

KYB Series

- Low impedance, high ripple and long life from KYA series
- Newly innovative electrolyte is employed to minimize impedance
- Endurance with ripple current : 4,000 to 10,000 hours at 105°C
- Non solvent resistant type
- RoHS Compliant

KYB
↑ Lower Z
KYA P163



◆ SPECIFICATIONS

Items	Characteristics										
Category Temperature Range	-40 to +105°C										
Rated Voltage Range	6.3 to 100V _{dc}										
Capacitance Tolerance	±20% (M) (at 20°C, 120Hz)										
Leakage Current	I=0.01CV or 3µA, whichever is greater. Where, I : Max. leakage current (µA), C : Nominal capacitance (µF), V : Rated voltage (V) (at 20°C after 2 minutes)										
Dissipation Factor (tan δ)	Rated voltage (V _{dc})	6.3V	10V	16V	25V	35V	50V	63V	80V	100V	
	tan δ (Max.)	0.22	0.19	0.16	0.14	0.12	0.10	0.09	0.09	0.08	
	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})	6.3V	10V	16V	25V	35V	50V	63V	80V	100V	
	Z(-25°C)/Z(+20°C)	4	3	2	2	2	2	2	2	2	
	Z(-40°C)/Z(+20°C)	8	6	4	3	3	3	3	3	3	
Endurance	The following specifications shall be satisfied when the capacitors are restored to 20°C after subjected to DC voltage with the rated ripple current is applied (the peak voltage shall not exceed the rated voltage) for the specified period of time at 105°C.										
	Rated Voltage(V _{dc})	6.3 to 10V _{dc}					16 to 100V _{dc}				
	Time	φ 5: 4,000hours φ 6.3 & 8: 6,000hours φ 10 to 18: 8,000hours					φ 5: 5,000hours φ 6.3 & 8: 7,000hours φ 10 to 18: 10,000hours				
	Capacitance change	≤ ±30% of the initial value					≤ ±25% of the initial value				
	D.F. (tan δ)	≤200% of the initial specified value					≤200% of the initial specified value				
	Leakage current	≤The initial specified value					≤The initial specified value				
Shelf Life	The following specifications shall be satisfied when the capacitors are restored to 20°C after exposing them for 500 hours at 105°C without voltage applied. Before the measurement, the capacitor shall be preconditioned by applying voltage according to Item 4.1 of JIS C 5101-4.										
	Capacitance change	≤ ±25% of the initial value									
	D.F. (tan δ)	≤200% of the initial specified value									
	Leakage current	≤The initial specified value									

◆ DIMENSIONS [mm]

- Terminal Code : E



φD	5	6.3	8	10	12.5	16	18
φd	0.5	0.5	0.6	0.6	0.6	0.8	0.8
F	2.0	2.5	3.5	5.0	5.0	7.5	7.5
φD'	φD+0.5max.						
L'	L+1.5max.						

◆ PART NUMBERING SYSTEM



Please refer to "Product code guide (radial lead type)"

