

KEMET standard hermetic sealed T110 Series are desirable for use in high humidity environments. They are ruggedly built, designed for miniaturized circuitry, and are especially suited for coupling, bypass, filtering and R-C timing circuits. They exhibit excellent stability, extremely low DC leakage current, dissipation factor, and ESR/impedance over a wide temperature and frequency range.

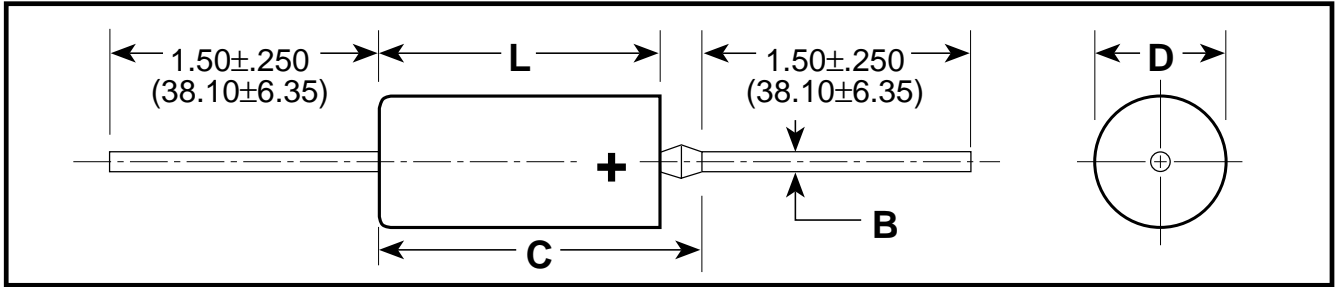
Available in standard EIA capacitance values from .0047-330  $\mu\text{F}$  in  $\pm 20\%$ ,  $\pm 10\%$ , and  $\pm 5\%$  tolerances and working voltages from 6-125 VDC.

Higher CV values in comparable case sizes are available in KEMET T140 Series. Refer to page 27.

Included in the following Series table is a complete listing of CSR13 qualified MIL-PRF-39003 capacitors. KEMET is approved to manufacture the S (0.001%/k hrs.) Exponential & D (0.001%/k hrs.) Graded failure rate levels.

KEMET is now offering low ESR limits in the T110 Series. See ESR chart on page 19. You may order the lower ESR by using Customer Specification 2864 as the last four digits of the part number.

