

# +105°C Miniature Radial Lead, Aluminum Capacitors

## Features-

- Wide Temperature Range
- Improved SMPS Output Capacitors
- High CV
- Optional 3<sup>rd</sup> Lead On Diameters  $\geq 12.5\text{mm}$

## General Specifications-

### Operating Temperature:

-55 to +105°C

### Voltage Range:

75 – 250 VDC

### Capacitance Range:

3.3 $\mu\text{F}$  to 390 $\mu\text{F}$

### Capacitance Tolerance:

-10%/+50% (Std.)

### Case Size Range:

10.0 X 13.0mm – 18.0 X 40.0mm

### Termination:

2 or 3 Lead Radial And Axial Mount.

### Life Validation Test:

4,000hrs @ +105°C ( $\geq 13.0\text{mm}$  dia.):

3,000hrs @ +105°C (10.0mm):

$\Delta \text{CAP} \leq 20\%$  From initial measurement.

$\Delta \text{ESR} \leq 1.15\text{X}$  Initial specified limit.

$\Delta \text{DCL} \leq$  Initial specified limit.

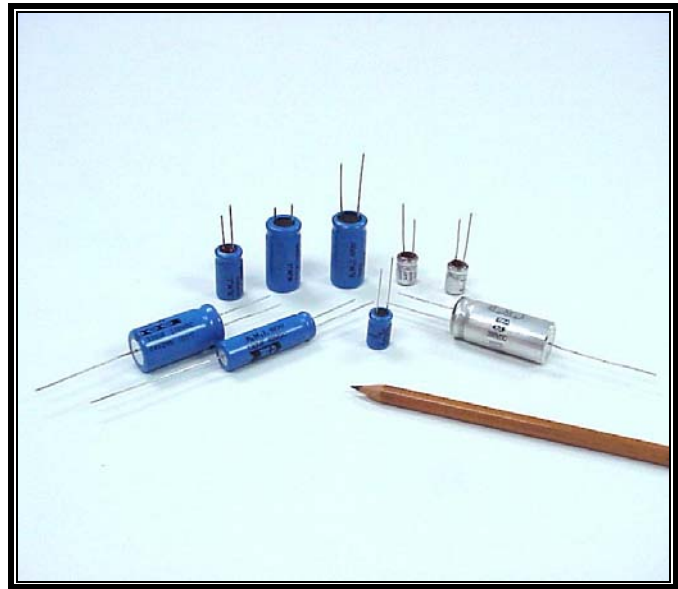
### Shelf Test: 500hrs @ +105°C

$\Delta \text{CAP} \leq 10\%$  From initial measurement.

$\Delta \text{ESR} \leq 1.15\text{X}$  Initial specified limit.

$\Delta \text{DCL} \leq 2\text{X}$  Initial specified limit.

( $\leq 3\text{X}$  Initial specified limit 150–250VDC)



### DC Leakage Current: (After 2 min. charge)

$$I = 0.01CV$$

Where:

I is in  $\mu\text{A}$

C is in  $\mu\text{F}$

V is in Volts

### Ripple Current Multipliers:

Temperature:

Ambient Temp.	Multiplier
+105°C	0.50
+95°C	0.77
+85°C	1.00
+75°C	1.25
$\leq +65^\circ\text{C}$	1.34

Frequency (Hz):

VDC	50-60	100-120	300-400	1k-19k	20k-200k
75	0.60	0.70	0.75	0.80	1.00
76-100	0.45	0.55	0.70	0.80	1.00
101-250	0.25	0.35	0.45	0.65	1.00