◆ STANDARD RATINGS

WV (V _{dc})	Cap (μF)	Case size φD×L(mm)	Impedance (Ω max./100kHz)		Rated ripple current (mA _{rms} / 105°C, 100kHz)	Part No.	WV (V _{dc})	Cap (μF)	Case size φD×L(mm)	Impedance (Ω max./100kHz)		Rated ripple current (mA _{rms} / 105°C, 100kHz)	Part No.
			20°C	-10°C						20°C	-10°C		
6.3	180	5×11	0.29	1.2	340	EKYB6R3E□□181ME11D	16	4,700	12.5×35	0.018	0.072	3,140	EKYB160E□□472MK35S
	390	6.3×11	0.15	0.60	540	EKYB6R3E□□391MF11D		4,700	18×20	0.021	0.084	3,000	EKYB160E□□472MM20S
	820	8×11.5	0.087	0.35	840	EKYB6R3E□□821MHB5D		5,600	12.5×40	0.017	0.068	3,640	EKYB160E□□562MK40S
	1,200	8×15	0.069	0.28	1,050	EKYB6R3E□□122MH15D		5,600	16×25	0.020	0.080	3,140	EKYB160E□□562ML25S
	1,200	10×12.5	0.064	0.26	1,050	EKYB6R3E□□122MJC5S		6,800	16×31.5	0.016	0.064	3,610	EKYB160E□□682MLN3S
	1,500	8×20	0.060	0.24	1,210	EKYB6R3E□□152MH20D		6,800	18×25	0.017	0.068	3,530	EKYB160E□□682MM25S
	1,800	10×16	0.049	0.20	1,400	EKYB6R3E□□182MJ16S		8,200	16×35.5	0.014	0.056	4,080	EKYB160E□□822MLP1S
	2,200	10×20	0.037	0.15	1,650	EKYB6R3E□□222MJ20S		8,200	18×31.5	0.014	0.056	4,220	EKYB160E□□822MMN3S
	2,700	10×25	0.031	0.13	1,910	EKYB6R3E□□272MJ25S		10,000	16×40	0.013	0.052	4,220	EKYB160E□□103ML40S
	3,300	10×30	0.027	0.11	2,230	EKYB6R3E□□332MJ30S		10,000	18×35.5	0.012	0.048	4,280	EKYB160E□□103MMP1S
	3,900	12.5×20	0.027	0.11	2,230	EKYB6R3E□□392MK20S		12,000	18×40	0.011	0.044	4,700	EKYB160E□□123MM40S
	4,700	12.5×25	0.024	0.096	2,530	EKYB6R3E□□472MK20S		82	5×11	0.29	1.2	340	EKYB250E□□820ME11D
	6,800	12.5×30	0.021	0.084	2,860	EKYB6R3E□□682MK30S		150	6.3×11	0.15	0.60	540	EKYB250E□□151MF11D
	6,800	16×20	0.025	0.10	2,610	EKYB6R3E□□682ML20S		330	8×11.5	0.087	0.35	840	EKYB250E□□331MHB5D
	8,200	12.5×35	0.018	0.072	3,140	EKYB6R3E□□822MK35S		390	8×15	0.069	0.28	1,050	EKYB250E□□391MH15D
	8,200	18×20	0.021	0.084	3,000	EKYB6R3E□□822MM20S		470	10×12.5	0.064	0.26	1,050	EKYB250E□□471MJC5S
	10,000	12.5×40	0.017	0.068	3,640	EKYB6R3E□□103MK40S		560	8×20	0.060	0.24	1,210	EKYB250E□□561MH20D
	10,000	16×25	0.020	0.080	3,140	EKYB6R3E□□103ML25S		680	10×16	0.049	0.20	1,400	EKYB250E□□681MJ16S
	12,000	16×31.5	0.016	0.064	3,610	EKYB6R3E□□123MLN3S		1,000	10×20	0.037	0.15	1,650	EKYB250E□□102MJ20S
	12,000	18×25	0.017	0.068	3,530	EKYB6R3E□□123MM25S		1,200	10×25	0.031	0.13	1,910	EKYB250E□□122MJ25S
	15,000	16×35.5	0.014	0.056	4,080	EKYB6R3E□□153MLP1S		1,500	10×30	0.027	0.11	2,230	EKYB250E□□152MJ30S
	15,000	18×31.5	0.014	0.056	4,220	EKYB6R3E□□153MMN3S		1,500	12.5×20	0.027	0.11	2,230	EKYB250E□□152MK20S
18,000	16×40	0.013	0.052	4,220	EKYB6R3E□□183ML40S	2,200	12.5×25	0.024	0.096	2,530	EKYB250E□□222MK25S		
18,000	18×35.5	0.012	0.048	4,280	EKYB6R3E□□183MMP1S	2,700	12.5×30	0.021	0.084	2,860	EKYB250E□□272MK30S		
22,000	18×40	0.011	0.044	4,700	EKYB6R3E□□223MM40S	2,700	16×20	0.025	0.10	2,610	EKYB250E□□272ML20S		
10	120	5×11	0.29	1.2	340	EKYB100E□□121ME11D	3,300	12.5×35	0.018	0.072	3,140	EKYB250E□□332MK35S	
	330	6.3×11	0.15	0.60	540	EKYB100E□□331MF11D	3,300	18×20	0.021	0.084	3,000	EKYB250E□□332MM20S	
	560	8×11.5	0.087	0.35	840	EKYB100E□□561MHB5D	3,900	12.5×40	0.017	0.068	3,640	EKYB250E□□392MK40S	
	820	8×15	0.069	0.28	1,050	EKYB100E□□821MH15D	3,900	16×25	0.020	0.080	3,140	EKYB250E□□392ML25S	
	1,000	8×20	0.060	0.24	1,210	EKYB100E□□102MH20D	4,700	16×31.5	0.016	0.064	3,610	EKYB250E□□472MLN3S	