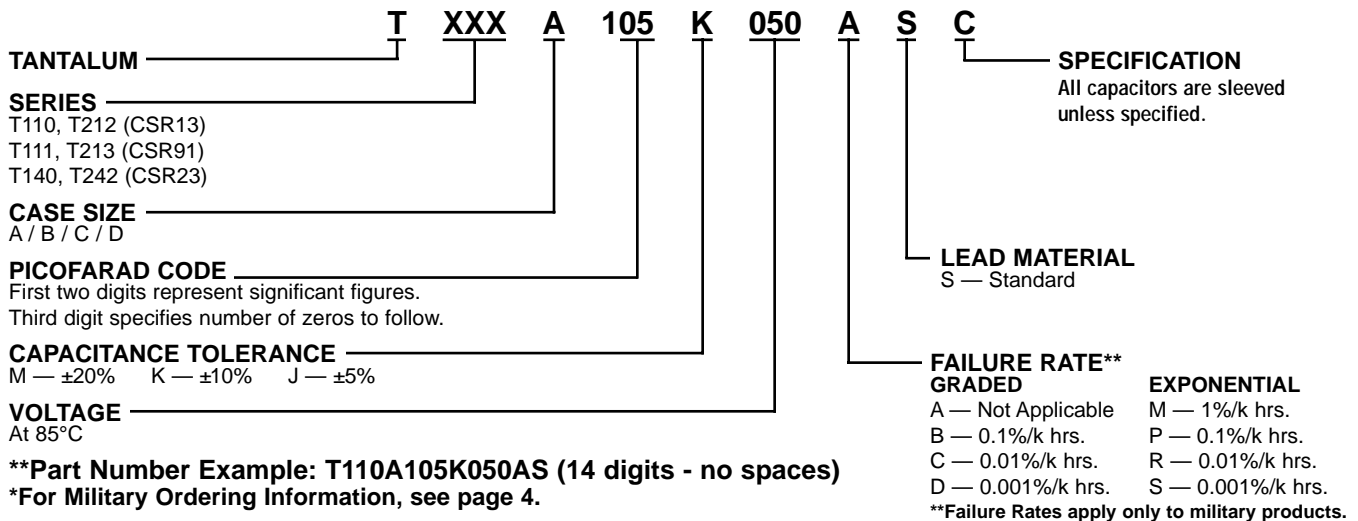
### CAPACITOR OUTLINE DRAWINGS



### DIMENSIONS — INCHES & (MILLIMETERS)

CASE SIZE	UNINSULATED		INSULATED		B $\pm 0.002$ (.05)	C MAX.
	D $\pm 0.005$ (.13)	L $\pm 0.031$ (.79)	D $\pm 0.010$ (.25)	L $\pm 0.031$ (.79)		
A	0.125 (3.18)	0.250 (6.35)	0.135 (3.43)	0.286 (7.26)	0.020 (.51)	0.422 (10.72)
B	0.175 (4.45)	0.438 (11.13)	0.185 (4.70)	0.474 (12.04)	0.020 (.51)	0.610 (15.49)
C	0.279 (7.09)	0.650 (16.51)	0.289 (7.34)	0.686 (17.42)	0.025 (.64)	0.822 (20.88)
D	0.341 (8.66)	0.750 (19.05)	0.351 (8.92)	0.786 (19.96)	0.025 (.64)	0.922 (23.42)

### ORDERING INFORMATION\*



### MARKING INFORMATION

Marking: Unless otherwise specified by special order, standard marking of T110 Series capacitor consists of the following:

#### A, B, C & D CASES

+K 10%	— Polarity, Manufacturer's Identification and Capacitance Tol.
R56 $\mu\text{F}$	— Nominal Capacitance — ( $\mu\text{F}$ ) ("R" indicates decimal)
100V	— Voltage
0312XY	— Date Code (e.g.: 0312XY)

\* For Military Marking, see page 4.



















