

# +125°C Miniature Axial, Aluminum Capacitors

## Features-

- Extended Temperature Range
- Exceptional Capacitance Stability
- Low DC Leakage Current
- Tantalum Replacement
- Military Version – Mil-PRF-39018/01

## General Specifications-

**Operating Temperature:**  
-55 to +125°C

**Voltage Range:**  
5.0 – 250 VDC

**Capacitance Range:**  
2.2µF to 2,700µF

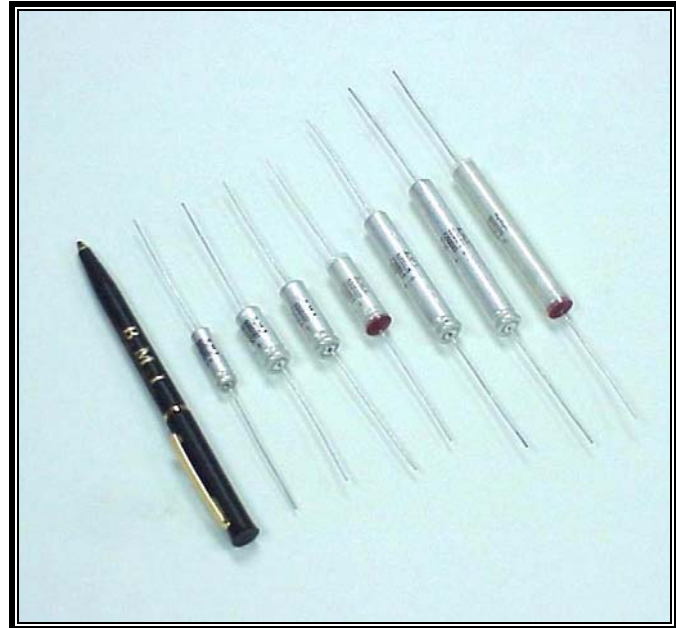
**Capacitance Tolerance:**  
-10%/+50% (Std.)

**Case Size Range:**  
0.281" X 0.937" – 0.375" X 2.687"

**Termination:**  
Axial Leads.

**Life Validation Test: 2,000hrs @ +125°C**  
 Δ CAP ≤ 15% From initial measurement.  
 Δ ESR ≤ 1.30X Initial specified limit.  
 Δ DCL ≤ Initial specified limit.

**Shelf Test: 500hrs @ +125°C**  
 Rated voltage shall be applied to the capacitors for a minimum of 30 minutes, at least 24 hours and not more than 48 hours before the measurements.  
 Δ CAP ≤ 10% From initial measurement.  
 Δ ESR ≤ 1.15X Initial specified limit.  
 Δ DCL ≤ 2.0X Initial specified limit.



## DC Leakage Current: (After 5 min. charge)

$$I = 0.15\sqrt{CV} \quad (0 - 75V)$$

$$I = 0.15\sqrt{CV} + 5 \quad (100 - 250V)$$

Where:

I is in µA  
 C is in µF  
 V is in Volts

## Ripple Current Multipliers:

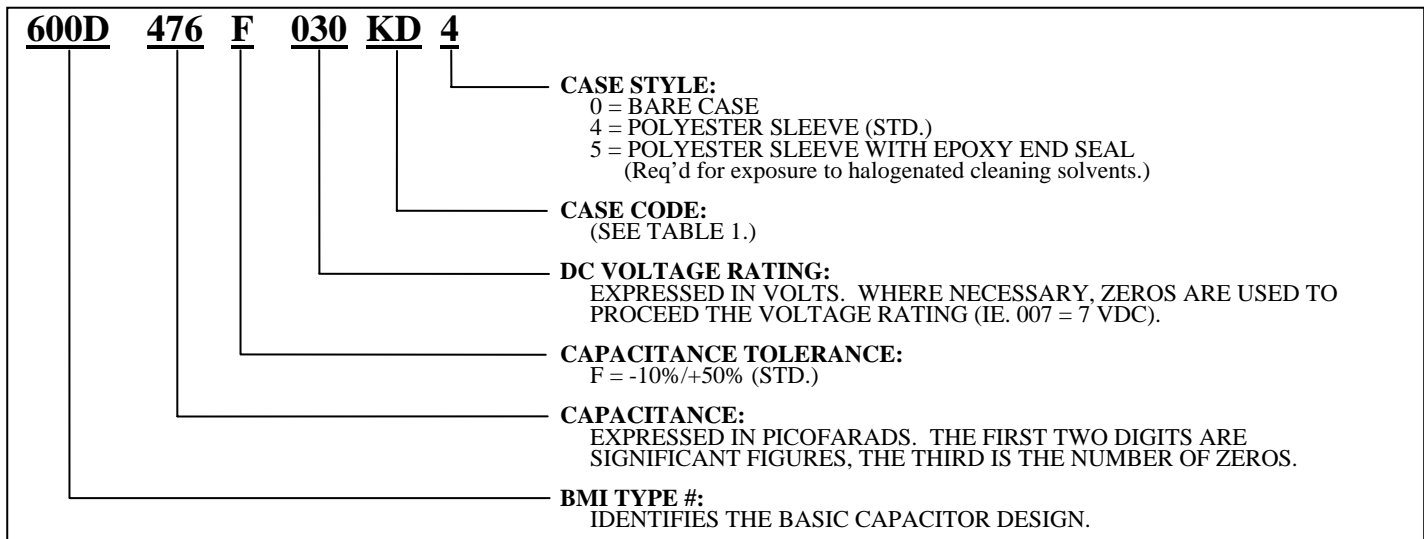
Temperature:

≤+75°C	+85°C	+105°C	+125°C
3.6	3.0	2.2	1.0

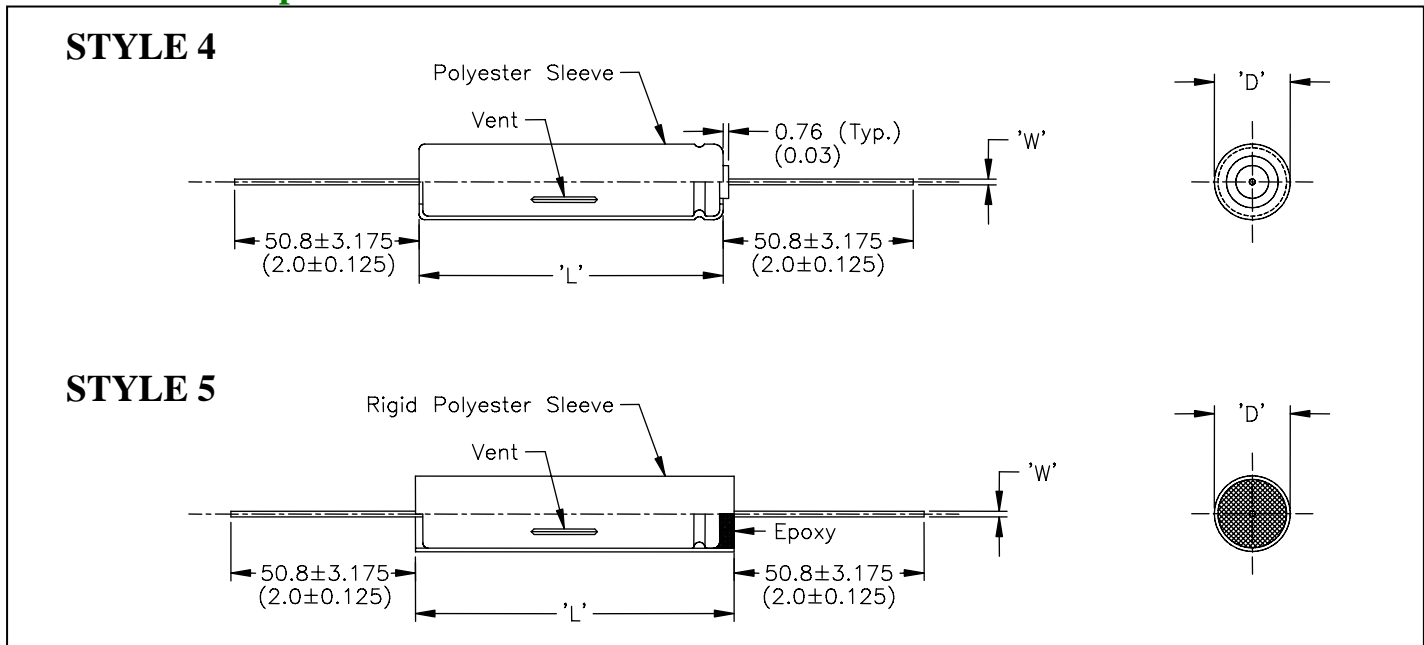
Frequency (Hz)