	1,000	10×12.5	0.064	0.26	1,050	EKYB100E□□102MJC5S	4,700	18×25	0.017	0.068	3,530	EKYB250E□□472MM25S	
	1,200	10×16	0.049	0.20	1,400	EKYB100E□□122MJ16S	5,600	16×35.5	0.014	0.056	4,080	EKYB250E□□562MLP1S	
	1,800	10×20	0.037	0.15	1,650	EKYB100E□□182MJ20S	6,800	16×40	0.013	0.052	4,220	EKYB250E□□682ML40S	
	2,200	10×25	0.031	0.13	1,910	EKYB100E□□222MJ25S	6,800	18×31.5	0.014	0.056	4,220	EKYB250E□□682MMN3S	
	2,700	10×30	0.027	0.11	2,230	EKYB100E□□272MJ30S	8,200	18×35.5	0.012	0.048	4,280	EKYB250E□□822MMP1S	
	2,700	12.5×20	0.027	0.11	2,230	EKYB100E□□272MK20S	47	5×11	0.29	1.2	340	EKYB350E□□470ME11D	
	3,900	12.5×25	0.024	0.096	2,530	EKYB100E□□392MK25S	100	6.3×11	0.15	0.60	540	EKYB350E□□101MF11D	
	4,700	12.5×30	0.021	0.084	2,860	EKYB100E□□472MK30S	180	8×11.5	0.087	0.35	840	EKYB350E□□181MHB5D	
	4,700	16×20	0.025	0.10	2,610	EKYB100E□□472ML20S	270	8×15	0.069	0.28	1,050	EKYB350E□□271MH15D	
	5,600	12.5×35	0.018	0.072	3,140	EKYB100E□□562MK35S	330	8×20	0.060	0.24	1,210	EKYB350E□□331MH20D	
	6,800	12.5×40	0.017	0.068	3,640	EKYB100E□□682MK40S	330	10×12.5	0.064	0.26	1,050	EKYB350E□□331MJC5S	
	6,800	16×25	0.020	0.080	3,140	EKYB100E□□682ML25S	470	10×16	0.049	0.20	1,400	EKYB350E□□471MJ16S	
	6,800	18×20	0.021	0.084	3,000	EKYB100E□□682MM20S	680	10×20	0.037	0.15	1,650	EKYB350E□□681MJ20S	
	8,200	16×31.5	0.016	0.064	3,610	EKYB100E□□822MLN3S	820	10×25	0.031	0.13	1,910	EKYB350E□□821MJ25S	
	8,200	18×25	0.017	0.068	3,530	EKYB100E□□822MM25S	1,000	10×30	0.027	0.11	2,230	EKYB350E□□102MJ30S	
	10,000	16×35.5	0.014	0.056	4,080	EKYB100E□□103MLP1S	1,000	12.5×20	0.027	0.11	2,230	EKYB350E□□102MK20S	
	10,000	18×31.5	0.014	0.056	4,220	EKYB100E□□103MMN3S	1,500	12.5×25	0.024	0.096	2,530	EKYB350E□□152MK25S	
12,000	16×40	0.013	0.052	4,220	EKYB100E□□123ML40S	1,800	12.5×30	0.021	0.084	2,860	EKYB350E□□182MK30S		
12,000	18×35.5	0.012	0.048	4,280	EKYB100E□□123MMP1S	1,800	16×20	0.025	0.10	2,610	EKYB350E□□182ML20S		
15,000	18×40	0.011	0.044	4,700	EKYB100E□□153MM40S	2,200	12.5×35	0.018	0.072	3,140	EKYB350E□□222MK35S		
16	120	5×11	0.29	1.2	340	EKYB160E□□121ME11D	2,200	18×20	0.021	0.084	3,000	EKYB350E□□222MM20S	
	270	6.3×11	0.15	0.60	540	EKYB160E□□271MF11D	2,700	12.5×40	0.017	0.068	3,640	EKYB350E□□272MK40S	
	470	8×11.5	0.087	0.35	840	EKYB160E□□471MHB5D	2,700	16×25	0.020	0.080	3,140	EKYB350E□□272ML25S	
	680	8×15	0.069	0.28	1,050	EKYB160E□□681MH15D	3,300	16×31.5	0.016	0.064	3,610	EKYB350E□□332MLN3S	
	680	10×12.5	0.064	0.26	1,050	EKYB160E□□681MJC5S	3,300	18×25	0.017	0.068	3,530	EKYB350E□□332MM25S	
	820	8×20	0.060	0.24	1,210	EKYB160E□□821MH20D	3,900	16×35.5	0.014	0.056	4,080	EKYB350E□□392MLP1S	
	1,000	10×16	0.049	0.20	1,400	EKYB160E□□102MJ16S	4,700	16×40	0.013	0.052	4,220	EKYB350E□□472ML40S	
	1,500	10×20	0.037	0.15	1,650	EKYB160E□□152MJ20S	4,700	18×31.5	0.014	0.056	4,220	EKYB350E□□472MMN3S	
	1,800	10×25	0.031	0.13	1,910	EKYB160E□□182MJ25S	5,600	18×35.5	0.012	0.048	4,280	EKYB350E□□562MMP1S	
	2,200	10×30	0.027	0.11	2,230	EKYB160E□□222MJ30S	27	5×11	0.48	2.0	238	EKYB500E□□270ME11D	
	2,200	12.5×20	0.027	0.11	2,230	EKYB160E□□222MK20S	56	6.3×11	0.20	0.80	385	EKYB500E□□560MF11D	
	3,300	12.5×25	0.024	0.096	2,530	EKYB160E□□332MK25S	100	8×11.5	0.12	0.48	620	EKYB500E□□101MHB5D	
	3,900	12.5×30	0.021	0.084	2,860	EKYB160E□□392MK30S	150	8×15	0.093	0.38	810	EKYB500E□□151MH15D	
	3,900	16×20	0.025	0.10	2,610	EKYB160E□□392ML20S	150	10×12.5	0.10	0.40	810	EKYB500E□□151MJC5S	

