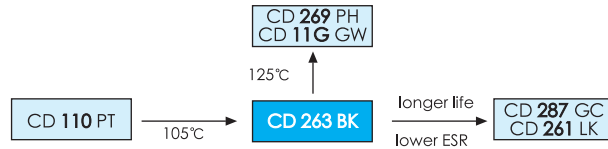


2000h at 105°C

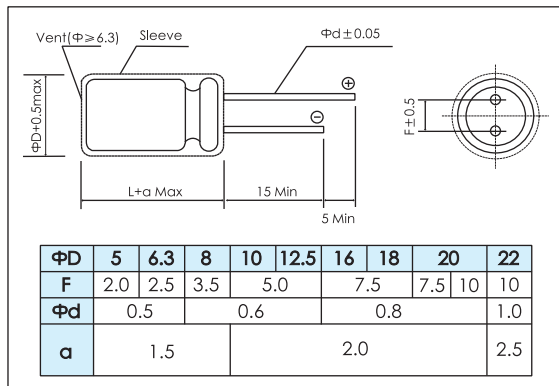
- Standard 105°C



Items	Characteristics																																																																		
Operating Temperature Range (°C)	-40 ~ +105	-25 ~ +105																																																																	
Voltage Range (V)	6.3 ~ 250	315 ~ 500																																																																	
Capacitance Range (µF)	0.1 ~ 15000																																																																		
Capacitance Tolerance (20°C, 120Hz)	± 20%																																																																		
Leakage Current (µA)	<b>6.3 ~ 100V</b> After 2 minutes at 20°C application of rated voltage, leakage current is not more than 0.01CV or 3, whichever is greater.	<b>160 ~ 500V</b> After 1 minute at 20°C application of rated voltage, leakage current is not more than: CV ≤ 1000 : 0.1CV + 40 CV > 1000 : 0.04CV + 100																																																																	
	C: Nominal Capacitance (µF) V: Rated Voltage (V)																																																																		
Dissipation Factor (20°C, 120Hz)	<table border="1"> <tr> <th>Rated Voltage (V)</th> <th>6.3</th> <th>10</th> <th>16</th> <th>25</th> <th>35</th> <th>50</th> <th>63</th> <th>100</th> <th>160</th> <th>200</th> <th>250</th> <th>315</th> <th>350</th> <th>400</th> <th>420</th> <th>450</th> <th>500</th> </tr> <tr> <th>Tan δ (max)</th> <td>0.22</td> <td>0.19</td> <td>0.16</td> <td>0.14</td> <td>0.12</td> <td>0.10</td> <td>0.09</td> <td>0.08</td> <td colspan="3">0.15</td> <td colspan="5">0.20</td> </tr> </table>	Rated Voltage (V)	6.3	10	16	25	35	50	63	100	160	200	250	315	350	400	420	450	500	Tan δ (max)	0.22	0.19	0.16	0.14	0.12	0.10	0.09	0.08	0.15			0.20					When nominal capacitance is over 1000µF tan δ shall be added 0.02 to the listed value with increase of every 1000µF																														
	Rated Voltage (V)	6.3	10	16	25	35	50	63	100	160	200	250	315	350	400	420	450	500																																																	
Tan δ (max)	0.22	0.19	0.16	0.14	0.12	0.10	0.09	0.08	0.15			0.20																																																							
Stability at Low Temperature (Impedance Ratio at 120Hz)	<table border="1"> <tr> <th>Rated Voltage (V)</th> <th>6.3</th> <th>10</th> <th>16</th> <th>25</th> <th>35</th> <th>50</th> <th>63</th> <th>100</th> <th>160</th> <th>200</th> <th>250</th> <th>315</th> <th>350</th> <th>400</th> <th>420</th> <th>450</th> <th>500</th> </tr> <tr> <th>Z<sub>-25°C</sub> / Z<sub>+20°C</sub></th> <td>4</td> <td>3</td> <td colspan="3">2</td> <td colspan="3">3</td> <td colspan="5">6</td> </tr> <tr> <th>Z<sub>-40°C</sub> / Z<sub>+20°C</sub></th> <td>8</td> <td>6</td> <td>4</td> <td colspan="3">3</td> <td colspan="2">8</td> <td colspan="8">-</td> </tr> </table>	Rated Voltage (V)	6.3	10	16	25	35	50	63	100	160	200	250	315	350	400	420	450	500	Z <sub>-25°C</sub> / Z <sub>+20°C</sub>	4	3	2			3			6					Z <sub>-40°C</sub> / Z <sub>+20°C</sub>	8	6	4	3			8		-																								
	Rated Voltage (V)	6.3	10	16	25	35	50	63	100	160	200	250	315	350	400	420	450	500																																																	
Z <sub>-25°C</sub> / Z <sub>+20°C</sub>	4	3	2			3			6																																																										
Z <sub>-40°C</sub> / Z <sub>+20°C</sub>	8	6	4	3			8		-																																																										