VDC	50-60	100-120	300-400	1k & Up
0 - 30	0.85	1.00	1.04	1.08
31 - 250	0.80	1.00	1.30	1.40

## PART NUMBER BREAK-DOWN:



## Axial-Leaded Capacitor Dimensions



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

CASE CODE	NOMINAL		STYLE 4		STYLE 5		WIRE GAUGE 'W'
	'D' ±0.4 (±0.016)	'L' ±0.79 (±0.031)	'D' MAX.	'L' MAX.	'D' MAX.	'L' MAX.	
KD	7.14 (0.281)	23.81 (0.937)	7.72 (0.304)	25.40 (1.000)	7.72 (0.304)	28.58 (1.125)	No. 20 AWG (0.032")
DD	9.53 (0.375)	23.81 (0.937)	10.11 (0.398)	25.40 (1.000)	10.11 (0.398)	28.58 (1.125)	No. 20 AWG (0.032")
DE	9.53 (0.375)	28.58 (1.125)	10.11 (0.398)	30.16 (1.187)	10.11 (0.398)	33.34 (1.312)	No. 20 AWG (0.032")
DG	9.53 (0.375)	34.93 (1.375)	10.11 (0.398)	36.51 (1.437)	10.11 (0.398)	39.69 (1.562)	No. 20 AWG (0.032")
DJ	9.53 (0.375)	41.28 (1.625)	10.11 (0.398)	42.86 (1.687)	10.11 (0.398)	46.04 (1.812)	No. 20 AWG (0.032")
DL	9.53 (0.375)	55.56 (2.187)	10.11 (0.398)	57.12 (2.249)	10.11 (0.398)	60.30 (2.374)	No. 20 AWG (0.032")
DX	9.53 (0.375)	68.26 (2.687)	10.11 (0.398)	69.82 (2.749)	10.11 (0.398)	73.00 (2.874)	No. 20 AWG (0.032")

## STANDARD RATINGS FOR TYPE 600D

Rated Capacitance (μF)	Catalog Number	Nominal Case Size D x L (mm)	Max. ESR +25°C 120Hz (Ω)	Max. Ripple Current +125°C 120Hz (A <sub>rms</sub> )
<b>5 VOLTS DC WORKING @ 85°C; 3 VOLTS DC WORKING @ 125°C</b>				
220	600D227F005KD4	7.14 x 23.8	1.750	0.127
470	600D477F005DD4	9.53 x 23.8	0.813	0.221
680	600D687F005DE4	9.53 x 28.6	0.564	0.286
1,000	600D108F005DG4	9.53 x 35.0	0.388	0.377
1,200	600D128F005DJ4	9.53 x 41.3	0.320	0.477
1,800	600D188F005DL4	9.53 x 55.5	0.210	0.631
2,700	600D278F005DX4	9.53 x 68.2	0.140	0.851
<b>7 VOLTS DC WORKING @ 85°C; 5 VOLTS DC WORKING @ 125°C</b>				
180	600D187F007KD4	7.14 x 23.8	2.121	0.115
390	600D397F007DD4	9.53 x 23.8	0.972	0.202
470	600D477F007DE4	9.53 x 28.6	0.813	0.238
680	600D687F007DG4	9.53 x 35.0	0.564	0.312
1,000	600D108F007DJ4	9.53 x 41.3	0.388	0.406
1,500	600D158F007DL4	9.53 x 55.5	0.260	0.567
2,200	600D228F007DX4	9.53 x 68.2	0.175	0.761
<b>10 VOLTS DC WORKING @ 85°C; 7 VOLTS DC WORKING @ 125°C</b>				
120	600D127F010KD4	7.14 x 23.8	3.180	0.094
330	600D337F010DD4	9.53 x 23.8	1.160	0.185
390	600D397F010DE4	9.53 x 28.6	0.972	0.218
560	600D567F010DG4	9.53 x 35.0	0.673	0.286
820	600D827F010DJ4	9.53 x 41.3	0.460	0.373
1,200	600D128F010DL4	9.53 x 55.5	0.318	0.513
1,500	600D158F010DX4	9.53 x 68.2	0.230	0.664
<b>15 VOLTS DC WORKING @ 85°C; 10 VOLTS DC WORKING @ 125°C</b>				
100	600D107F015KD4	7.14 x 23.8	3.880	0.085
220	600D227F015DD4	9.53 x 23.8	1.750	0.150
330	600D337F015DE4	9.53 x 28.6	1.160	0.199
470	600D477F015DG4	9.53 x 35.0	0.813	0.260
560	600D567F015DJ4	9.53 x 41.3	0.686	0.305
820	600D827F015DL4	9.53 x 55.5	0.460	0.426
1,200	600D128F015DX4	9.53 x 68.2	0.320	0.563
<b>20 VOLTS DC WORKING @ 85°C; 15 VOLTS DC WORKING @ 125°C</b>				
68	600D686F020KD4	7.14 x 23.8	4.274	0.081
150	600D157F020DD4	9.53 x 23.8	1.962	0.142
220	600D227F020DE4	9.53 x 28.6	1.325	0.186
330	600D337F020DG4	9.53 x 35.0	0.883	0.250
360	600D367F020DJ4	9.53 x 41.3	0.679	0.299
680	600D687F020DL4	9.53 x 55.5	0.564	0.385
820	600D827F020DX4	9.53 x 68.2	0.360	0.530
<b>30 VOLTS DC WORKING @ 85°C; 20 VOLTS DC WORKING @ 125°C</b>				
47	600D476F030KD4	7.14 x 23.8	3.060	0.096
100	600D107F030DD4	9.53 x 23.8	1.500	0.162
150	600D157F030DE4	9.53 x 28.6	1.000	0.215
220	600D227F030DG4	9.53 x 35.0	0.675	0.285
270	600D277F030DJ4	9.53 x 41.3	0.560	0.338
390	600D397F030DL4	9.53 x 55.5	0.375	0.472
560	600D567F030DX4	9.53 x 68.2	0.264	0.620
<b>40 VOLTS DC WORKING @ 85°C; 30 VOLTS DC WORKING @ 125°C</b>				
33	600D336F040KD4	7.14 x 23.8	4.500	0.079
82	600D826F040DD4	9.53 x 23.8	1.824	0.147