**TANTALUM HERMETICALLY SEALED / AXIAL — MIL-PRF-39003**  
**T110 SERIES — POLAR TYPE & T212 (CSR13)**

**RATINGS & PART NUMBER REFERENCE**

CAPACITANCE µF	CASE SIZE	CAPACITANCE TOLERANCE ±%	KEMET T110			MIL-PRF-39003 (CSR13) CAPACITORS								KEMET EQUIVALENT MILITARY PART NUMBER
			KEMET PART NUMBER	D.C. LEAKAGE µA@25°C MAX.	MAX. DISSIPATION FACTOR %@25°C, 120Hz	DASH NUMBER REFERENCE FAILURE RATE LEVEL (%/1000 HRS.)								
						MIL-PRF-39003/1H EXPONENTIAL				MIL-PRF-39003/1H GRADED				
						M (1.0)	P (0.1)	R (0.01)	S (0.001)	B (0.1)	C (0.01)	D (0.001)		
<b>50 VOLT RATING AT 85°C — 33 VOLT RATING AT 125°C (Cont'd)</b>														
18.0	C	10	T110C186K050AS	4.5	4	2379	2619	2859	3099	6232	7232	8232	T212C186K050(2)S	
18.0	C	20	T110C186M050AS	4.5	4									
<b>22.0</b>	<b>D</b>	<b>5</b>	<b>T110D226J050AS</b>	<b>5.5</b>	<b>4</b>	<b>5094</b>	<b>5294</b>	<b>5494</b>	<b>5694</b>	<b>6233</b>	<b>7233</b>	<b>8233</b>	<b>T212D226J050(2)S</b>	
<b>22.0</b>	<b>D</b>	<b>10</b>	<b>T110D226K050AS</b>	<b>5.5</b>	<b>4</b>	<b>2380</b>	<b>2620</b>	<b>2860</b>	<b>3100</b>	<b>6234</b>	<b>7234</b>	<b>8234</b>	<b>T212D226K050(2)S</b>	
<b>22.0</b>	<b>D</b>	<b>20</b>	<b>T110D226M050AS</b>	<b>5.5</b>	<b>4</b>	<b>2381</b>	<b>2621</b>	<b>2861</b>	<b>3101</b>	<b>6235</b>	<b>7235</b>	<b>8235</b>	<b>T212D226M050(2)S</b>	
<b>60 VOLT RATING AT 85°C — 40 VOLT RATING AT 125°C</b>														
0.0047	A	5,10,20	T110A472(1)060AS	0.3	3									
0.0056	A	5,10,20	T110A562(1)060AS	0.3	3									
0.0068	A	5,10,20	T110A682(1)060AS	0.3	3									
0.0082	A	5,10,20	T110A822(1)060AS	0.3	3									
0.01	A	5,10,20	T110A103(1)060AS	0.3	3									
0.012	A	5,10,20	T110A123(1)060AS	0.3	3									
0.015	A	5,10,20	T110A153(1)060AS	0.3	3									
0.018	A	5,10,20	T110A183(1)060AS	0.3	3									
0.022	A	5,10,20	T110A223(1)060AS	0.3	3									
0.027	A	5,10,20	T110A273(1)060AS	0.3	3									
0.033	A	5,10,20	T110A333(1)060AS	0.3	3									
0.039	A	5,10,20	T110A393(1)060AS	0.3	3									
0.047	A	5,10,20	T110A473(1)060AS	0.3	3									
0.056	A	5,10,20	T110A563(1)060AS	0.3	3									
0.068	A	5,10,20	T110A683(1)060AS	0.3	3									
0.082	A	5,10,20	T110A823(1)060AS	0.3	3									
0.1	A	5,10,20	T110A104(1)060AS	0.5	3									
0.12	A	5,10,20	T110A124(1)060AS	0.5	3									
0.15	A	5,10,20	T110A154(1)060AS	0.5	3									
0.18	A	5,10,20	T110A184(1)060AS	0.5	3									
0.22	A	5,10,20	T110A224(1)060AS	0.5	3									
0.27	A	5,10,20	T110A274(1)060AS	0.5	3									
0.33	A	5,10,20	T110A334(1)060AS	0.5	3									
0.39	A	5,10,20	T110A394(1)060AS	0.5	3									
0.47	A	5,10,20	T110A474(1)060AS	0.5	3									
0.56	A	5,10,20	T110A564(1)060AS	0.5	3									
0.68	A	5,10,20	T110A684(1)060AS	0.5	3									
0.82	B	5,10,20	T110B824(1)060AS	0.5	3									
1.0	B	5,10,20	T110B105(1)060AS	0.5	3									
1.2	B	5,10,20	T110B125(1)060AS	0.5	4									
1.5	B	5,10,20	T110B155(1)060AS	0.5	4									
1.8	B	5,10,20	T110B185(1)060AS	0.5	4									
2.2	B	5,10,20	T110B225(1)060AS	1.0	4									
2.7	B	5,10,20	T110B275(1)060AS	1.0	4									
3.3	B	5,10,20	T110B335(1)060AS	1.5	4									
3.9	B	5,10,20	T110B395(1)060AS	1.5	4									
4.7	C	5,10,20	T110C475(1)060AS	2.0	4									
5.6	C	5,10,20	T110C565(1)060AS	2.0	4									
6.8	C	5,10,20	T110C685(1)060AS	3.0	4									
8.2	C	5,10,20	T110C825(1)060AS	4.0	4									
10.0	C	5,10,20	T110C106(1)060AS	5.0	4									
12.0	C	5,10,20	T110C126(1)060AS	5.0	4									
15.0	D	5,10,20	T110D156(1)060AS	4.0	4									
18.0	D	5,10,20	T110D186(1)060AS	5.0	4									
22.0	D	5,10,20	T110D226(1)060AS	6.0	4									
<b>75 VOLT RATING AT 85°C — 50 VOLT RATING AT 125°C</b>														
0.0047	A	5,10,20	T110A472(1)075AS	0.3	2									
0.0056	A	5,10,20	T110A562(1)075AS	0.3	2									
0.0068	A	5,10,20	T110A682(1)075AS	0.3	2									
0.0082	A	5,10,20	T110A822(1)075AS	0.3	2									
0.01	A	5,10,20	T110A103(1)075AS	0.3	2									