□□ : Enter the appropriate lead forming or taping code.

◆STANDARD RATINGS

WV (V _{dc})	Cap (μF)	Case size φD×L(mm)	Impedance (Ω max./100kHz)		Rated ripple current (mA _{rms} / 105°C, 100kHz)	Part No.	WV (V _{dc})	Cap (μF)	Case size φD×L(mm)	Impedance (Ω max./100kHz)		Rated ripple current (mA _{rms} / 105°C, 100kHz)	Part No.
			20°C	-10°C						20°C	-10°C		
50	180	8×20	0.075	0.30	980	EKYB500E□□181MH20D	80	56	8×15	0.14	0.56	585	EKYB800E□□560MH15D
	220	10×16	0.069	0.28	1,100	EKYB500E□□221MJ16S		82	8×20	0.11	0.44	735	EKYB800E□□820MH20D
	270	10×20	0.055	0.22	1,300	EKYB500E□□271MJ20S		82	10×12.5	0.14	0.56	624	EKYB800E□□820MJC5S
	390	10×25	0.043	0.18	1,600	EKYB500E□□391MJ25S		120	10×16	0.10	0.40	780	EKYB800E□□121MJ16S
	470	10×30	0.038	0.16	1,820	EKYB500E□□471MJ30S		180	10×20	0.075	0.30	1,040	EKYB800E□□181MJ20S
	470	12.5×20	0.034	0.14	1,820	EKYB500E□□471MK20S		220	10×25	0.060	0.24	1,170	EKYB800E□□221MJ25S
	680	12.5×25	0.030	0.12	2,100	EKYB500E□□681MK25S		270	10×30	0.053	0.22	1,350	EKYB800E□□271MJ30S
	820	12.5×30	0.025	0.10	2,450	EKYB500E□□821MK30S		270	12.5×20	0.048	0.20	1,430	EKYB800E□□271MK20S
	820	16×20	0.028	0.12	2,350	EKYB500E□□821ML20S		390	12.5×25	0.039	0.16	1,620	EKYB800E□□391MK25S
	1,000	12.5×35	0.021	0.084	2,800	EKYB500E□□102MK35S		470	12.5×30	0.033	0.14	1,950	EKYB800E□□471MK30S
	1,000	18×20	0.025	0.10	2,600	EKYB500E□□102MM20S		470	16×20	0.036	0.15	1,750	EKYB800E□□471ML20S
	1,200	12.5×40	0.019	0.076	3,100	EKYB500E□□122MK40S		560	12.5×35	0.026	0.11	2,250	EKYB800E□□561MM35S
	1,200	16×25	0.024	0.096	2,750	EKYB500E□□122ML25S		560	18×20	0.032	0.13	2,100	EKYB800E□□561MM20S
	1,500	16×31.5	0.019	0.076	3,150	EKYB500E□□152MLN3S		680	12.5×40	0.024	0.096	2,450	EKYB800E□□681MK40S
	1,500	18×25	0.021	0.084	2,890	EKYB500E□□152MM25S		680	16×25	0.028	0.12	2,250	EKYB800E□□681ML25S
	1,800	16×35.5	0.016	0.064	3,550	EKYB500E□□182MLP1S		820	16×31.5	0.022	0.088	2,400	EKYB800E□□821MLN3S
	2,200	16×40	0.014	0.056	3,900	EKYB500E□□222ML40S		820	18×25	0.027	0.11	2,270	EKYB800E□□821MM25S
	2,200	18×31.5	0.014	0.056	3,800	EKYB500E□□222MMN3S		1,000	16×35.5	0.020	0.080	2,600	EKYB800E□□102MLP1S
2,700	18×35.5	0.013	0.052	4,100	EKYB500E□□272MMP1S	1,200	16×40	0.018	0.072	2,900	EKYB800E□□122ML40S		
63	18	5×11	0.50	2.0	220	EKYB630E□□180ME11D	1,200	18×31.5	0.020	0.080	2,550	EKYB800E□□122MMN3S	
	33	6.3×11	0.25	1.0	350	EKYB630E□□330MF11D	1,500	18×35.5	0.018	0.072	3,050	EKYB800E□□152MMP1S	