### Low Temperature Performance:

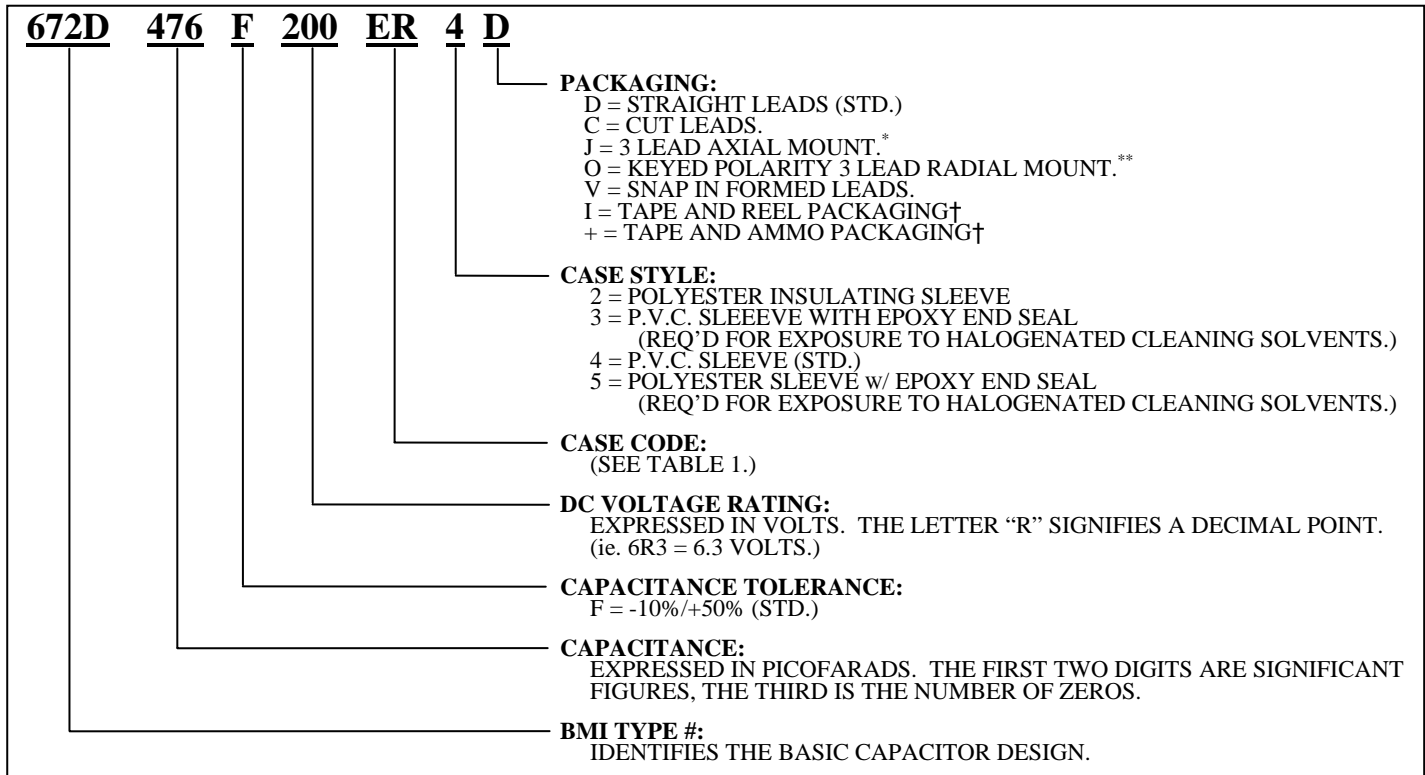
Capacitance Ratio  $C^{-55^\circ\text{C}}/C^{+25^\circ\text{C}}$  min. @ 120Hz.

Max. Capacitance Change	Voltage (VDC)	Multiplier
	75 – 100	0.75
	150 – 250	0.70

Impedance Ratio  $Z^{-55^\circ\text{C}}/Z^{+25^\circ\text{C}}$  min. @ 120Hz

Max. Impedance Change	Voltage (VDC)	Multiplier
	75 – 100	2.50
	150 – 250	2.00

## PART NUMBER BREAK-DOWN:



\*Available for 12.5, 16, and 18mm dia. units.

\*\*Available for 12.5, 16, and 18mm dia. units with epoxy end-seal.

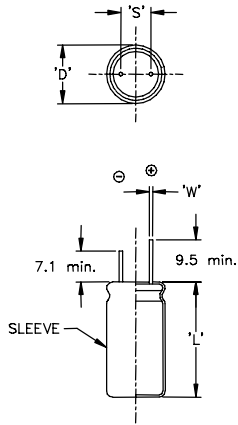
† Available for 10 mm dia. units.