(1) To complete T110 Series part number, insert Capacitance Tolerance Symbol in the 9th Character as shown on Page 6.

(2) To complete the T212 Series Part Number, insert Failure Rate Symbol in the 13th Character.

**Bold Face** lines indicate popular part types and values.









**TANTALUM HERMETICALLY SEALED / AXIAL — MIL-PRF-39003**  
**T110 SERIES — POLAR TYPE & T212 (CSR13)**

**RATINGS & PART NUMBER REFERENCE**

CAPACITANCE μF	CASE SIZE	CAPACITANCE TOLERANCE ±%	KEMET T110			MIL-PRF-39003 (CSR13) CAPACITORS								KEMET EQUIVALENT MILITARY PART NUMBER
			KEMET PART NUMBER	D.C. LEAKAGE μA@25°C MAX.	MAX. DISSIPATION FACTOR %@25°C, 120Hz	DASH NUMBER REFERENCE FAILURE RATE LEVEL (%/1000 HRS.)								
						MIL-PRF-39003/1H EXPONENTIAL				MIL-PRF-39003/1H GRADED				
						M (1.0)	P (0.1)	R (0.01)	S (0.001)	B (0.1)	C (0.01)	D (0.001)		
<b>100 VOLT RATING AT 85°C — 67 VOLT RATING AT 125°C (Cont'd)</b>														
1.2	B	5	T110B125J100AS	0.5	3	5151	5351	5551	5751	6377	7377	*	T212B125J100(2)S	
1.2	B	10	T110B125K100AS	0.5	3	2467	2707	2947	3187	6378	7378	*	T212B125K100(2)S	
1.2	B	20	T110B125M100AS	0.5	3									
1.5	B	5	T110B155J100AS	0.7	3	5152	5352	5552	5752	6379	7379	*	T212B155J100(2)S	
1.5	B	10	T110B155K100AS	0.7	3	2468	2708	2948	3188	6380	7380	*	T212B155K100(2)S	
1.5	B	20	T110B155M100AS	0.7	3	2469	2709	2949	3189	6381	7381	*	T212B155M100(2)S	
1.8	B	5	T110B185J100AS	0.7	3	5153	5353	5553	5753	6382	7382	*	T212B185J100(2)S	
1.8	B	10	T110B185K100AS	0.7	3	2470	2710	2950	3190	6383	7383	*	T212B185K100(2)S	
1.8	B	20	T110B185M100AS	0.7	3									
2.2	B	5	T110B225J100AS	0.9	3	5154	5354	5554	5754	6384	7384	*	T212B225J100(2)S	
2.2	B	10	T110B225K100AS	0.9	3	2471	2711	2951	3191	6385	7385	*	T212B225K100(2)S	
2.2	B	20	T110B225M100AS	0.9	3	2472	2712	2952	3192	6386	7386	*	T212B225M100(2)S	
2.7	B	5	T110B275J100AS	1.1	3	5155	5355	5555	5755	6387	7387	*	T212B275J100(2)S	
2.7	B	10	T110B275K100AS	1.1	3	2473	2713	2953	3193	6388	7388	*	T212B275K100(2)S	
2.7	B	20	T110B275M100AS	1.1	3									
3.3	C	5	T110C335J100AS	1.5	3	5156	5356	5556	5756	6389	*	*	T212C335J100(2)S	
3.3	C	10	T110C335K100AS	1.5	3	5157	5357	5557	5757	6390	*	*	T212C335K100(2)S	
3.3	C	20	T110C335M100AS	1.5	3	5158	5358	5558	5758	6391	*	*	T212C335M100(2)S	
3.9	C	5	T110C395J100AS	1.5	3	5159	5359	5559	5759	6392	*	*	T212C395J100(2)S	