	Useful Life		Load Life	Endurance Test	Shelf Life
Lifetime	Φ ≤ 8 : 2000h Φ ≥ 10 : 3000h	>100000h	Φ ≤ 8 : 1000h Φ ≥ 10 : 2000h	2000h	1000h
Leakage Current	Not more than specified value		Not more than specified value	Not more than specified value	Not more than specified value
Capacitance Change	Within ± 30% of initial value		Within ± 20% of initial value	Within ± 20% of initial value	Within ± 20% of initial value
Dissipation Factor	Not more than 300% of specified value		Not more than 200% of specified value	Not more than 150% of specified value	Not more than 200% of specified value
Condition: Applied Voltage Applied Current Applied Temperature	U <sub>R</sub> I <sub>R</sub> 105°C	U <sub>R</sub> 1.4 x I <sub>R</sub> 40°C	U <sub>R</sub> I <sub>R</sub> 105°C	U <sub>R</sub> I <sub>R</sub> = 0 105°C	After test: U <sub>R</sub> to be applied for 30min >24h before measurement

## Dimensions



mm

## Frequency Coefficient

Rated Voltage (V)	Frequency						
	Cap (µF)	50/60Hz	120Hz	1kHz	10kHz	50kHz	100kHz
6.3 ~ 100	0.1 ~ 4.7	0.32	0.4	0.7	0.8	0.92	1.0
	10 ~ 47	0.40	0.5	0.8	0.9	0.96	1.0
	100 ~ 220	0.56	0.7	0.9	0.9	0.96	1.0
	330 ~ 1000	0.64	0.8	0.9	1.0	1.0	1.0
	2200 ~ 15000	0.72	0.9	1.0	1.0	1.0	1.0
160 ~ 500	0.47 ~ 10	0.80	1.0	1.75	2.0	2.4	2.5
	22 ~ 56	0.80	1.0	1.6	1.8	1.9	2.0
	68 ~ 220	0.80	1.0	1.3	1.4	1.6	1.65

## Temperature Coefficient

Rated Voltage (V)	Temperature (°C)		
	+70	+85	+105
6.3 ~ 100	2.0	1.7	1.0
160 ~ 500	1.8	1.4	1.0

# CD 263 BK SERIES

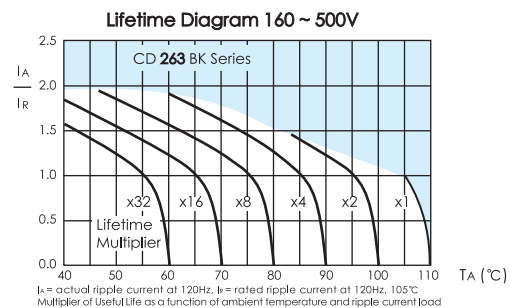
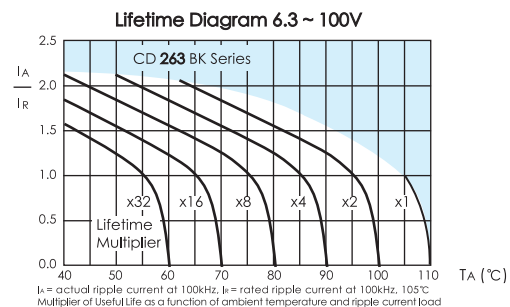