### Table 1. Case Dimensions mm(in.)

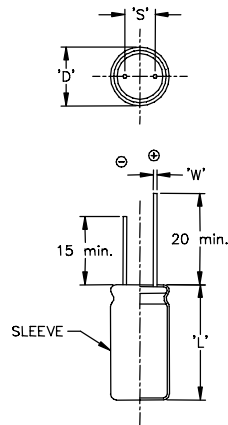
CASE CODE	NOMINAL		STYLES 2 & 4		STYLES 3 & 5 (w/EPOXY)		LEAD SPACING		WIRE GAUGE 'W'
	'D'	'L'	'D' MAX.	'L' MAX.	'D' MAX.	'L' MAX.	S ± 0.6	T ± 0.5	
CC	10.0 (0.394)	13.0 (0.512)	10.5 (0.413)	14.3 (0.563)	10.5 (0.413)	16.0 (0.630)	5.0 (0.197)	N/A	No. 22 AWG (0.025)
CD	10.0 (0.394)	16.0 (0.630)	10.5 (0.413)	17.0 (0.669)	10.5 (0.413)	18.8 (0.740)	5.0 (0.197)	N/A	No. 22 AWG (0.025)
CG	10.0 (0.394)	20.0 (0.787)	10.5 (0.413)	21.5 (0.846)	10.5 (0.413)	23.0 (0.906)	5.0 (0.197)	N/A	No. 22 AWG (0.025)
DG	12.5 (0.492)	20.0 (0.787)	13.0 (0.512)	21.2 (0.835)	13.0 (0.512)	23.0 (0.906)	5.0 (0.197)	2.5 (0.098)	No. 20 AWG (0.032)
DK	12.5 (0.492)	25.0 (0.984)	13.0 (0.512)	26.2 (1.031)	13.0 (0.512)	29.0 (1.142)	5.0 (0.197)	2.5 (0.098)	No. 20 AWG (0.032)
DM	12.5 (0.492)	26.5 (1.043)	13.0 (0.512)	28.0 (1.102)	13.0 (0.512)	29.5 (1.161)	5.0 (0.197)	2.5 (0.098)	No. 20 AWG (0.032)
DT	12.5 (0.492)	33.5 (1.319)	13.0 (0.512)	34.2 (1.347)	13.0 (0.512)	36.0 (1.417)	5.0 (0.197)	2.5 (0.098)	No. 20 AWG (0.032)
DS	12.5 (0.492)	42.5 (1.673)	13.0 (0.512)	43.7 (1.721)	13.0 (0.512)	45.5 (1.791)	5.0 (0.197)	2.5 (0.098)	No. 20 AWG (0.032)
EK	16.0 (0.630)	25.0 (0.984)	16.5 (0.650)	26.2 (1.032)	16.5 (0.650)	27.9 (1.098)	7.5 (0.295)	3.8 (0.150)	No. 20 AWG (0.032)
EN	16.0 (0.630)	32.0 (1.260)	16.5 (0.650)	33.5 (1.319)	16.5 (0.650)	36.0 (1.417)	7.5 (0.295)	3.8 (0.150)	No. 20 AWG (0.032)
ER	16.0 (0.630)	36.0 (1.417)	16.5 (0.650)	37.5 (1.476)	16.5 (0.650)	40.0 (1.575)	7.5 (0.295)	3.8 (0.150)	No. 20 AWG (0.032)
EU	16.0 (0.630)	40.0 (1.575)	16.5 (0.650)	41.7 (1.642)	16.5 (0.650)	42.4 (1.669)	7.5 (0.295)	3.8 (0.150)	No. 20 AWG (0.032)
FR	18.0 (0.709)	36.0 (1.417)	18.5 (0.728)	37.5 (1.476)	18.5 (0.728)	40.0 (1.575)	7.5 (0.295)	3.8 (0.150)	No. 20 AWG (0.032)
FV	18.0 (0.709)	40.0 (1.575)	18.5 (0.728)	41.7 (1.642)	18.5 (0.728)	42.4 (1.669)	7.5 (0.295)	3.8 (0.150)	No. 20 AWG (0.032)

