

Type 361R 105 °C, Miniature, Industrial Grade, Radial Leaded

High-value, High Ripple, Low ESR & ESL



Type 361R capacitors are for industrial applications from -40 °C to +105 °C. They deliver excellent ripple capability and low ESR and ESL. Also available with three mounting leads. For three leads, change Type designation from 361R to 366R.

Highlights

- Excellent Ripple Capability
- Low ESR and ESL
- High Value

Specifications

Operating Temperature: -40 °C to +105 °C

Rated Voltage: 6.3 to 450 Vdc

Capacitance: 7 to 18,000 $\mu\text{F} \pm 20\%$

Leakage Current: $\leq 0.002 \text{ CV } \mu\text{F} + 25^\circ\text{C}$, 6.3 to 160 Vdc
 $\leq 0.02 \text{ CV } \mu\text{F} + 25^\circ\text{C}$, 200 to 450 Vdc

Ripple Current Multipliers: **Ambient Temperature**

45 °C	55 °C	65 °C	75 °C	85 °C	95 °C	105 °C
2.00	1.60	1.40	1.25	1.00	0.79	0.5



Complies with the EU Directive 2002/95/EC requirement restricting the use of Lead (Pb), Mercury (Hg), Cadmium (Cd), Hexavalent chromium (Cr(VI)), PolyBrominated Biphenyls (PBB) and PolyBrominated Diphenyl Ethers (PBDE).

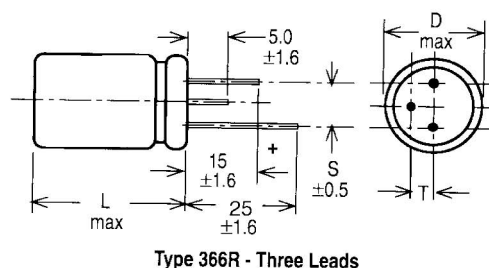
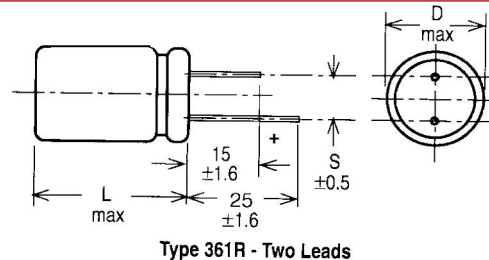
Load Life: 4,000 h @ +105 °C
 Δ Capacitance $\pm 15\%$
 ESR 175% of limit
 DCL 100% of limit

Shelf Life: 1,000 h @ 105 °C
 Δ Capacitance $\pm 15\%$
 ESR 150% of limit
 DCL 200% of limit

Vibration: 10 to 55 Hz, 0.06" and 10 g, 2 h ea of 3 planes

	50 Hz	60 Hz	120 Hz	360 Hz	1 kHz	5 kHz	10 kHz & up
6.3 & 10 V	0.91	0.93	1.00	1.06	1.08	1.09	1.09
16 to 25 V	0.85	0.88	1.00	1.12	1.18	1.21	1.22
35 V & up	0.77	0.82	1.00	1.21	1.32	1.37	1.38