	56	8×11.5	0.16	0.64	530	EKYB630E□□560MHB5D	100	6.8	5×11	0.80	3.2	163	EKYB101E□□6R8ME11D
	82	8×15	0.12	0.48	700	EKYB630E□□820MH15D		15	6.3×11	0.43	1.8	267	EKYB101E□□150MF11D
	120	8×20	0.085	0.34	880	EKYB630E□□121MH20S		27	8×11.5	0.18	0.72	462	EKYB101E□□270MHB5D
	120	10×12.5	0.11	0.44	725	EKYB630E□□121MJC5S		39	8×15	0.14	0.56	585	EKYB101E□□390MH15D
	180	10×16	0.073	0.30	1,050	EKYB630E□□181MJ16S		56	8×20	0.11	0.44	735	EKYB101E□□560MH20D
	220	10×20	0.055	0.22	1,300	EKYB630E□□221MJ20S		56	10×12.5	0.14	0.56	624	EKYB101E□□560MJC5S
	330	10×25	0.045	0.18	1,550	EKYB630E□□331MJ25S		82	10×16	0.10	0.40	780	EKYB101E□□820MJ16S
	390	10×30	0.040	0.16	1,780	EKYB630E□□391MJ30S		100	10×20	0.075	0.30	1,040	EKYB101E□□101MJ20S
	390	12.5×20	0.036	0.15	1,780	EKYB630E□□391MK20S		120	10×25	0.060	0.24	1,170	EKYB101E□□121MJ25S
	560	12.5×25	0.030	0.12	2,100	EKYB630E□□561MK25S		150	10×30	0.053	0.22	1,350	EKYB101E□□151MJ30S
	680	12.5×30	0.026	0.11	2,415	EKYB630E□□681MK30S		180	12.5×20	0.048	0.20	1,430	EKYB101E□□181MK20S
	680	16×20	0.028	0.12	2,250	EKYB630E□□681ML20S		220	12.5×25	0.039	0.16	1,620	EKYB101E□□221MK25S
	820	12.5×35	0.022	0.088	2,700	EKYB630E□□821MK35S		270	12.5×30	0.033	0.14	1,950	EKYB101E□□271MK30S
	820	18×20	0.028	0.12	2,500	EKYB630E□□821MM20S		270	16×20	0.036	0.15	1,750	EKYB101E□□271ML20S
	1,000	12.5×40	0.020	0.080	3,000	EKYB630E□□102MK40S		330	16×25	0.028	0.12	2,250	EKYB101E□□331ML25S
	1,000	16×25	0.025	0.10	2,730	EKYB630E□□102ML25S		390	12.5×35	0.026	0.11	2,250	EKYB101E□□391MK35S
1,200	16×31.5	0.020	0.080	3,000	EKYB630E□□122MLN3S	390		18×20	0.032	0.13	2,100	EKYB101E□□391MM20S	
1,200	18×25	0.022	0.088	2,800	EKYB630E□□122MM25S	470		12.5×40	0.024	0.096	2,450	EKYB101E□□471MK40S	
1,500	16×35.5	0.018	0.072	3,200	EKYB630E□□152MLP1S	470	16×31.5	0.022	0.088	2,400	EKYB101E□□471MLN3S		
1,500	18×31.5	0.018	0.072	3,300	EKYB630E□□152MMN3S	560	16×35.5	0.020	0.080	2,600	EKYB101E□□561MLP1S		
1,800	16×40	0.016	0.064	3,590	EKYB630E□□182ML40S	560	18×25	0.027	0.11	2,270	EKYB101E□□561MM25S		
1,800	18×35.5	0.017	0.068	3,570	EKYB630E□□182MMP1S	680	16×40	0.018	0.072	2,900	EKYB101E□□681ML40S		
2,200	18×40	0.016	0.064	3,670	EKYB630E□□222MM40S	680	18×31.5	0.020	0.080	2,550	EKYB101E□□681MMN3S		
80	12	5×11	0.80	3.2	163	EKYB800E□□120ME11D	820	18×35.5	0.018	0.072	3,050	EKYB101E□□821MMP1S	
	22	6.3×11	0.43	1.8	267	EKYB800E□□220MF11D	1,000	18×40	0.017	0.068	3,510	EKYB101E□□102MM40S	
	39	8×11.5	0.18	0.72	462	EKYB800E□□390MHB5D							

