

HS Series Snap-in Type 105°C Miniaturized



Features

- ◆ Highly reliable capacitors that withstand ripple current.
- ◆ Terminal spacing fixed at 10 mm for printed circuit board plug in.
- ◆ Aluminum case designed explosion-proof vent.
- ◆ Best for switching power supplies.
- ◆ RoHS Compliant

Specifications

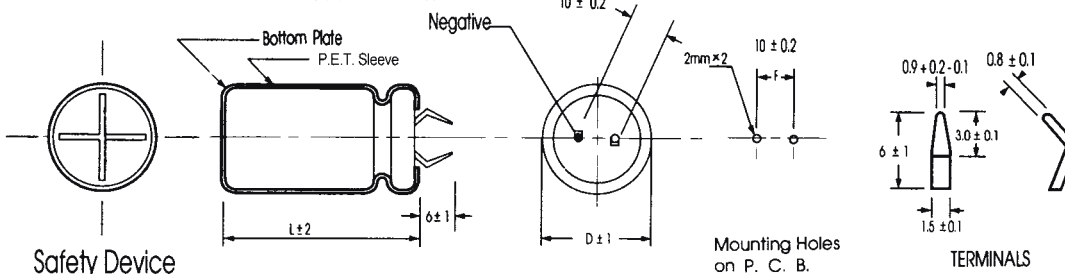
Item	Performance Characteristics									
Operating Temperature Range	-25 to +105°C									
Rated Voltage Range	160 to 450 V · DC									
Capacitance Range	33 to 2700 µ F									
Capacitance Tolerance	± 20% (120Hz, +20°C)									
Leakage Current (+20°C,max.)	$I \leq 0.02CV$ After 5 minutes with rated working voltage applied.									
Dissipation Factor ($\tan \delta$, at 20°C , 120Hz)	Less than the value under table (%)									
	<table border="1"> <thead> <tr> <th>µ F \ VDC</th> <th>160~250</th> <th>315~450</th> </tr> </thead> <tbody> <tr> <td>47~390</td> <td>15</td> <td>20</td> </tr> <tr> <td>470~2700</td> <td>15</td> <td>20</td> </tr> </tbody> </table>	µ F \ VDC	160~250	315~450	47~390	15	20	470~2700	15	20
	µ F \ VDC	160~250	315~450							
47~390	15	20								
470~2700	15	20								
Low Temperature Characteristics (at 120Hz)	Impedance ratio Max									
	<table border="1"> <thead> <tr> <th>Working voltage (VDC)</th> <th>160</th> <th>200~250</th> <th>400~450</th> </tr> </thead> <tbody> <tr> <td>Z -25°C / Z +20°C</td> <td>4</td> <td>4</td> <td>8</td> </tr> </tbody> </table>	Working voltage (VDC)	160	200~250	400~450	Z -25°C / Z +20°C	4	4	8	
Working voltage (VDC)	160	200~250	400~450							
Z -25°C / Z +20°C	4	4	8							
Endurance	Test conditions Duration time :2000 Hrs Ambient temperature :+105°C Applied voltage :Rated DC working voltage After test requirement at +20°C Capacitance change : $\leq \pm 20\%$ of the initial measured value Dissipation factor : $\leq 200\%$ of the initial specified value Leakage current : \leq The initial specified value									
Shelf Life	Test conditions Duration time :1000 Hrs Ambient temperature :+105°C Applied voltage :None After test requirement at +20°C : Same limits as Endurance. Pre-treatment for measurements shall be conducted after application of DC working voltage for 30 minutes.									

Multiplier for Ripple Current vs. Frequency

CAP(µ F) \ Frequency(Hz)	50(60)	120	400	1K	10K	50K-100K
10 < CAP ≤ 100	0.8	1	1.23	1.36	1.48	1.53
100 < CAP ≤ 1000	0.8	1	1.16	1.25	1.35	1.38
1000 < CAP	0.8	1	1.11	1.17	1.25	1.28

Diagram of Dimensions:(unit:mm)

SYMBOL G : P.C.B. TERMINAL (SNAP-IN)



Case Size

φ D x L (mm)