Outline Drawings



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Case Dimensions

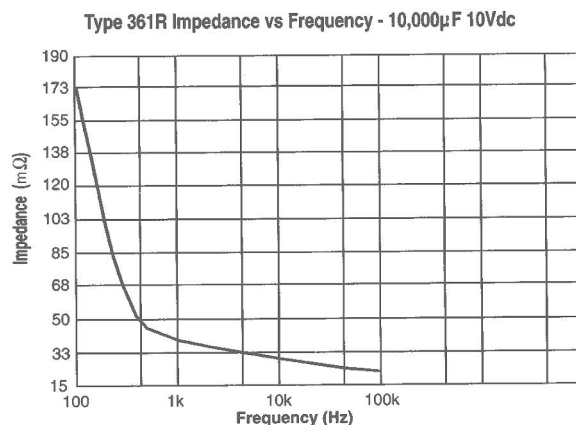
Case Code	Nominal D x L (mm)	Insulated D x L (mm)	Insulated Epoxy Seal (mm)	S ± 0.6 (mm)	T ± 0.5 (mm)	Lead Diam. mm AWG		Weight g
EG	12.5 x 20.0	13.0 x 21.5	13.0 x 23.0	5.0	2.5	0.81	20	3.8
EK	12.5 x 25.0	13.0 x 26.5	13.0 x 29.0	5.0	2.5	0.81	20	4.5
EM	12.5 x 26.5	13.0 x 28.0	13.0 x 29.5	5.0	2.5	0.81	20	4.7
EN	12.5 x 33.5	13.0 x 34.2	13.0 x 36.0	5.0	2.5	0.81	20	5.8
ER	12.5 x 42.5	13.0 x 43.7	13.0 x 45.5	5.0	2.5	0.81	20	7.3
FK	16.0 x 25.0	16.5 x 26.2	16.5 x 27.9	7.5	3.75	0.81	20	7.2
FF	16.0 x 32.0	16.5 x 33.5	16.5 x 36.0	7.5	3.75	0.81	20	9.4
FN	16.0 x 33.5	16.5 x 34.2	16.5 x 36.0	7.5	3.75	0.81	20	9.5
FQ	16.0 x 36.0	16.5 x 37.5	16.5 x 40.0	7.5	3.75	0.81	20	10.6
FV	16.0 x 40.0	16.5 x 41.7	16.5 x 42.4	7.5	3.75	0.81	20	11.9
LQ	18.0 x 36.0	18.5 x 37.5	18.5 x 40.0	7.5	3.75	0.81	20	13.4
LV	18.0 x 40.0	18.5 x 42.0	18.5 x 43.0	7.5	3.75	0.81	20	14.9
HH	22.0 x 22.0	22.5 x 23.5	22.5 x 26.0	10.0	5.0	0.81	20	11.0
HK	22.0 x 25.0	22.5 x 26.2	22.5 x 27.9	10.0	5.0	0.81	20	13.5
HG	22.0 x 30.0	22.5 x 32.5	22.5 x 34.0	10.0	5.0	0.81	20	15.1

L incl. Sleeve & Epoxy Seal - Millimeters

Part Numbering System

361R	183	M	6R3	LV	2	E
Type 361R or 366R	Capacitance 100 = 10 μ F 101 = 100 μ F 183 = 18000 μ F	Tolerance M = $\pm 20\%$ U = $-10 + 75\%$	Voltage 6R3 = 6.3 Vdc 063 = 63 Vdc	Case Code	Insulation 0 = None 2 = PVC	Epoxy End Seal (blank) = no epoxy E = Epoxy