## STANDARD RATINGS FOR TYPE 600D

Rated Capacitance ( $\mu\text{F}$ )	Catalog Number	Nominal Case Size D x L (mm)	Max. ESR +25°C 120Hz ( $\Omega$ )	Max. Ripple Current +125°C 120Hz ( $A_{\text{rms}}$ )
<b>40 VOLTS DC WORKING @ 85°C; 30 VOLTS DC WORKING @ 125°C (CONTINUED)</b>				
100	600D107F040DE4	9.53 x 28.6	1.500	0.175
150	600D157F040DG4	9.53 x 35.0	1.000	0.234
180	600D187F040DJ4	9.53 x 41.3	0.844	0.275
270	600D277F040DL4	9.53 x 55.5	0.540	0.394
390	600D397F040DX4	9.53 x 68.2	0.397	0.505
<b>50 VOLTS DC WORKING @ 85°C; 40 VOLTS DC WORKING @ 125°C</b>				
22	600D226F050KD4	7.14 x 23.8	6.750	0.065
56	600D566F050DD4	9.53 x 23.8	2.650	0.122
68	600D686F050DE4	9.53 x 28.6	2.170	0.146
100	600D107F050DG4	9.53 x 35.0	1.500	0.192
150	600D157F050DJ4	9.53 x 41.3	1.000	0.253
180	600D187F050DL4	9.53 x 55.5	0.844	0.315
270	600D277F050DX4	9.53 x 68.2	0.540	0.433
<b>60 VOLTS DC WORKING @ 85°C; 50 VOLTS DC WORKING @ 125°C</b>				
15	600D156F060KD4	7.14 x 23.8	9.650	0.055
39	600D396F060DD4	9.53 x 23.8	3.850	0.102
47	600D476F060DE4	9.53 x 28.6	3.060	0.123
82	600D826F060DG4	9.53 x 35.0	1.820	0.174
100	600D107F060DJ4	9.53 x 41.3	1.500	0.207
150	600D157F060DL4	9.53 x 55.5	1.000	0.290
220	600D227F060DX4	9.53 x 68.2	0.675	0.388
<b>75 VOLTS DC WORKING @ 85°C; 60 VOLTS DC WORKING @ 125°C</b>				
12	600D126F075KD4	7.14 x 23.8	12.30	0.048
27	600D276F075DD4	9.53 x 23.8	5.625	0.084
39	600D396F075DE4	9.53 x 28.6	3.857	0.110
56	600D566F075DG4	9.53 x 35.0	2.640	0.144
82	600D826F075DJ4	9.53 x 41.3	1.820	0.187
120	600D127F075DL4	9.53 x 55.5	1.227	0.261
150	600D157F075DX4	9.53 x 68.2	1.000	0.399
<b>100 VOLTS DC WORKING @ 85°C; 75 VOLTS DC WORKING @ 125°C</b>				
6.8	600D685F100KD4	7.14 x 23.8	22.50	0.036
22	600D226F100DD4	9.53 x 23.8	6.750	0.077
27	600D276F100DE4	9.53 x 28.6	5.625	0.091
39	600D396F100DG4	9.53 x 35.0	3.857	0.120
56	600D566F100DJ4	9.53 x 41.3	2.640	0.156
82	600D826F100DL4	9.53 x 55.5	1.824	0.215
120	600D127F100DX4	9.53 x 68.2	1.270	0.910
<b>150 VOLTS DC WORKING @ 85°C; 100 VOLTS DC WORKING @ 125°C</b>				
3.3	600D335F150KD4	7.14 x 23.8	38.30	0.028
6.8	600D685F150DD4	9.53 x 23.8	19.16	0.046
12	600D126F150DE4	9.53 x 28.6	10.50	0.066
18	600D186F150DG4	9.53 x 35.0	6.850	0.090
22	600D226F150DJ4	9.53 x 41.3	5.750	0.106
33	600D336F150DL4	9.53 x 55.5	3.830	0.148
47	600D476F150DX4	9.53 x 68.2	2.610	0.197