□ □ : Enter the appropriate lead forming or taping code.

◆RATED RIPPLE CURRENT MULTIPLIERS

● Frequency Multipliers

Capacitance(μF)	Frequency(Hz)			
	120	1k	10k	100k
6.8 to 180	0.40	0.75	0.90	1.00
220 to 560	0.50	0.85	0.94	1.00
680 to 1,800	0.60	0.87	0.95	1.00
2,200 to 3,900	0.75	0.90	0.95	1.00
4,700 to	0.85	0.95	0.98	1.00

The endurance of capacitors is reduced 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.



Стандарт Электрон Связь

Мы молодая и активно развивающаяся компания в области поставок электронных компонентов. Мы поставляем электронные компоненты отечественного и импортного производства напрямую от производителей и с крупнейших складов мира.

Благодаря сотрудничеству с мировыми поставщиками мы осуществляем комплексные и плановые поставки широчайшего спектра электронных компонентов.

Собственная эффективная логистика и склад в обеспечивает надежную поставку продукции в точно указанные сроки по всей России.

Мы осуществляем техническую поддержку нашим клиентам и предпродажную проверку качества продукции. На все поставляемые продукты мы предоставляем гарантию .

Осуществляем поставки продукции под контролем ВП МО РФ на предприятия военно-промышленного комплекса России , а также работаем в рамках 275 ФЗ с открытием отдельных счетов в уполномоченном банке. Система менеджмента качества компании соответствует требованиям ГОСТ ISO 9001.

Минимальные сроки поставки, гибкие цены, неограниченный ассортимент и индивидуальный подход к клиентам являются основой для выстраивания долгосрочного и эффективного сотрудничества с предприятиями радиоэлектронной промышленности, предприятиями ВПК и научно-исследовательскими институтами России.

С нами вы становитесь еще успешнее!

Наши контакты:

Телефон: +7 812 627 14 35

Электронная почта: sales@st-electron.ru

Адрес: 198099, Санкт-Петербург,
Промышленная ул, дом № 19, литера Н,
помещение 100-Н Офис 331