## Ratings for CD 263 BK Series

$U_r$ (Surge Voltage) Code	Rated Capacitance	Max ESR 20°C, 120Hz	Max Imp 20°C, 100kHz	Rated Ripple Current 105°C, 100kHz	Size $\Phi D \times L$	P/N	
(V)	( $\mu F$ )	( $\Omega$ )	( $\Omega$ )	(mAmps)	(mm)	-	
6.3 (7.2) 0J	33	8.8	2.5	105	5×11.5	ECR0JBK330M□□050011	
	47	6.2	1.5	120	5×11.5	ECR0JBK470M□□050011	
	100	2.9	1.2	130	5×11.5	ECR0JBK101M□□050011	
	220	1.3	0.87	180	6.3×11.5	ECR0JBK221M□□063011	
	330	0.9	0.58	220	6.3×11.5	ECR0JBK331M□□063011	
	470	0.6	0.39	315	8×11.5	ECR0JBK471M□□080011	
	1000	0.29	0.23	500	10×12.5	ECR0JBK102M□□100012	
	2200	0.14	0.095	765	10×20	ECR0JBK222M□□100020	
	3300	0.105	0.09	1050	12.5×20	ECR0JBK332M□□125020	
	4700	0.079	0.061	1670	16×25	ECR0JBK472M□□160025	
	6800	0.062	0.056	1740	16×25	ECR0JBK682M□□160025	
	10000	0.053	0.045	2110	16×31.5	ECR0JBK103M□□160031	
	15000	0.044	0.036	2580	18×35.5	ECR0JBK153M□□180035	
	22	11.5	2.5	92	5×11.5	ECR1ABK220M□□050011	
	10 (13) 1A	33	7.6	1.9	105	5×11.5	ECR1ABK330M□□050011
47		5.4	1.5	120	5×11.5	ECR1ABK470M□□050011	
100		2.5	1.2	130	5×11.5	ECR1ABK101M□□050011	
220		1.1	0.58	220	6.3×11.5	ECR1ABK221M□□063011	
330		0.76	0.47	265	8×11.5	ECR1ABK331M□□080011	
470		0.54	0.39	315	8×11.5	ECR1ABK471M□□080011	
1000		0.25	0.18	615	10×16	ECR1ABK102M□□100016	
2200		0.13	0.09	1050	12.5×20	ECR1ABK222M□□125020	
3300		0.09	0.068	1300	12.5×25	ECR1ABK332M□□125025	
4700		0.07	0.056	1740	16×25	ECR1ABK472M□□160025	
6800		0.06	0.045	2110	16×31.5	ECR1ABK682M□□160031	
10000		0.05	0.036	2580	18×35.5	ECR1ABK103M□□180035	
16 (20) 1C		10	21.2	2.5	92	5×11.5	ECR1CBK100M□□050011
		22	9.7	1.9	105	5×11.5	ECR1CBK220M□□050011
		33	6.4	1.5	120	5×11.5	ECR1CBK330M□□050011
	47	4.5	1.2	130	5×11.5	ECR1CBK470M□□050011	
	100	2.1	0.58	220	6.3×11.5	ECR1CBK101M□□063011	
	220	0.97	0.47	290	8×11.5	ECR1CBK221M□□080011	
	330	0.64	0.39	315	8×11.5	ECR1CBK331M□□080011	
	470	0.45	0.23	500	10×12.5	ECR1CBK471M□□100012	
	1000	0.21	0.12	825	10×20	ECR1CBK102M□□100020	
	2200	0.11	0.068	1300	12.5×25	ECR1CBK222M□□125025	
	3300	0.08	0.056	1740	16×25	ECR1CBK332M□□160025	
	4700	0.06	0.045	2110	16×31.5	ECR1CBK472M□□160031	
	6800	0.05	0.036	2580	18×35.5	ECR1CBK682M□□180035	
	25 (32) 1E	4.7	39.5	3	85	5×11.5	ECR1EBK4R7M□□050011
		10	18.6	2.5	92	5×11.5	ECR1EBK100M□□050011
22		8.4	1.9	105	5×11.5	ECR1EBK220M□□050011	
33		5.6	1.5	120	5×11.5	ECR1EBK330M□□050011	
47		4.0	1.2	130	5×11.5	ECR1EBK470M□□050011	
100		1.9	0.58	220	6.3×11.5	ECR1EBK101M□□063011	
220		0.84	0.39	315	8×11.5	ECR1EBK221M□□080011	
330		0.56	0.23	500	10×12.5	ECR1EBK331M□□100012	
470		0.40	0.18	615	10×16	ECR1EBK471M□□100016	
1000		0.19	0.09	1050	12.5×20	ECR1EBK102M□□125020	
2200		0.10	0.056	1740	16×25	ECR1EBK222M□□160025	
3300		0.07	0.045	2110	16×31.5	ECR1EBK332M□□160031	
4700		0.06	0.036	2580	18×35.5	ECR1EBK472M□□180035	
35 (44) 1V		4.7	33.9	2.5	92	5×11.5	ECR1VBK4R7M□□050011
		10	15.9	1.8	105	5×11.5	ECR1VBK100M□□050011
	22	7.2	1.5	120	5×11.5	ECR1VBK220M□□050011	
	33	4.8	1.5	130	5×11.5	ECR1VBK330M□□050011	
	47	3.4	0.58	220	6.3×11.5	ECR1VBK470M□□063011	
	100	1.6	0.39	315	8×11.5	ECR1VBK101M□□080011	
	220	0.72	0.23	500	10×12.5	ECR1VBK221M□□100012	
	330	0.48	0.18	615	10×16	ECR1VBK331M□□100016	
	470	0.34	0.12	825	10×20	ECR1VBK471M□□100020	
	1000	0.16	0.068	1300	12.5×25	ECR1VBK102M□□125025	
	2200	0.08	0.045	2110	16×31.5	ECR1VBK222M□□160031	
	3300	0.06	0.036	2580	18×35.5	ECR1VBK332M□□180035	