3.9	C	10	T110C395K100AS	1.5	3	5160	5360	5560	5760	6393	*	*	T212C395K100(2)S	
4.7	C	5	T110C475J100AS	2.5	3	5161	5361	5561	5761	6394	*	*	T212C475J100(2)S	
4.7	C	10	T110C475K100AS	2.5	3	5162	5362	5562	5762	6395	*	*	T212C475K100(2)S	
4.7	C	20	T110C475M100AS	2.5	3	5163	5363	5563	5763	6396	*	*	T212C475M100(2)S	
5.6	C	5	T110C565J100AS	2.5	3	5164	5364	5564	5764	6397	*	*	T212C565J100(2)S	
5.6	C	10	T110C565K100AS	2.5	3	5165	5365	5565	5765	6398	*	*	T212C565K100(2)S	
6.8	C	5	T110C685J100AS	2.5	3	5166	5366	5566	5766	6399	*	*	T212C685J100(2)S	
6.8	C	10	T110C685K100AS	2.5	3	5167	5367	5567	5767	6400	*	*	T212C685K100(2)S	
6.8	C	20	T110C685M100AS	2.5	3	5168	5368	5568	5768	6401	*	*	T212C685M100(2)S	
8.2	D	5,10,20	T110D825(1)100AS	5.0	3									
10.0	D	5,10,20	T110D106(1)100AS	5.0	3									
<b>125 VOLT RATING AT 85°C — 82 VOLT RATING AT 125°</b>														
0.0047	A	5,10,20	T110A472(1)125AS	0.5	3									
0.0056	A	5,10,20	T110A562(1)125AS	0.5	3									
0.0068	A	5,10,20	T110A682(1)125AS	0.5	3									
0.0082	A	5,10,20	T110A822(1)125AS	0.5	3									
0.01	A	5,10,20	T110A103(1)125AS	0.5	3									
0.012	A	5,10,20	T110A123(1)125AS	0.5	3									
0.015	A	5,10,20	T110A153(1)125AS	0.5	3									
0.018	A	5,10,20	T110A183(1)125AS	0.5	3									
0.022	A	5,10,20	T110A223(1)125AS	0.5	3									
0.027	A	5,10,20	T110A273(1)125AS	0.5	3									
0.033	A	5,10,20	T110A333(1)125AS	0.5	3									
0.039	A	5,10,20	T110A393(1)125AS	1.5	3									
0.047	A	5,10,20	T110A473(1)125AS	1.5	3									
0.056	A	5,10,20	T110A563(1)125AS	1.5	3									
0.068	A	5,10,20	T110A683(1)125AS	1.5	3									
0.082	A	5,10,20	T110A823(1)125AS	1.5	3									
0.1	A	5,10,20	T110A104(1)125AS	1.5	3									
0.12	A	5,10,20	T110A124(1)125AS	1.5	3									
0.15	A	5,10,20	T110A154(1)125AS	1.5	3									
0.18	A	5,10,20	T110A184(1)125AS	1.5	3									
0.22	A	5,10,20	T110A224(1)125AS	1.5	3									
0.27	A	5,10,20	T110A274(1)125AS	1.5	3									
0.33	A	5,10,20	T110A334(1)125AS	1.5	3									
0.39	B	5,10,20	T110B394(1)125AS	1.5	3									
0.47	B	5,10,20	T110B474(1)125AS	1.5	3									
0.56	B	5,10,20	T110B564(1)125AS	1.5	3									
0.68	B	5,10,20	T110B684(1)125AS	1.5	3									
0.82	B	5,10,20	T110B824(1)125AS	1.5	3									

(1) To complete T110 Series Part Number, insert Capacitance Tolerance Symbol in the 9th Character as shown on Page 6.