Typical Performance Curves



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Ratings

Cap. (µF)	Catalog Part Number	ESR Max. 120 Hz 25°C (Ω)	Ripple A 120 Hz 85°C (A)	Nom Size D X L (mm)	Cap. (µF)	Catalog Part Number	ESR Max. 120 Hz 25°C (Ω)	Ripple A 120 Hz 85°C (A)	Nom Size D X L (mm)
6.3 Vdc (8 Vdc Surge)					20 Vdc (25 Vdc Surge)				
2200	361R222M6R3EG2	0.205	1.130	12.5 x 20	1000	361R102M020EG2	0.200	0.970	12.5 x 20
3300	361R332M6R3EK2	0.140	1.440	12.5 x 25	1500	361R152M020EK2	0.133	1.300	12.5 x 25
3900	361R392M6R3EM2	0.131	1.380	12.5 x 26.5	2200	361R222M020EM2	0.103	1.510	12.5 x 26.5
4700	361R472M6R3EN2	0.098	1.840	12.5 x 33.5	2700	361R272M020EN2	0.084	1.840	12.5 x 33.5
6800	361R682M6R3ER2	0.075	2.160	12.5 x 42.5	3300	361R332M020FK2	0.076	2.000	16 x 25
6800	361R682M6R3FK2	0.084	2.000	16 x 25	3300	361R332M020HH2	0.076	2.320	22 x 22
6800	361R682M6R3HH2	0.091	2.200	22 x 22	3900	361R392M020ER2	0.065	2.320	12.5 x 42.5
8200	361R822M6R3HK2	0.075	2.330	22 x 25	3900	361R392M020HK2	0.065	2.500	22 x 25
10000	361R103M6R3FF2	0.068	2.330	16 x 32	4700	361R472M020FF2	0.060	2.480	16 x 32
10000	361R103M6R3HG2	0.046	3.290	22 x 30	5600	361R562M020FQ2	0.055	2.720	16 x 36
12000	361R123M6R3FQ2	0.062	2.550	16 x 36	6800	361R682M020FV2	0.053	2.900	16 x 40
12000	361R123M6R3FV2	0.058	2.750	16 x 40	6800	361R682M020HG2	0.047	3.330	22 x 30
15000	361R153M6R3HV2	0.044	3.420	22 x 40	8200	361R822M020LQ2	0.047	3.180	18 x 36
15000	361R153M6R3LQ2	0.053	2.990	18 x 36	10000	361R103M020HV2	0.044	3.750	22 x 40
18000	361R183M6R3LV2	0.049	3.240	18 x 40	10000	361R103M020LV2	0.044	3.280	18 x 40
10 Vdc (12.5 Vdc Surge)					25 Vdc (32 Vdc Surge)				
1500	361R152M010EG2	0.210	0.947	12.5 x 20	820	361R821M025EG2	0.280	0.860	12.5 x 20
2200	361R222M010EK2	0.158	1.330	12.5 x 25	1000	361R102M025EK2	0.230	1.080	12.5 x 25
2700	361R272M010EM2	0.144	1.420	12.5 x 26.5	1200	361R122M025EM2	0.190	1.150	12.5 x 26.5
3300	361R332M010EN2	0.115	1.760	12.5 x 33.5	1800	361R182M025EN2	0.128	1.550	12.5 x 33.5
4700	361R472M010ER2	0.083	2.250	12.5 x 42.5	2200	361R222M025FK2	0.121	1.660	16 x 25
4700	361R472M010FK2	0.093	2.000	16 x 25	2200	361R222M025HH2	0.121	1.840	22 x 22
4700	361R472M010HH2	0.094	2.170	22 x 22	2700	361R272M025ER2	0.096	2.000	12.5 x 42.5
5600	361R562M010HK2	0.074	2.540	22 x 25	3300	361R332M025FF2	0.091	2.080	16 x 32
6800	361R682M010FF2	0.073	2.440	16 x 32	3300	361R332M025HK2	0.091	2.230	22 x 25
8200	361R822M010FQ2	0.063	2.950	16 x 36	3900	361R392M025FK2	0.081	2.360	16 x 36
8200	361R822M010HG2	0.052	3.170	22 x 30	4700	361R472M025FV2	0.071	2.560	16 x 40
10000	361R103M010FV2	0.059	3.000	16 x 40	4700	361R472M025HG2	0.071	2.750	22 x 30
12000	361R123M010HV2	0.046	3.390	22 x 40	4700	361R472M025LQ2	0.071	2.710	18 x 36
12000	361R123M010LQ2	0.056	3.050	18 x 36	5600	361R562M025LV2	0.065	2.830	18 x 40
15000	361R153M010LV2	0.051	3.400	18 x 40	6800	361R682M025HV2	0.053	3.610	22 x 40
16 Vdc (20 Vdc Surge)					35 Vdc (44 Vdc Surge)				
1000	361R102M016EG2	0.265	0.942	12.5 x 20	680	361R681M035EG2	0.287	0.850	12.5 x 20
1800	361R182M016EK2	0.156	1.350	12.5 x 25	1000	361R102M035EK2	0.199	1.200	12.5 x 25
2200	361R222M016EM2	0.147	1.410	12.5 x 26.5	1200	361R122M035EM2	0.190	1.250	12.5 x 26.5
3300	361R332M016EN2	0.108	1.790	12.5 x 33.5	1500	361R152M035EN2	0.133	1.570	12.5 x 33.5
3300	361R332M016FK2	0.100	1.880	16 x 25	1800	361R182M035FK2	0.133	1.620	16 x 25
3300	361R332M016HH2	0.100	2.080	22 x 22	1800	361R182M035HH2	0.110	1.840	22 x 22
4700	361R472M016ER2	0.084	2.200	12.5 x 42.5	2200	361R222M035ER2	0.106	1.900	12.5 x 42.5
4700	361R472M016FF2	0.077	2.280	16 x 32	2200	361R222M035FF2	0.106	2.000	16 x 32
4700	361R472M016HK2	0.082	2.430	22 x 25	2700	361R272M035FQ2	0.086	2.330	16 x 36
6800	361R682M016FQ2	0.066	2.670	16 x 36	2700	361R272M035HK2	0.086	2.180	22 x 25
6800	361R682M016FV2	0.064	2.700	16 x 40	3300	361R332M035FV2	0.080	2.380	16 x 40
6800	361R682M016HG2	0.014	3.110	22 x 30	3300	361R332M035HG2	0.081	2.570	22 x 30
7800	361R782M016LQ2	0.060	2.800	18 x 36	3300	361R332M035LQ2	0.080	2.400	18 x 36
9000	361R902M016HV2	0.011	3.590	22 x 40	4700	361R472M035HV2	0.064	3.270	22 x 40
10000	361R103M016LV2	0.053	3.000	18 x 40	4700	361R472M035LV2	0.064	2.700	18 x 40

