Snap in Aluminum Electrolytic Capacitors
SNL Series

FEATURES
- Downsized
- Endurance: 105°C, 3000 hours
- RoHS Compliance

LEAD-FREE
LEAD-FREE COMPATIBLE COMPONENT

APPLICATIONS
- Converters, energy storage, power supplies

RoHS COMPLIANT

HOW TO ORDER

S NL I35 221 M 450 B K -

Product Type
Aluminum

Series Type

Case Size
See table below

Capacitance Code
µF code: 1st two digits represent significant figures, 3rd digit represents multiplier (number of zeros to follow)

Tolerance
M = ±20%

Rated DC Voltage

160 = 160Vdc	400 = 400Vdc
200 = 200Vdc	450 = 450Vdc
250 = 250Vdc	500 = 500Vdc
350 = 350Vdc	550 = 550Vdc

Packaging
B = Bulk Pack

Termination
K =Standard

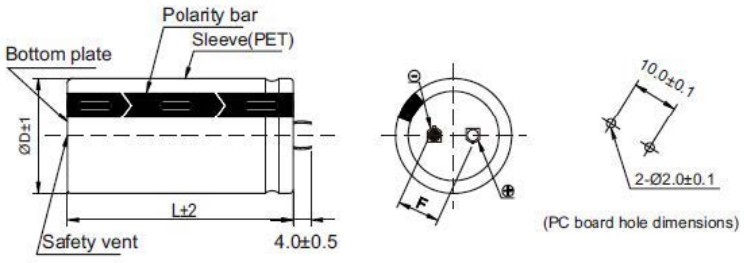
Special Request

CASE DIMENSIONS millimeters (inches)

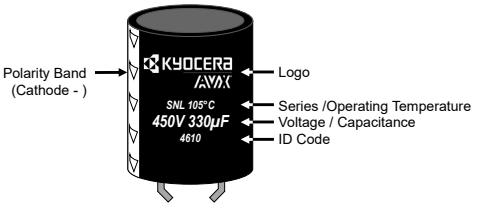
1st Character	D±1.00(0.039)	2nd & 3rd Character	L+2.00(0.079) Max.
G	22.00 (0.866)	20	20.00 (0.787)
H	25.00 (0.984)	25	25.00 (0.984)
I	30.00 (1.181)	30	30.00 (1.181)
J	35.00 (1.378)	35	35.00 (1.378)
		40	40.00(1.575)
		45	45.00 (1.772)
		50	50.00 (1.969)
		55	55.00 (2.165)
		60	60.00 (2.362)

Code	Typical Weight (g)	Code	Typical Weight (g)
G20	10.50	I30	33.50
G25	12.00	I35	40.00
G30	16.00	I40	46.50
G35	19.50	I45	53.00
G40	25.00	I50	61.00
H25	19.50	J25	38.00
H30	25.50	J30	46.00
H35	29.50	J35	54.00
H40	30.50	J40	64.50
H45	37.50	J45	68.00
H50	42.50	J50	80.50
I20	19.50	J55	90.50
I25	28.50	J60	94.00

• Terminal Code : K (Φ22 to Φ35) : Standard



MARKING



TECHNICAL SPECIFICATIONS

Category Temperature Range:	-25°C to +105°C	
Capacitance Range	At 25°C,120Hz	68µF to 2200µF
Capacitance Tolerance:	At 25°C,120Hz	±20%
Dissipation Factor (%)	Measurement Frequency: 120Hz at 25°C	Please see the Ratings and Part Number Reference Table below
Leakage Current:	After 5 minutes at rated working voltage at 25°C	I ≦ 3√CV(µA)

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CAPACITANCE AND RATED VOLTAGE RANGE (FIGURES DENOTES CASE SIZE)

Capacitance		Rated Voltage DC (V_R)							
µF	Code	160V	200V	250V	350V	400V	450V	500V	550V
68	680					G25			
82	820				G25	G25			
100	101						G30, H25		
120	121				I20	G30	G35, I25		
150	151					H30	G40, H30		I35
180	181						I25, I30		I40
220	221	G20					H40, H45, I30, I35		
270	271		G25, I20			I35	I30, I35, I40, J30		
330	331	G25		G35		I35	H45, H50	J40	
390	391		H25						
470	471		G35,G40	H35, I25		J35	J40, I45	J60	
560	561		G40	H40, I30		I50,J45	I50, J45, J50		
680	681		H35, J25	H40, H50		J50	J55		
820	821			I35		J60			
1000	102		I35	I40					
1500	152		I50	J50					
2200	222	J45							