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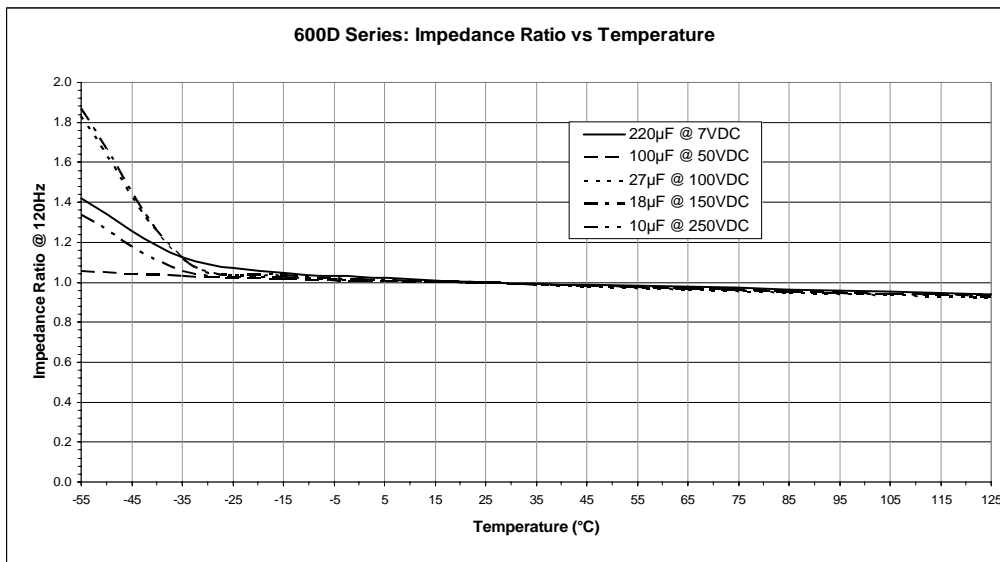
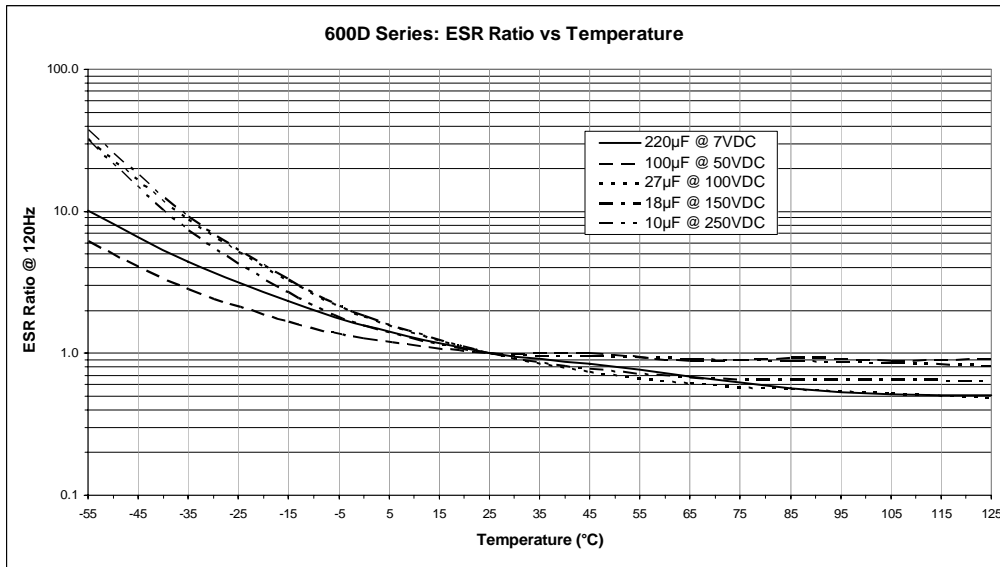
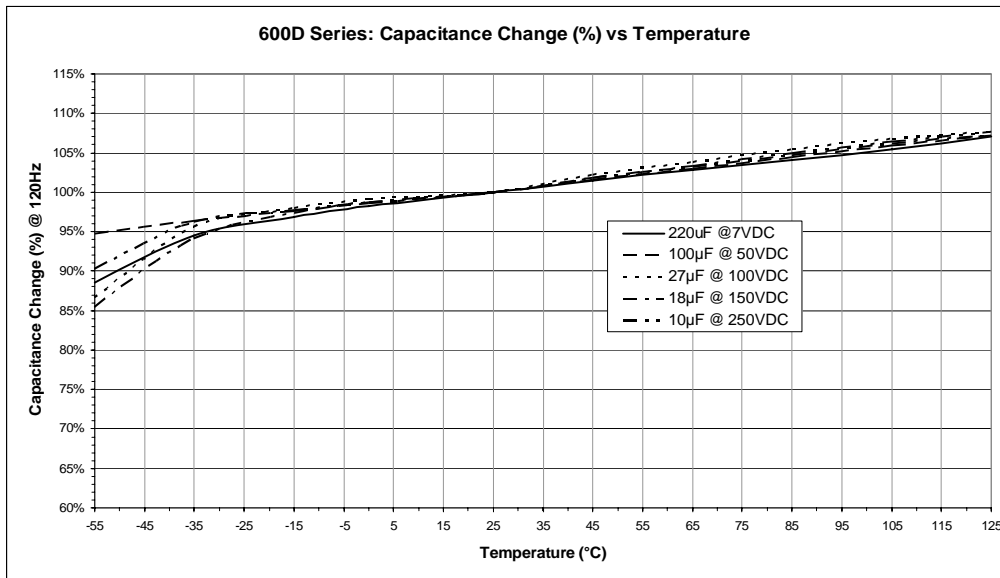
**STANDARD RATINGS FOR TYPE 600D**