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Cap. (µF)	Catalog Part Number	ESR Max. 120 Hz 25°C (Ω)	Ripple A 120 Hz 85°C (A)	Nom Size D X L (mm)
50 Vdc (63 Vdc Surge)				
330	361R331M050EG2	0.443	0.760	12.5 x 20
470	361R471M050EK2	0.343	0.960	12.5 x 25
560	361R561M050EM2	0.266	1.050	12.5 x 26.5
820	361R821M050EN2	0.180	1.380	12.5 x 33.5
820	361R821M050HH2	0.190	1.560	22 x 22
1000	361R102M050FK2	0.156	1.530	16 x 25
1200	361R122M050ER2	0.125	1.810	12.5 x 42.5
1500	361R152M050FF2	0.101	2.140	16 x 32
1500	361R152M050HK2	0.106	2.160	22 x 25
1800	361R182M050FQ2	0.083	2.440	16 x 36
1800	361R182M050HG2	0.084	2.490	22 x 30
2200	361R222M050LQ2	0.081	2.640	18 x 36
2200	361R222M050FV2	0.081	2.600	16 x 40
2700	361R272M050HV2	0.067	3.190	22 x 40
2700	361R272M050LV2	0.065	3.040	18 x 40
63 Vdc (79 Vdc Surge)				
330	361R331M063EG2	0.450	0.760	12.5 x 20
470	361R471M063EK2	0.318	0.960	12.5 x 25
470	361R471M063EM2	0.318	0.980	12.5 x 26.5
560	361R561M063EN2	0.268	1.150	12.5 x 33.5
680	361R681M063ER2	0.183	1.540	12.5 x 42.5
820	361R821M063FK2	0.220	1.310	16 x 25
820	361R821M063HH2	0.220	1.420	22 x 22
1200	361R122M063FF2	0.150	1.700	16 x 32
1200	361R122M063HK2	0.150	1.810	22 x 25
1500	361R152M063FQ2	0.125	1.980	16 x 36
1500	361R152M063HG2	0.099	2.310	22 x 30
1800	361R182M063FV2	0.100	2.300	16 x 40
1800	361R182M063LQ2	0.100	2.580	18 x 36
2200	361R222M063HV2	0.072	2.990	22 x 40
2200	361R222M063LV2	0.083	2.700	18 x 40
75 Vdc (90 Vdc Surge)				
150	361R151M075EG2	1.070	0.450	12.5 x 20
220	361R221M075EK2	0.727	0.580	12.5 x 25
270	361R271M075EM2	0.600	0.650	12.5 x 26.5
390	361R391M075EN2	0.410	0.870	12.5 x 33.5
470	361R471M075FK2	0.340	1.000	16 x 25
470	361R471M075HH2	0.340	1.040	22 x 22
560	361R561M075ER2	0.285	1.160	12.5 x 42.5
680	361R681M075FF2	0.235	1.320	16 x 32
680	361R681M075HK2	0.235	1.310	22 x 25
820	361R821M075FQ2	0.195	1.520	16 x 36
1000	361R102M075FV2	0.160	1.660	16 x 40
1000	361R102M075HG2	0.161	1.810	22 x 30
1000	361R102M075LQ2	0.160	1.700	18 x 36
1200	361R122M075LV2	0.133	1.900	18 x 40
1500	361R152M075HV2	0.107	2.530	22 x 40