$U_r$ (Surge Voltage) Code	Rated Capacitance	Max ESR 20°C, 120Hz	Max Imp 20°C, 100kHz	Rated Ripple Current 105°C, 100kHz	Size $\Phi D \times L$	P/N	
(V)	( $\mu F$ )	( $\Omega$ )	( $\Omega$ )	(mAmps)	(mm)	-	
50 (63) 1H	0.1	1327	18	10	5×11.5	ECR1HBK0R1M□□050011	
	0.22	603	13	15	5×11.5	ECR1HBK22M□□050011	
	0.33	402	10	18	5×11.5	ECR1HBK33M□□050011	
	0.47	282	7	23	5×11.5	ECR1HBK47M□□050011	
	1	133	4.9	35	5×11.5	ECR1HBK101M□□050011	
	2.2	60	4.2	53	5×11.5	ECR1HBK2R2M□□050011	
	3.3	40	3.9	65	5×11.5	ECR1HBK3R3M□□050011	
	4.7	28	3.6	82	5×11.5	ECR1HBK4R7M□□050011	
	10	13	2.7	100	5×11.5	ECR1HBK100M□□050011	
	22	6	1.9	125	5×11.5	ECR1HBK220M□□050011	
	33	4	1.1	195	6.3×11.5	ECR1HBK330M□□063011	
	47	2.8	0.9	245	6.3×11.5	ECR1HBK470M□□063011	
	100	1.3	0.5	385	8×11.5	ECR1HBK101M□□080011	
	220	0.60	0.27	505	10×16	ECR1HBK221M□□100016	
	330	0.40	0.18	675	10×20	ECR1HBK331M□□100020	
	470	0.28	0.12	895	12.5×20	ECR1HBK471M□□125020	
	1000	0.13	0.076	1495	16×25	ECR1HBK102M□□160025	
	2200	0.07	0.05	2190	18×35.5	ECR1HBK222M□□180035	
	63 (79) 1J	4.7	25	5.8	74	5×11.5	ECR1JBK4R7M□□050011
		10	12	3.6	95	5×11.5	ECR1JBK100M□□050011
22		5	2.1	130	6.3×11.5	ECR1JBK220M□□063011	
33		4	1.7	160	6.3×11.5	ECR1JBK330M□□063011	
47		2.5	1.2	305	8×11.5	ECR1JBK470M□□080011	
100		1.2	0.65	395	10×12.5	ECR1JBK101M□□100012	
220		0.54	0.32	505	10×20	ECR1JBK221M□□100020	
330		0.36	0.22	660	12.5×20	ECR1JBK331M□□125020	
470		0.25	0.16	850	12.5×25	ECR1JBK471M□□125025	
1000		0.12	0.098	1430	16×31.5	ECR1JBK102M□□160031	
100 (125) 2A		0.47	226	13	30	5×11.5	ECR2ABK4R7M□□050011
		1	106	11	45	5×11.5	ECR2ABK010M□□050011
		2.2	48	9.2	60	5×11.5	ECR2ABK2R2M□□050011
		3.3	32	7.2	67	5×11.5	ECR2ABK3R3M□□050011
		4.7	23	6.3	75	5×11.5	ECR2ABK4R7M□□050011
		10	11	3.3	110	6.3×11.5	ECR2ABK100M□□063011
		22	5	1.4	165	8×11.5	ECR2ABK220M□□080011
		33	3.2	0.94	305	10×12.5	ECR2ABK330M□□100012
		47	2.3	0.68	320	10×16	ECR2ABK470M□□100016
		100	1.1	0.28	585	12.5×20	ECR2ABK101M□□125020
	220	0.48	0.16	1120	16×25	ECR2ABK221M□□160025	
	330	0.32	0.13	1290	16×25	ECR2ABK331M□□160025	
	470	0.23	0.11	1350	16×31.5	ECR2ABK471M□□160031	