Cap (μF)	φ D	WV															
		160								200							
		22		25		30		35		22		25		30		35	
		Size	Ripple	Size	Ripple	Size	Ripple	Size	Ripple	Size	Ripple	Size	Ripple	Size	Ripple	Size	Ripple
100										22X21	0.38						
150		22X21	0.37							22X21	0.54	25X21	0.54				
220		22X21	0.65							22X26	0.92	25X21	0.92	30X21	0.92		
270		22X21	0.74							22X26	1.03	25X21	1.03	30X21	1.03		
330		22X26	0.98	25X21	0.98	30X21	0.98			22X31	1.21	25X26	1.21	30X21	1.21		
										22X26	1.10	25X21	1.10				
390		22X26	1.10	25X26	1.10	30X21	1.10			22X31	1.39	25X26	1.39	30X26	1.39		
				25X21	1.00									30X21	1.27		
470		22X31	1.21	25X26	1.21	30X21	1.21			22X36	1.45	25X31	1.45	30X26	1.45	35X22	1.45
										22X31	1.35	25X26	1.35				
560		22X36	1.40	25X31	1.40	30X26	1.40			22X41	1.60	25X36	1.60	30X26	1.60	35X22	1.60
		22X31	1.30	25X26	1.30					22X36	1.50	25X31	1.50				
680		22X41	1.64	25X31	1.64	30X26	1.64	35X27	1.64	22X46	1.80	25X36	1.80	30X31	1.80	35X27	1.80
		22X36	1.53							22X41	1.70						
820				25X36	1.85	30X31	1.85	35X27	1.85	22X46	1.79	25X41	2.00	30X31	2.00	35X32	2.00
		22X51	1.70							22X51	1.88	25X36	1.88			35X27	1.88
1000				25X46	2.15	30X31	2.15	35X27	2.15			25X51	2.30	30X36	2.30	35X32	2.30
		22X56	2.03	25X41	2.03							25x46	2.20				
1200				25X51	2.46	30X41	2.46	35X32	2.46					30X41	2.70	35X37	2.70
1500						30X46	2.46	35X37	2.46					30X51	3.10	35X42	3.10
1800						30X51	3.13	35X42	3.13					30X70	3.75	35X47	3.75
2200						30X70	3.39	35X47	3.39							35X57	3.82
2700								35X52	3.90							35X70	4.00

Cap (μF)	φ D	WV															
		220								250							
		22		25		30		35		22		25		30		35	
		Size	Ripple	Size	Ripple	Size	Ripple	Size	Ripple	Size	Ripple	Size	Ripple	Size	Ripple	Size	Ripple
68										22X21	0.27						
82										22X21	0.34						
100										22X21	0.44	25X21	0.44				
120										22X26	0.48	25X21	0.48				
150		22X21	0.57							22X26	0.60	25X21	0.60	30X21	0.60		
180		22X26	0.61	25X26	0.61					22X26	0.69	25X26	0.69	30X21	0.69		
				25X21	0.55							25X21	0.63				
220		22X26	0.81	25X26	0.81					22X31	1.00	25X26	1.00	30X21	1.00		
										22X26	0.92	25X21	0.92				
270		22X31	1.01	25X26	1.01	30X26	1.01			22X36	1.16	25X31	1.16	30X26	1.16		
		22X26	0.93			30X21	0.93			22X31	1.05	25X26	1.05	30X21	1.05		
330		22X31	1.09	25X26	1.09	30X26	1.09			22X41	1.28	25X31	1.28	30X26	1.28		
										22X36	1.20	25X26	1.20				
390		22X36	1.18	25X31	1.18	30X26	1.18			22X41	1.48	25X31	1.48	30X31	1.48		
				25X26	1.08					22X36	1.38			30X26	1.38		
470		22X41	1.28	25X36	1.28	30X26	1.28			22X46	1.65	25X36	1.65	30X31	1.65	35X27	1.65
		22X36	1.2	25X31	1.2					22X41	1.55						
560		22X46	1.52	25X41	1.52	30X31	1.52	35X27	1.52			25X46	1.85	30X36	1.85	35X27	1.85
		22X41	1.4	25X36	1.4	30X26	1.4			22X51	1.75	25X41	1.75	30X31	1.75		
680		22X51	1.66	25X46	1.66	30X36	1.66	35X27	1.66			25X51	1.85	30X41	2.00	35X32	2.00
		22X46	1.56	25X41	1.56	30X31	1.56										
820				25X51	1.9	30X41	1.9	35X32	1.9					30X46	2.30	35X37	2.30
				25X46	1.8	30X36	1.8										
1000						30X46	2.28	35X37	2.28					30X56	2.50	35X42	2.60
				25X56	2.15	30X41	2.15							30X61	2.60		
1200						30X51	2.32	35X42	2.32							35X47	2.85
1500						30X70	2.35	35X47	2.35							35X63	2.92
1800								35X52	2.40							35X70	2.95
2200								35X63	2.45								

Ripple Current (A, rms) at 105°C 120Hz

φ D x L (mm)