Cap. (µF)	Catalog Part Number	ESR Max. 120 Hz 25°C (Ω)	Ripple A 120 Hz 85°C (A)	Nom Size D X L (mm)
100 Vdc (125 Vdc Surge)				
100	361R101M100EG2	1.650	0.355	12.5 x 20
120	361R121M100EK2	1.320	0.450	12.5 x 25
150	361R151M100EM2	1.100	0.500	12.5 x 26.5
220	361R221M100EN2	0.750	0.666	12.5 x 33.5
220	361R221M100HH2	0.750	0.760	22 x 22
270	361R271M100ER2	0.610	0.750	12.5 x 42.5
270	361R271M100HK2	0.520	0.950	22 x 25
330	361R331M100FK2	0.500	0.875	16 x 25
390	361R391M100FF2	0.420	1.010	16 x 32
470	361R471M100FQ2	0.350	1.150	16 x 36
470	361R471M100FV2	0.350	1.250	16 x 40
470	361R471M100HG2	0.351	1.250	22 x 30
560	361R561M100LQ2	0.290	1.370	18 x 36
680	361R681M100HV2	0.241	1.690	22 x 40
680	361R681M100LV2	0.240	1.570	18 x 40
160 Vdc (185 Vdc Surge)				
33	361R330M160EG2	5.000	0.200	12.5 x 20
47	361R470M160EK2	3.500	0.250	12.5 x 25
56	361R560M160EM2	2.950	0.280	12.5 x 26.5
82	361R820M160EN2	2.000	0.380	12.5 x 33.5
100	361R101M160ER2	1.650	0.460	12.5 x 42.5
100	361R101M160FK2	1.650	0.430	16 x 25
100	361R101M160HH2	1.650	0.475	22 x 22
150	361R151M160FF2	1.100	0.580	16 x 32
150	361R151M160HK2	1.100	0.610	22 x 25
180	361R181M160FQ2	0.920	0.665	16 x 36
220	361R221M160FV2	0.750	0.770	16 x 40
220	361R221M160HG2	0.751	0.840	22 x 30
220	361R221M160LQ2	0.750	0.800	18 x 36
270	361R271M160LV2	0.610	0.920	18 x 40
330	361R331M160HV2	0.512	0.990	22 x 40
200 Vdc (225 Vdc Surge)				
27	361R270M200EG2	5.900	0.175	12.5 x 20
47	361R470M200EK2	3.600	0.250	12.5 x 25
56	361R560M200EM2	3.000	0.280	12.5 x 26.5
68	361R680M200EN2	2.500	0.340	12.5 x 33.5
82	361R820M200FK2	2.000	0.390	16 x 25
82	361R820M200HH2	2.000	0.430	22 x 22
100	361R101M200ER2	1.650	0.450	12.5 x 42.5
120	361R121M200FF2	1.380	0.520	16 x 32
120	361R121M200HK2	1.380	0.545	22 x 25
150	361R151M200FQ2	1.100	0.600	16 x 36
180	361R181M200HG2	1.000	0.730	22 x 30
220	361R221M200FV2	0.760	0.760	16 x 40
220	361R221M200LQ2	0.760	0.790	18 x 36
270	361R271M200HV2	0.781	0.940	22 x 40
270	361R271M200LV2	0.620	0.910	18 x 40