Released ratings

RATINGS & PART NUMBER REFERENCE

Part No.	Case Size	Capacitance (µF)	Rated Voltage (V)	DF Max. (%)	120Hz RMS Current (A) / 105°C	ESR Max. @120Hz (Ω)	ESR Max. @100kHz (Ω)
160 Volt							
SNLG20221M160BK	G20	220	160	15	0.81	0.904	0.603
SNLG25331M160BK	G25	330	160	15	1.20	0.603	0.402
SNLJ45222M160BK	J45	2200	160	15	3.50	0.090	0.060
200 Volt							
SNLG25271M200BK	G25	270	200	15	1.10	0.737	0.491
SNLI20271M200BK	I20	270	200	15	1.05	0.737	0.491
SNLH25391M200BK	H25	390	200	15	1.35	0.510	0.340
SNLG35471M200BK	G35	470	200	15	1.50	0.423	0.282
SNLG40471M200BK	G40	470	200	15	1.54	0.423	0.282
SNLG40561M200BK	G40	560	200	15	1.67	0.355	0.237
SNLH35681M200BK	H35	680	200	15	1.78	0.293	0.195
SNLJ25681M200BK	J25	680	200	15	1.78	0.293	0.195
SNLI35102M200BK	I35	1000	200	15	2.30	0.199	0.133
SNLI50152M200BK	I50	1500	200	15	3.08	0.133	0.088
250 Volt							
SNLG35331M250BK	G35	330	250	15	1.30	0.603	0.402
SNLH35471M250BK	H35	470	250	15	1.65	0.423	0.282
SNLI25471M250BK	I25	470	250	15	1.60	0.423	0.282
SNLH40561M250BK	H40	560	250	15	1.80	0.355	0.237
SNLI30561M250BK	I30	560	250	15	1.80	0.355	0.237
SNLH40681M250BK	H40	680	250	15	1.90	0.293	0.195
SNLH50681M250BK	H50	680	250	15	2.00	0.293	0.195
SNLI35821M250BK	I35	820	250	15	2.25	0.243	0.162
SNLI40102M250BK	I40	1000	250	15	2.00	0.199	0.133
SNLJ50152M250BK	J50	1500	250	15	3.00	0.133	0.088
350 Volt							
SNLG25820M350BK	G25	82	350	15	0.55	2.426	1.697
SNLI20121M350BK	I20	120	350	15	0.65	1.658	1.159
400 Volt							
SNLG25680M400BK	G25	68	400	15	0.50	2.926	2.046
SNLG25820M400BK	G25	82	400	15	0.64	2.426	1.697
SNLG30121M400BK	G30	120	400	15	0.72	1.658	1.159
SNLH30151M400BK	H30	150	400	15	0.88	1.326	0.927
SNLI35271M400BK	I35	270	400	15	1.22	0.737	0.515
SNLI35331M400BK	I35	330	400	15	1.40	0.603	0.422
SNLJ35471M400BK	J35	470	400	15	1.80	0.423	0.296

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Part No.	Case Size	Capacitance (µF)	Rated Voltage (V)	DF Max. (%)	120Hz RMS Current (A) / 105°C	ESR Max. @120Hz (Ω)	ESR Max. @100kHz (Ω)
SNLI50561M400BK	I50	560	400	15	2.05	0.355	0.248
SNLJ45561M400BK	J45	560	400	15	2.12	0.355	0.248
SNLJ50681M400BK	J50	680	400	15	2.27	0.293	0.205
SNLJ60821M400BK	J60	820	400	15	2.42	0.243	0.170
450 Volt							
SNLG30101M450BK	G30	100	450	20	0.69	2.653	1.855
SNLH25101M450BK	H25	100	450	20	0.69	2.653	1.855
SNLG35121M450BK	G35	120	450	20	0.80	2.210	1.546
SNLI25121M450BK	I25	120	450	20	0.80	2.210	1.546
SNLG40151M450BK	G40	150	450	20	0.88	1.768	1.237
SNLH30151M450BK	H30	150	450	20	0.88	1.768	1.237
SNLI25181M450BK	I25	180	450	20	0.92	1.474	1.031
SNLI30181M450BK	I30	180	450	20	1.00	1.474	1.031
SNLH40221M450BK	H40	220	450	20	1.12	1.206	0.843
SNLH45221M450BK	H45	220	450	20	1.18	1.206	0.843
SNLI30221M450BK	I30	220	450	20	1.08	1.206	0.843
SNLI35221M450BK	I35	220	450	20	1.12	1.206	0.843
SNLI30271M450BK	I30	270	450	20	1.10	0.982	0.687
SNLI35271M450BK	I35	270	450	20	1.26	0.982	0.687
SNLI40271M450BK	I40	270	450	20	1.28	0.982	0.687
SNLJ30271M450BK	J30	270	450	20	1.20	0.982	0.687
SNLH45331M450BK	H45	330	450	20	1.24	0.804	0.562
SNLH50331M450BK	H50	330	450	20	1.31	0.804	0.562
SNLI45471M450BK	I45	470	450	20	1.60	0.564	0.395
SNLJ40471M450BK	J40	470	450	20	1.70	0.564	0.395
SNLI50561M450BK	I50	560	450	20	1.72	0.474	0.311
SNLJ45561M450BK	J45	560	450	20	1.84	0.474	0.311
SNLJ50561M450BK	J50	560	450	20	1.91	0.474	0.311
SNLJ55681M450BK	J55	680	450	20	2.10	0.390	0.273
500 Volt							
SNLJ40331M500BK	J40	330	500	20	1.52	0.804	0.562
SNLJ60471M500BK	J60	470	500	20	1.76	0.564	0.395
550 Volt							
SNLI35151M550BK	I35	150	550	20	1.04	1.768	1.237
SNLI40181M550BK	I40	180	550	20	1.17	1.474	1.031