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Rated Capacitance ( $\mu\text{F}$ )	Catalog Number	Nominal Case Size D x L (mm)	Max. ESR +25°C 120Hz ( $\Omega$ )	Max. Ripple Current +125°C 120Hz ( $\text{A}_{\text{rms}}$ )
<b>200 VOLTS DC WORKING @ 85°C; 150 VOLTS DC WORKING @ 125°C</b>				
3.3	600D335F200KD4	7.14 x 23.8	38.30	0.028
6.8	600D685F200DD4	9.53 x 23.8	19.16	0.046
8.2	600D825F200DE4	9.53 x 28.6	15.50	0.055
12	600D126F200DG4	9.53 x 35.0	10.50	0.073
18	600D186F200DJ4	9.53 x 41.3	6.780	0.098
27	600D276F200DL4	9.53 x 55.5	4.790	0.132
33	600D336F200DX4	9.53 x 68.2	3.830	0.162
<b>250 VOLTS DC WORKING @ 85°C; 200 VOLTS DC WORKING @ 125°C</b>				
2.2	600D225F250KD4	7.14 x 23.8	57.50	0.023
5.6	600D565F250DD4	9.53 x 23.8	23.10	0.042
6.8	600D685F250DE4	9.53 x 28.6	19.16	0.050
10	600D106F250DG4	9.53 x 35.0	12.70	0.066
15	600D156F250DJ4	9.53 x 41.3	8.230	0.088
22	600D226F250DL4	9.53 x 55.5	5.750	0.121
27	600D276F250DX4	9.53 x 68.2	4.790	0.146

## 600D TYPICAL PERFORMANCE PROFILES

### TEMPERATURE CHARACTERISTICS



## 600D TYPICAL PERFORMANCE PROFILES

### FREQUENCY CHARACTERISTICS