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Cap. (µF)	Catalog Part Number	ESR Max. 120 Hz 25°C (Ω)	Ripple A 120 Hz 85°C (A)	Nom Size D X L (mm)
250 Vdc (300 Vdc Surge)				
18	361R180M250EG2	9.200	0.145	12.5 x 20
27	361R270M250EK2	6.100	0.190	12.5 x 25
33	361R330M250EM2	5.000	0.215	12.5 x 26.5
47	361R470M250EN2	3.500	0.285	12.5 x 33.5
47	361R470M250FK2	3.500	0.295	16 x 25
56	361R560M250ER2	2.950	0.345	12.5 x 42.5
56	361R560M250HH2	2.950	0.350	22 x 22
68	361R680M250FF2	2.420	0.390	16 x 32
82	361R820M250FQ2	2.000	0.450	16 x 36
82	361R820M250HK2	2.000	0.450	22 x 25
100	361R101M250FV2	1.650	0.515	16 x 40
120	361R121M250HG2	1.380	0.620	22 x 30
120	361R121M250LQ2	1.380	0.585	18 x 36
150	361R151M250LV2	1.100	0.685	18 x 40
180	361R181M250HV2	0.921	0.880	22 x 40
300 Vdc (365 Vdc Surge)				
12	361R120M300EG2	13.80	0.120	12.5 x 20
18	361R180M300EK2	9.150	0.155	12.5 x 25
22	361R220M300EM2	7.500	0.175	12.5 x 26.5
33	361R330M300EN2	5.000	0.240	12.5 x 33.5
33	361R330M300FK2	5.000	0.245	16 x 25
39	361R390M300HH2	4.250	0.295	22 x 22
47	361R470M300ER2	3.500	0.315	12.5 x 42.5
47	361R470M300FF2	3.500	0.325	16 x 32
56	361R560M300FQ2	2.950	0.375	16 x 36
56	361R560M300HK2	2.950	0.375	22 x 25
68	361R680M300FV2	2.420	0.430	16 x 40
68	361R680M300HG2	2.420	0.480	22 x 30
82	361R820M300LQ2	2.000	0.485	18 x 36
100	361R101M300HV2	1.650	0.650	22 x 40
100	361R101M300LV2	1.650	0.555	18 x 40
350 Vdc (400 Vdc Surge)				
10	361R100M350EK2	16.50	0.115	12.5 x 25
15	361R150M350EM2	11.00	0.145	12.5 x 26.5
22	361R220M350EN2	7.500	0.195	12.5 x 33.5
27	361R270M350FK2	6.100	0.225	16 x 25
33	361R330M350ER2	5.000	0.265	12.5 x 42.5

Cap. (µF)	Catalog Part Number	ESR Max. 120 Hz 25°C (Ω)	Ripple A 120 Hz 85°C (A)	Nom Size D X L (mm)
33	361R330M350HH2	5.000	0.275	22 x 22
39	361R390M350FF2	4.250	0.295	16 x 32
47	361R470M350FQ2	3.500	0.340	16 x 36
47	361R470M350HK2	3.500	0.340	22 x 25
56	361R560M350FV2	2.950	0.385	16 x 40
56	361R560M350HG2	2.950	0.420	22 x 30
68	361R680M350LQ2	2.420	0.445	18 x 36
82	361R820M350HV2	2.000	0.590	22 x 40
82	361R820M350LV2	2.000	0.500	18 x 40
400 Vdc (450 Vdc Surge)				
8	361R080M400EK2	20.00	0.105	12.5 x 25
12	361R120M400EM2	13.80	0.125	12.5 x 26.5
18	361R180M400EN2	9.100	0.175	12.5 x 33.5
22	361R220M400FK2	7.500	0.200	16 x 25
27	361R270M400ER2	6.100	0.235	12.5 x 42.5
33	361R330M400FF2	5.000	0.275	16 x 32
33	361R330M400HH2	5.000	0.275	22 x 22
39	361R390M400FQ2	4.200	0.315	16 x 36
39	361R390M400HK2	4.200	0.315	22 x 25
47	361R470M400FV2	3.500	0.355	16 x 40
47	361R470M400HG2	3.510	0.390	22 x 30
56	361R560M400LQ2	2.950	0.400	18 x 36
68	361R680M400HV2	2.420	0.530	22 x 40
68	361R680M400LV2	2.420	0.465	18 x 40
450 Vdc (500 Vdc Surge)				
7	361R070M450EK2	20.00	0.100	12.5 x 25
10	361R100M450EM2	16.50	0.120	12.5 x 26.5
15	361R150M450EN2	11.00	0.165	12.5 x 33.5
18	361R180M450FK2	9.100	0.185	16 x 25
22	361R220M450ER2	7.500	0.215	12.5 x 42.5
27	361R270M450FF2	6.100	0.245	16 x 32
27	361R270M450HH2	6.100	0.245	22 x 22
33	361R330M450FQ2	5.000	0.285	16 x 36
33	361R330M450HK2	5.000	0.300	22 x 25
39	361R390M450FV2	4.200	0.325	16 x 40
39	361R390M450HG2	4.200	0.350	22 x 30
47	361R470M450LQ2	3.500	0.365	18 x 36
56	361R560M450LV2	2.950	0.415	18 x 40
68	361R680M450HV2	2.450	0.530	22 x 40