Radial-Leaded Capacitor Dimensions

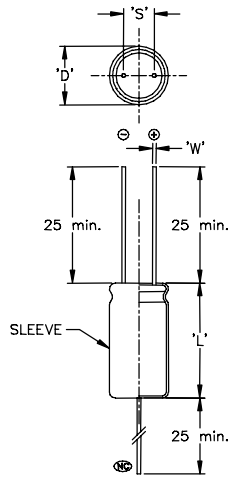
TERMINAL CODE C



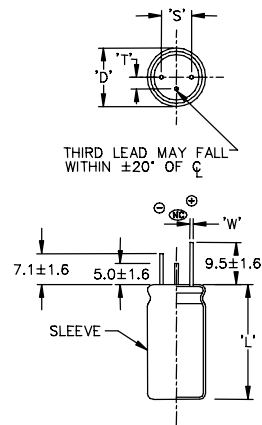
TERMINAL CODE D



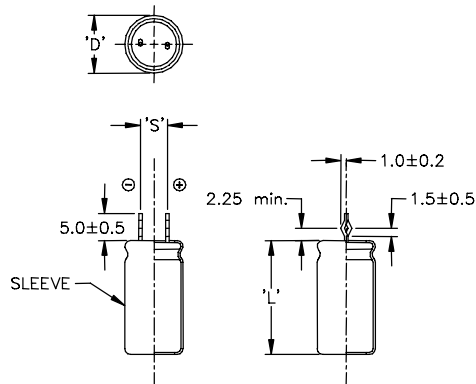
TERMINAL CODE J



TERMINAL CODE O



TERMINAL CODE V  
10 - 18 mm Dia.