Cap (μF)	φ D	WV															
		350								400							
		22		25		30		35		22		25		30		35	
		Size	Ripple	Size	Ripple	Size	Ripple	Size	Ripple	Size	Ripple	Size	Ripple	Size	Ripple	Size	Ripple
33										22X21	0.39						
47										22X21	0.56	25X21	0.56				
56										22X21	0.60	25X21	0.60				
68		22X21	0.45							22x21	0.62	25X21	0.65				
82		22X26	0.53							22X26	0.65						
										22X26	0.75	25X26	0.75				
												25X21	0.71				
100		22X26	0.65							22X31	0.78	25X26	0.78	30X21	0.78		
										22X26	0.72						
120		22X31	0.74	25X26	0.74					22X31	0.85	25X26	0.85	30X21	0.85		
		22X26	0.68							22X26	0.79						
150		22X36	0.80	25X31	0.80					22X36	0.98	25X31	0.98	30X26	0.98		
		22X31	0.74	25X26	0.74					22X31	0.91	25X26	0.91				
180		22X41	0.95	25X31	0.95	30X26	0.95			22X41	1.14	25X36	1.14	30X31	1.14	35X27	1.14
		22X36	0.89	25X26	0.89					22X36	1.05	25X31	1.05	30X26	1.05		
220		22X46	1.10	25X36	1.10	30X31	1.10			22X51	1.21	25X41	1.21	30X36	1.21	35X27	1.21
		22X41	1.00	25X31	1.00	30X26	1.00			22X46	1.1	25X36	1.10	30X31	1.10		
										22x41	1.05	25x31	1.05				
270		22X51	1.20	25X41	1.20	30X31	1.20	35X27	1.20	22X51	1.40	25X46	1.40	30X41	1.40	35X32	1.40
		22X46	1.10	25X36	1.10	30X26	1.10			22X46	1.30	25X41	1.30	30X36	1.30	35X27	1.30
330				25X46	1.30	30X36	1.30	35X32	1.30					30X41	1.57	35X37	1.57
		22X51	1.20	25X41	1.20	30X31	1.20	35X27	1.20	22X51	1.40	25X46	1.40	30X36	1.40	35X32	1.40
390						30X41	1.45	35X37	1.45							35X37	1.74
		22X56	1.30	25X46	1.30	30X36	1.30	35X32	1.30	22X56	1.60	25X51	1.60	30X41	1.60	35X32	1.60
470						30X46	1.70	35X37	1.70							35X42	1.98
				25X51	1.60	30X41	1.60	35X32	1.60					30X46	1.80	35X37	1.80
560						30X46	1.70	35X42	1.85					30X56	2.23	35X47	2.23
								35X37	1.70					30x51	2.14	35X42	2.10
														30X46	2.10		
680								35X47	1.98							35X52	2.40
								35X42	1.80								
820								35X52	1.82							35X57	2.42
1000								35X63	1.84							35X70	2.45

Cap (μF)	φ D	WV															
		420								450							
		22		25		30		35		22		25		30		35	
		Size	Ripple	Size	Ripple	Size	Ripple	Size	Ripple	Size	Ripple	Size	Ripple	Size	Ripple	Size	Ripple
33		22X21	0.34							22X21	0.24						
47		22X21	0.45	25X21	0.45					22X26	0.35	25X21	0.35				
										22x21	0.32						
56		22X21	0.5	25X21	0.5	30X21	0.5			22X26	0.41	25X21	0.41				
68		22X26	0.58	25X21	0.58	30X21	0.58			22X31	0.55	25X26	0.55	30X21	0.55		
										22X26	0.51	25X21	0.51				
82		22X26	0.68	25X26	0.68	30X21	0.68			22X31	0.64	25X26	0.64	30X21	0.64		
				25X21	0.62												
100		22X31	0.75	25X31	0.75	30X26	0.75			22X36	0.74	25X26	0.74	30X26	0.74		
				25X26	0.69	30X21	0.69			22X31	0.69			30X21	0.69		
120		22X36	0.83	25X31	0.83	30X26	0.83			22X41	0.82	25X31	0.82	30X26	0.82		
		22X31	0.77	25X26	0.77	30X21	0.77			22X36	0.77	25X26	0.77				
150		22X41	0.97	25X36	0.97	30X26	0.97			22X46	0.96	25X36	0.96	30X31	0.96		
		22X36	0.91	25X31	0.91					22X41	0.91	25X31	0.91	30X26	0.91		
										22x36	0.86						
180				25X41	1.08	30X31	1.08			22X46	0.99	25X41	1.05	30X31	1.05	35X27	1.05
		22X41	1.02	25X36	1.02	30X26	1.02			22X41	0.94	25X36	0.99	30X26	0.99		
												25X31	0.93				
220		22X51	1.18	25X46	1.18	30X36	1.18	35X27	1.18	22X51	1.15			30X36	1.15	35X32	1.15
				25X41	1.10	30X31	1.10			22X46	1.08	25X41	1.08	30X31	1.08	35X27	1.08
				25X46	1.30	30X41	1.42	35X32	1.42					30X46	1.48	35X37	1.48
270				25X41	1.24	30X36	1.30					25X46	1.38	30X41	1.38	35X32	1.38
														30X36	1.31		
330				25X51	1.45	30X46	1.56	35X37	1.56					30X46	1.45	35X42	1.55
				25X46	1.39	30X41	1.45	35X32	1.45					30X41	1.38	35X37	1.45
390						30X46	1.65	35X42	1.76							35X47	1.75
								35X37	1.65							35X42	1.65
470						30X51	1.68	35X47	1.78					30x51	1.68	35X52	1.85
						30X46	1.61	35X42	1.68							35X47	1.75
560						30x51	1.64	35X52	1.80							35X52	1.86
								35X47	1.72								
680								35X57	1.82							35X63	1.85
820								35X63	1.84							35X70	1.87

Ripple Current (A, rms) at 105°C 120Hz