	16*20	0.20	870
	39	16*25	0.20	1013
		16*25	0.20	1150
	47	18*20	0.20	1138
		16*30	0.20	1200
	56	10*50	0.20	1300
	68	12.5*40	0.20	1500
	18*25	0.20	1475	
	12.5*45	0.20	1563	
82	18*25	0.20	1525	
	18*30	0.20	1575	
	12.5*50	0.20	1795	
100	18*31	0.20	1739	
	18*35	0.20	1784	
120	18*35	0.20	1932	
150	18*40	0.20	2080	
450(2W)	6.8	10*16	0.20	240
	10	10*20	0.20	313
	15	12.5*20	0.20	500
	22	16*20	0.20	638
		10*40	0.20	888
	33	16*25	0.20	945
		18*20	0.20	938
	39	10*45	0.20	1038
		18*25	0.20	1013
	47	12.5*40	0.20	1263
		18*25	0.20	1240
	56	12.5*40	0.20	1375
	68	18*30	0.20	1525
	82	12.5*50	0.20	1825
		18*35	0.20	1800
	100	18*40	0.20	1830

Radial Type