Dimensions in mm

⊕ Positive Lead ⊖ Negative Lead (NO) No Charge Potential

## STANDARD RATINGS FOR TYPE 672D

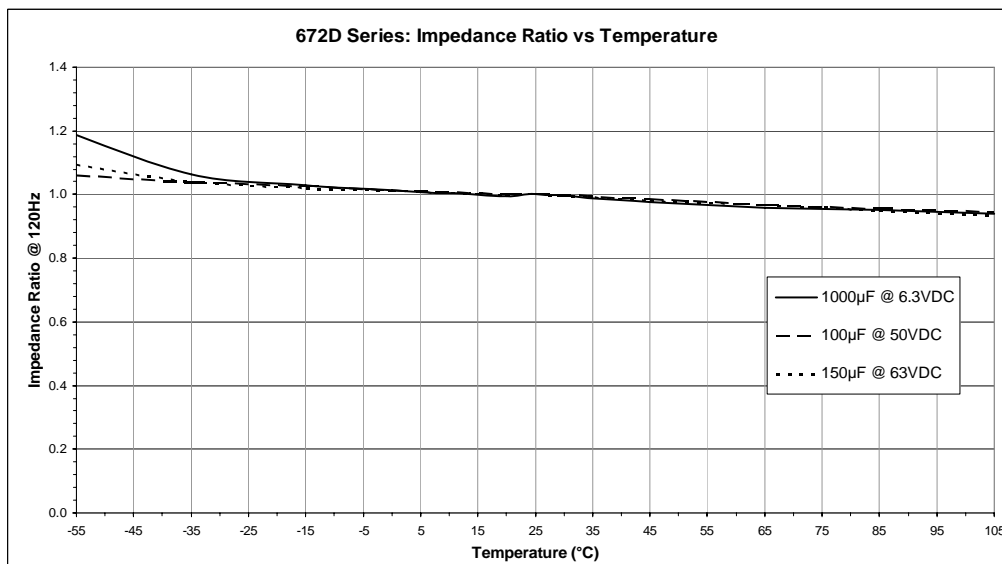
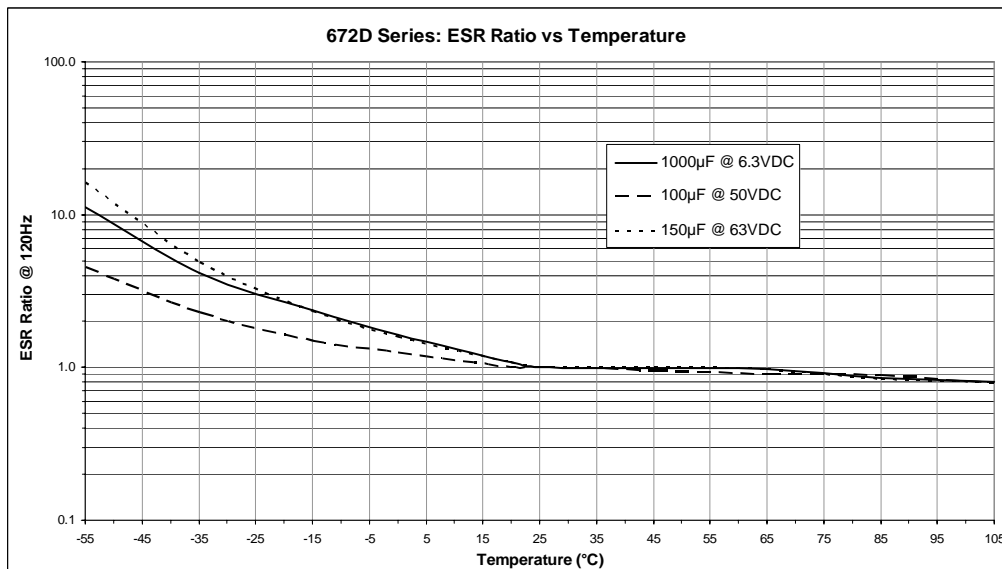
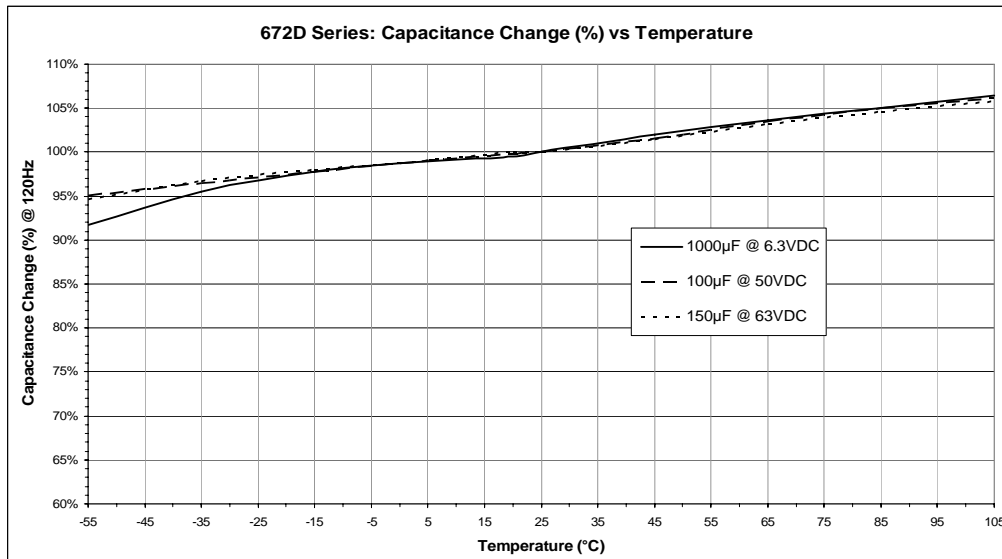
Rated Capacitance ( $\mu$ F)	Catalog Number	Nominal Case Size D x L (mm)	Maximum	Maximum	Maximum	Maximum
			ESR +25°C 120Hz ( $\Omega$ )	ESR +25°C 20-40kHz ( $\Omega$ )	Ripple Current +85°C 20-100kHz (A <sub>rms</sub> )	Z +25°C 100kHz ( $\Omega$ )
<b>100 VOLTS DC WORKING; 125 VOLTS DC SURGE</b>						
12	672D126F100CC4D	10.0 x 13.0	12.30	3.100	0.20	2.600
22	672D226F100CD4D	10.0 x 16.0	10.00	2.300	0.26	1.800
33	672D336F100CG4D	10.0 x 20.0	7.660	1.940	0.35	1.760
47	672D476F100DG4D	12.5 x 20.0	5.930	1.170	0.48	0.980
68	672D686F100DM4D	12.5 x 26.5	2.550	0.550	0.72	0.390
100	672D107F100DT4D	12.5 x 33.5	1.970	0.500	0.80	0.330
120	672D127F100EK4D	16.0 x 25.0	1.200	0.310	1.05	0.260
150	672D157F100DS4D	12.5 x 42.5	0.940	0.270	1.22	0.220
180	672D187F100EN4D	16.0 x 32.0	0.680	0.190	1.50	0.170
220	672D227F100ER4D	16.0 x 36.0	0.660	0.180	1.65	0.170
270	672D277F100EU4D	16.0 x 40.0	0.580	0.160	1.81	0.160
330	672D337F100FR4D	18.0 x 36.0	0.550	0.140	1.82	0.140
390	672D397F100FV4D	18.0 x 40.0	0.520	0.120	2.10	0.120
<b>160 VOLTS DC WORKING; 200 VOLTS DC SURGE</b>						
4.7	672D475F160CC4D	10.0 x 13.0	49.55	4.160	0.13	3.890
6.8	672D685F160CD4D	10.0 x 16.0	33.60	2.580	0.20	2.080
10	672D106F160CG4D	10.0 x 20.0	20.00	2.000	0.31	1.750
15	672D156F160DG4D	12.5 x 20.0	17.40	1.450	0.41	1.250
22	672D226F160DK4D	12.5 x 25.0	12.80	0.960	0.52	0.830
27	672D276F160DM4D	12.5 x 26.5	9.700	0.720	0.66	0.640
39	672D396F160DT4D	12.5 x 33.5	6.200	0.600	0.75	0.520
47	672D476F160EK4D	16.0 x 25.0	6.000	0.620	0.70	0.590
56	672D566F160DS4D	12.5 x 42.5	5.100	0.500	0.90	0.480
68	672D686F160EN4D	16.0 x 32.0	3.500	0.350	1.15	0.280
82	672D826F160ER4D	16.0 x 36.0	2.950	0.320	1.53	0.230
100	672D107F160FR4D	18.0 x 36.0	2.540	0.210	1.65	0.190
120	672D127F160FV4D	18.0 x 40.0	2.000	0.190	1.80	0.160
<b>200 VOLTS DC WORKING; 250 VOLTS DC SURGE</b>						
3.3	672D335F200CC4D	10.0 x 13.0	58.00	4.550	0.12	4.190
4.7	672D475F200CD4D	10.0 x 16.0	41.60	2.870	0.19	2.350
6.8	672D685F200CG4D	10.0 x 20.0	22.50	1.950	0.31	1.750
10	672D106F200DG4D	12.5 x 20.0	19.90	1.780	0.39	1.580
15	672D156F200DK4D	12.5 x 25.0	15.10	1.270	0.50	1.050
18	672D186F200DM4D	12.5 x 26.5	10.60	0.960	0.63	0.880
22	672D226F200DT4D	12.5 x 33.5	7.000	0.580	0.76	0.550
27	672D276F200EK4D	16.0 x 25.0	6.500	0.650	0.68	0.610
33	672D336F200DS4D	12.5 x 42.5	5.990	0.550	0.87	0.590
39	672D396F200EN4D	16.0 x 32.0	3.900	0.340	1.16	0.300
47	672D476F200ER4D	16.0 x 36.0	3.730	0.330	1.50	0.290
56	672D566F200EU4D	16.0 x 40.0	3.250	0.290	1.58	0.270
68	672D686F200FR4D	18.0 x 36.0	2.840	0.260	1.74	0.250
82	672D826F200FV4D	18.0 x 40.0	2.300	0.180	1.90	0.165