(2) To complete the T212 Series Part Number, insert Failure Rate Symbol in the 13th Character.

**Bold Face** lines indicate popular part types and values.

\*Note: C failure rate — Not QPL for 7389 thru 7401.

D failure rate — Not QPL for -8304 thru -8401.



RATINGS & PART NUMBER REFERENCE

CAPACITANCE μF	CASE SIZE	CAPACITANCE TOLERANCE ±%	KEMET T110			MIL-PRF-39003 (CSR13) CAPACITORS								KEMET EQUIVALENT MILITARY PART NUMBER
			KEMET PART NUMBER	D.C. LEAKAGE μA@25°C MAX.	MAX. DISSIPATION FACTOR %@25°C, 120Hz	DASH NUMBER REFERENCE FAILURE RATE LEVEL (%/1000 HRS.)								
						MIL-PRF-39003/1H EXPONENTIAL				MIL-PRF-39003/1H GRADED				
						M (1.0)	P (0.1)	R (0.01)	S (0.001)	B (0.1)	C (0.01)	D (0.001)		
<b>125 VOLT RATING AT 85°C — 82 VOLT RATING AT 125°C</b>														
1.0	B	5,10,20	T110B105(1)125AS	1.5	3									
1.2	B	5,10,20	T110B125(1)125AS	1.5	3									
1.5	B	5,10,20	T110B155(1)125AS	1.5	3									
1.8	B	5,10,20	T110B185(1)125AS	1.5	3									
2.2	B	5,10,20	T110B225(1)125AS	1.5	3									
2.7	C	5,10,20	T110C275(1)125AS	2.0	3									
3.3	C	5,10,20	T110C335(1)125AS	2.0	3									
3.9	C	5,10,20	T110C395(1)125AS	2.0	3									
4.7	C	5,10,20	T110C475(1)125AS	3.0	3									
5.6	C	5,10,20	T110C565(1)125AS	3.0	3									
6.8	C	5,10,20	T110C685(1)125AS	3.0	3									
8.2	D	5,10,20	T110D825(1)125AS	6.0	3									
10.0	D	5,10,20	T110D106(1)125AS	6.0	3									

(1) To complete T110 Series Part Number, insert Capacitance Tolerance Symbol in the 9th Character as shown on Page 6.  
(2) To complete the T212 Series Part Number, insert Failure Rate Symbol in the 13th Character.  
**Bold Face** lines indicate popular part types and values.

T110/T212 Series Tantalum  
Hermetically Sealed

**T110/T140 Herm Seal ESR (OHMS) at 100 kHz @ +25°C**  
(The ESR values provided below are for reference only. No warranty, as stated on page 3 and reincorporated here, is made as to the accuracy of these values for any particular T110/T140 Series product.)