## Lifetime Diagram



MINIATURE

## Ratings for CD 263 BK Series

U <sub>R</sub> (Surge Voltage) Code	Rated Capacitance	Max ESR 20°C, 120Hz	Rated Ripple Current 105°C, 120Hz	Size ΦD x L	P/N
(V)	(μF)	(Ω)	(mAmps)	(mm)	-
160 (200) 2C	0.47	423.5	12	6.3x11.5	ECR2CBK47M□□063011
	1	199.0	18	6.3x11.5	ECR2CBK010M□□063011
	2.2	90.5	26	6.3x11.5	ECR2CBK2R2M□□063011
	3.3	60.3	37	8x11.5	ECR2CBK3R3M□□080011
	4.7	42.3	44	8x11.5	ECR2CBK4R7M□□080011
	10	19.9	75	10x12.5	ECR2CBK100M□□100012
	22	9.0	135	10x16	ECR2CBK220M□□100016
	33	6.0	175	10x20	ECR2CBK330M□□100020
	47	4.2	230	12.5x20	ECR2CBK470M□□125020
	100	2.0	330	16x25.5	ECR2CBK101M□□160025
220	0.9	500	16x35.5	ECR2CBK221M□□160035	
200 (250) 2D	0.47	423.5	12	6.3x11.5	ECR2DBK47M□□063011
	1	199.0	18	6.3x11.5	ECR2DBK010M□□063011
	2.2	90.5	26	6.3x11.5	ECR2DBK2R2M□□063011
	3.3	60.3	37	8x11.5	ECR2DBK3R3M□□080011
	4.7	42.3	50	10x12.5	ECR2DBK4R7M□□100012
	10	19.9	80	10x16	ECR2DBK100M□□100016
	22	9.0	135	10x20	ECR2DBK220M□□100020
	33	6.0	190	12.5x20	ECR2DBK330M□□125020
	47	4.0	230	12.5x25	ECR2DBK470M□□125025
	100	2.0	360	16x25.5	ECR2DBK101M□□160025
220	0.9	525	18x31.5	ECR2DBK221M□□180031	
250 (300) 2E	0.47	423.5	12	6.3x11.5	ECR2EBK47M□□063011
	1	199.0	18	6.3x11.5	ECR2EBK010M□□063011
	2.2	90.5	30	8x11.5	ECR2EBK2R2M□□080011
	3.3	60.3	43	8x11.5	ECR2EBK3R3M□□080011
	4.7	42.3	50	10x12.5	ECR2EBK4R7M□□100012
	10	19.9	90	10x16	ECR2EBK100M□□100016
	22	9.0	155	12.5x20	ECR2EBK220M□□125020
	33	6.0	190	12.5x25	ECR2EBK330M□□125025
	47	4.2	225	16x25.5	ECR2EBK470M□□160025
	100	2.0	340	16x31.5	ECR2EBK101M□□160031
150	1.3	405	18x25.5	ECR2EBK151M□□180025	
220	0.9	570	18x36	ECR2EBK221M□□180036	
315 (350) 2F	0.47	564.6	11	6.3x11.5	ECR2FBK47M□□063011
	1	265.4	18	8x11.5	ECR2FBK010M□□080011
	2.2	120.6	30	10x12.5	ECR2FBK2R2M□□100012
	3.3	80.4	36	10x12.5	ECR2FBK3R3M□□100012
	4.7	56.5	47	10x16	ECR2FBK4R7M□□100016
	10	26.5	95	10x20	ECR2FBK100M□□100020
	22	12.1	130	12.5x20	ECR2FBK220M□□125020
	33	8.0	180	12.5x25	ECR2FBK330M□□125025
	47	5.6	330	16x25.5	ECR2FBK470M□□160025
	100	2.7	620	18x31.5	ECR2FBK101M□□180031
350 (400) 2V	0.47	564.6	11	6.3x11.5	ECR2VBK47M□□063011
	1	265.4	18	8x11.5	ECR2VBK010M□□080011
	2.2	120.6	30	10x12.5	ECR2VBK2R2M□□100012
	3.3	80.4	36	10x12.5	ECR2VBK3R3M□□100012
	4.7	56.5	47	10x16	ECR2VBK4R7M□□100016
	10	26.5	95	10x20	ECR2VBK100M□□100020
	22	12.1	130	12.5x20	ECR2VBK220M□□125020
	33	8.0	180	12.5x25	ECR2VBK330M□□125025
	47	5.6	330	16x25.5	ECR2VBK470M□□160025
	100	2.7	620	18x31.5	ECR2VBK101M□□180031
400 (450) 2G	1	265.4	18	8x11.5	ECR2GBK010M□□080011
	2.2	120.6	25	8x11.5	ECR2GBK2R2M□□080011
	3.3	80.4	35	10x12.5	ECR2GBK3R3M□□100012
	4.7	56.5	47	10x16	ECR2GBK4R7M□□100016
	10	26.5	95	10x20	ECR2GBK100M□□100016
	22	12.1	150	12.5x20	ECR2GBK220M□□125020
	33	8.0	180	12.5x25	ECR2GBK330M□□125025
	47	5.6	360	16x25.5	ECR2GBK470M□□160025
	68	3.9	470	18x25.5	ECR2GBK680M□□180025
	82	3.2	575	18x31.5	ECR2GBK820M□□180031
420 (470) 2X	1	265.4	16	8x11.5	ECR2XBK010M□□080011
	2.2	120.6	24	8x11.5	ECR2XBK2R2M□□080011
	3.3	80.4	34	10x12.5	ECR2XBK3R3M□□100012
	4.7	56.5	46	10x16	ECR2XBK4R7M□□100016
	10	26.5	95	10x20	ECR2XBK100M□□100020
	22	12.1	130	12.5x20	ECR2XBK220M□□125020
	33	8.0	180	12.5x25	ECR2XBK330M□□125025
	47	5.6	360	16x25.5	ECR2XBK470M□□160025
	68	3.9	470	18x25.5	ECR2XBK680M□□180025
	82	3.2	575	18x31.5	ECR2XBK820M□□180031