All technical data relates to an ambient temperature of +25°C. Capacitance and DF are measured at 120Hz, 0.5RMS with DC bias of 2.2 volts.
DCL is measured at rated voltage after 5 minutes.

FREQUENCY COEFFICIENT OF PERMISSIBLE RIPPLE CURRENT

Rated Voltage (V)	Frequency (Hz)			
	120	1K	10K	100K
160 - 250	1.00	1.32	1.45	1.50
350 - 550	1.00	1.30	1.41	1.43

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.

QUALIFICATION TABLE

Test	SNL Series (Temperature Range -25°C to +105°C)			
	Condition	Characteristics		
Low Temperature Characteristics (Max. Impedance Ratio)	At 120Hz	Rated Voltage (V)	160 - 250	350 - 550
		Z(-25°C)/Z(+20°C)	4	8
Endurance	The following specifications shall be satisfied when the capacitors are restored to 20℃ after DC voltage plus the rated ripple current is applied for 3000 hours at 105℃.	ΔC/C	≤±20% of the initial limit	
		DF	≤ 200% of Initial specified limit	
		DCL	≤ Initial specified limit	
Shelf Life	The following specifications shall be satisfied when the capacitors are restored to 20°C after exposing them for 1000 hours at 105°C without voltage applied.	ΔC/C	≤±15% of the initial limit	
		DF	≤150% of the initial specified limit	
		DCL	≤200% of the initial specified limit	

STORAGE

1. It is recommended to keep capacitors between the ambient temperatures of 5°C to 35°C and a relative humidity of 75% or below.
2. Confirm that the environment does not have any of the following conditions:
   - Damp conditions such as water, saltwater spray, or oil spray or fumes. High humidity or humidity condensation situations.
   - In an atmosphere filled with toxic gasses (such as hydrogen sulfide, sulfurous acid, nitrous acid, chlorine, ammonia, etc.).
   - Being exposed to direct sunlight, ozone, ultraviolet ray, or radiation.
   - Exposed to acidic or alkaline solutions.
   - Under severe conditions where vibration or mechanical shock exceed the applicable ranges of the specification.
3. 2yrs, after 1yr, needs to check characteristics, if NG, needs to do aging.

PACKING

Case Size	Dimension (D x L)	Quantity (pcs/Inner Box)	Layer Quantity	Total Quantity (pcs/Carton)	Size Inner Box (mm)	Size Out Box (mm)
G20	22x20	135	8	1080	340x240x30	357x260x305
G25	22x25	135	6	810	340x240x43	357x260x290
G30	22x30	135	6	810	340x240x43	357x260x290
G35	22x35	135	5	675	340x240x50	357x260x290
G40	22x40	135	5	675	340x240x50	357x260x290
H25	25x25	104	6	624	340x240x43	357x260x290
H30	25x30	104	6	624	340x240x43	357x260x290
H35	25x35	104	5	520	340x240x50	357x260x290
H40	25x40	104	5	520	340x240x50	357x260x290
H45	25x45	104	5	520	340x240x60	357x260x290
H50	25x50	104	5	520	340x240x60	357x260x315
I20	30x20	77	8	616	340x240x30	357x260x305
I25	30x25	77	6	462	340x240x43	357x260x290
I30	30x30	77	6	462	340x240x43	357x260x290
I35	30x35	77	5	385	340x240x50	357x260x290
I40	30x40	77	5	385	340x240x50	357x260x290
I45	30x45	77	5	385	340x240x60	357x260x290
I50	30x50	77	5	385	340x240x60	357x260x315
J25	35x25	35	6	210	340x240x43	357x260x290
J30	35x30	35	6	210	340x240x43	357x260x290
J35	35x35	35	5	175	340x240x50	357x260x290
J40	35x40	35	5	175	340x240x50	357x260x290
J45	35x45	35	5	175	340x240x55	357x260x290
J50	35x50	35	4	140	340x240x55	357x260x290
J55	35x55	35	4	140	340x240x55	357x260x290
J60	35x60	35	4	140	340x240x70	357x260x290