Cap μF	6 Volt	10 Volt	15 Volt	20 Volt	30 Volt	35 Volt	50 Volt	60 Volt	75 Volt	100 Volt	125 Volt
0.10				37.0		26.0	26.0	26.0	26.0	25.0	25.0
0.12				37.0		26.0	26.0	26.0	26.0	25.0	25.0
0.15				32.0		21.0	21.0	21.0	21.0	20.0	20.0
0.18				32.0		21.0	21.0	21.0	21.0	20.0	20.0
0.22				27.0		17.0	17.0	17.0	17.0	16.0	16.0
0.27				25.0		17.0	17.0	17.0	17.0	16.0	16.0
0.33			28.0	22.0		15.0	15.0	15.0	15.0	14.0	14.0
0.39			28.0	22.0		15.0	15.0	15.0	15.0	14.0	14.0
0.47			26.0	20.0		13.0	13.0	13.0	13.0	12.0	12.0
0.56			26.0	18.0		13.0	13.0	13.0	13.0	12.0	12.0
0.68			24.0	16.0		10.0	10.0	10.0	10.0	9.0	9.0
0.82			24.0	16.0		10.0	10.0	10.0	10.0	9.0	9.0
1.0		20.0	17.0	10.0		8.0	8.0	8.0	8.0	7.0	7.0
1.2		20.0	17.0	10.0	9.0	8.0	8.0	8.0	8.0	7.0	7.0
1.5		14.0	10.0	9.0	8.0	6.0	5.0	5.0	5.0	4.0	4.0
1.8		14.0	10.0	9.0	8.0	6.0	5.0	5.0	5.0	4.0	4.0
2.2	14.0	13.0	8.0	7.0	6.0	5.0	3.5	3.5	3.5	3.0	3.0
2.7	14.0	13.0	8.0	7.0	6.0	5.0	3.5	3.5	3.5	3.0	3.0
3.3	13.0	10.0	6.0	5.5		4.0	3.0	3.0	3.0	2.5	2.5
3.9	13.0	10.0	6.0	5.5		4.0	3.0	3.0	3.0	2.5	2.5
4.7	10.0	8.0	5.0	4.5		3.0	2.5	2.5	2.5	2.0	2.0
5.6	10.0	8.0	5.0	4.5		3.0	2.5	2.5	2.5	2.0	2.0
6.8	8.0	6.0	4.0	3.6		2.5	2.0	2.0	2.0	1.5	1.5
8.2	8.0	6.0	4.0	3.6		2.5	2.0	2.0	2.0	1.5	1.5
10.0	6.0	5.0	3.2	2.9		2.0	1.6	1.6	1.6	1.0	1.0
12.0	6.0	5.0	3.2	2.9	2.5	2.0	1.6	1.6	1.6		
15.0	5.0	3.7	2.5	2.3	2.0	1.6	1.2	1.2	1.2		
18.0	5.0	3.7	2.5	2.3	2.0	1.6	1.2	1.2			
22.0	3.7	2.7	2.0	1.8		1.3	1.0	1.0			
27.0	3.7	2.7	2.0	1.8		1.3	1.0	1.0			
33.0	3.0	2.1	1.6	1.4	1.2	1.0	0.8	0.8			
39.0	3.0	2.1	1.6	1.4	1.2	1.0	0.8				
47.0	2.0	1.7	1.3	1.2	1.0	0.8	0.6				
56.0	2.0	1.7	1.3	1.2	1.0	0.8					
68.0	1.8	1.3	1.0	0.9	0.8	0.6					
82.0	1.8	1.3	1.0	0.9	0.8	0.6					
100.0	1.6	1.0	0.8	0.6	0.5	0.5					
120.0	1.6	1.0	0.8	0.6							
150.0	0.9	0.8	0.6	0.5							
180.0	0.9	0.8	0.6	0.5							
220.0	0.9	0.6	0.5								
270.0	0.9	0.6	0.5								
330.0	0.7	0.5	0.4								
390.0	0.7	0.5									
470.0	0.5	0.5									
560.0	0.5	0.5									
680.0	0.3										
820.0	0.3										
1000.0	0.12										
1200.0	0.12										

**T110 Herm Seal LOW ESR (OHMS) at 100 kHz @ +25°C**  
The ESR values provided below may be ordered using KEMET Customer Specification 2864.

Cap μF	6 Volt	10 Volt	15 Volt	20 Volt	35 Volt	50 Volt
5.6						0.300
6.8						0.275
8.2					0.250	0.250
10.0					0.230	0.230
12.0					0.210	0.210
15.0					0.190	0.190
18.0					0.175	0.175
22.0					0.160	0.160
27.0				0.145	0.145	
33.0				0.130	0.130	
39.0				0.120	0.120	
47.0				0.110	0.110	
56.0			0.100	0.100		
68.0			0.095	0.095		
82.0		0.085	0.085	0.085		
100.0		0.075	0.075	0.075		
120.0		0.070	0.070			
150.0	0.065	0.065				
180.0	0.060	0.060				
220.0	0.055	0.055				
270.0	0.050					
330.0	0.045					