## STANDARD RATINGS FOR TYPE 672D

Rated Capacitance ( $\mu$ F)	Catalog Number	Nominal Case Size D x L (mm)	Maximum	Maximum	Maximum	Maximum
			ESR +25°C 120Hz ( $\Omega$ )	ESR +25°C 20-40kHz ( $\Omega$ )	Ripple Current +85°C 20-100kHz (A <sub>rms</sub> )	Z +25°C 100kHz ( $\Omega$ )
<b>250 VOLTS DC WORKING; 300 VOLTS DC SURGE</b>						
2.7	672D275F250CC4D	10.0 x 13.0	108.0	5.900	0.10	6.200
3.9	672D395F250CD4D	10.0 x 16.0	73.80	3.850	0.16	4.000
5.6	672D565F250CG4D	10.0 x 20.0	46.50	3.400	0.18	3.600
8.2	672D825F250DG4D	12.5 x 20.0	29.90	3.050	0.23	3.200
12	672D126F250DK4D	12.5 x 25.0	23.30	2.500	0.27	2.650
15	672D156F250DM4D	12.5 x 26.5	15.00	1.900	0.38	2.000
18	672D186F250DT4D	12.5 x 33.5	12.00	1.500	0.48	1.600
27	672D276F250EK4D	16.0 x 25.0	10.80	1.610	0.53	1.700
27	672D276F250DS4D	12.5 x 42.5	7.820	1.390	0.67	1.400
33	672D336F250EN4D	16.0 x 32.0	5.500	0.720	0.80	0.730
39	672D396F250ER4D	16.0 x 36.0	5.250	0.700	0.90	0.700
47	672D476F250EU4D	16.0 x 40.0	4.680	0.670	1.00	0.680
56	672D566F250FR4D	18.0 x 36.0	3.750	0.550	1.10	0.550
68	672D686F250FV4D	18.0 x 40.0	3.100	0.360	1.30	0.360

## 672D TYPICAL PERFORMANCE PROFILES

### TEMPERATURE CHARACTERISTICS



## 672D TYPICAL PERFORMANCE PROFILES

### FREQUENCY CHARACTERISTICS