U <sub>R</sub> (Surge Voltage) Code	Rated Capacitance	Max ESR 20°C, 120Hz	Rated Ripple Current 105°C, 120Hz	Size ΦD x L	P/N
(V)	(μF)	(Ω)	(mAmps)	(mm)	-
420 (470) 2X	10	26.5	100	10x20	ECR2XBK100M□□100020
	22	12.1	162	12.5x20	ECR2XBK100M□□125020
	33	8.0	204	16x20	ECR2XBK220M□□125025
	47	5.6	228	16x25.5	ECR2XBK330M□□160020
	56	4.7	380	16x31.5	ECR2XBK330M□□160025
	68	3.9	542	18x31.5	ECR2XBK470M□□160031
	82	3.2	608	18x31.5	ECR2XBK560M□□160036
	100	2.7	713	18x36	ECR2XBK820M□□180031
	120	2.2	779	18x40	ECR2XBK101M□□180036
	150	1.8	874	20x41	ECR2XBK121M□□160040
450 (500) 2W	1	265.4	16	8x11.5	ECR2WBK010M□□080011
	2.2	120.6	26	10x12.5	ECR2WBK010M□□100012
	3.3	80.4	38	10x16	ECR2WBK2R2M□□100012
	4.7	56.5	49	10x16	ECR2WBK3R3M□□100016
	10	26.5	122	10x20	ECR2WBK4R7M□□100016
	22	12.1	170	12.5x25	ECR2WBK3R3M□□100020
	33	8.0	240	16x25.5	ECR2WBK4R7M□□100020
	47	5.6	400	16x31.5	ECR2WBK100M□□100020
	56	4.7	440	18x25.5	ECR2WBK220M□□125025
	68	3.9	570	18x31.5	ECR2WBK330M□□160031
500 (550) 2H	1	265.4	21	10x12.5	ECR2WBK3R3M□□160036
	2.2	120.6	35	10x16	ECR2WBK4R7M□□160040
	3.3	80.4	48	10x20	ECR2WBK820M□□180036
	4.7	56.5	63	12.5x20	ECR2WBK820M□□180036
	10	26.5	120	12.5x25	ECR2WBK101M□□160045
	22	12.1	180	16x25.5	ECR2WBK101M□□160045
	33	8.0	240	16x31.5	ECR2WBK121M□□180040
	47	5.6	405	18x31.5	ECR2WBK121M□□180040
	56	4.7	450	16x40	ECR2WBK151M□□200041
	68	3.9	560	18x36	ECR2WBK151M□□200041

MINIATURE

Customer products are available on request.