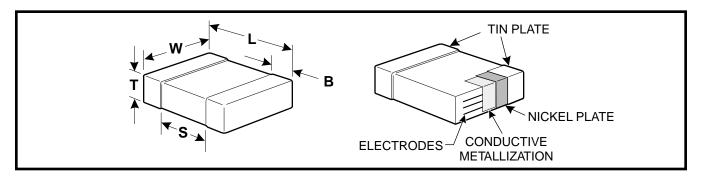


## **CERAMIC CHIP CAPACITORS**

## **FEATURES**

- COG (NPO), X7R, X5R, Z5U and Y5V Dielectrics
- 10, 16, 25, 50, 100 and 200 Volts
- Standard End Metalization: Tin-plate over nickel
- Available Capacitance Tolerances: ±0.10 pF; ±0.25 pF; ±0.5 pF; ±1%; ±2%; ±5%; ±10%; ±20%; and +80%-20%
- Tape and reel packaging per EIA481-1. (See page 63 for specific tape and reel information.) Bulk Cassette packaging (0402, 0603, 0805 only) per IEC60286-6 and EIAJ 7201.
- RoHS Compliant

### CAPACITOR OUTLINE DRAWINGS

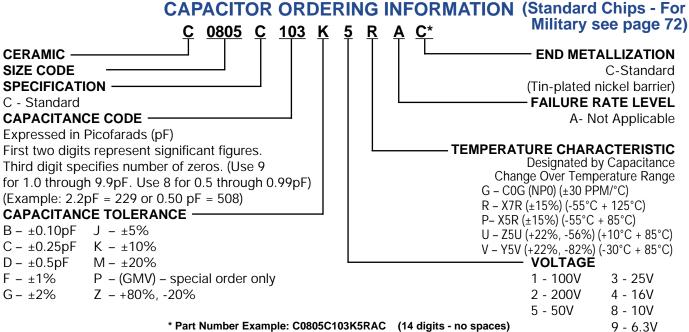


## **DIMENSIONS—MILLIMETERS AND (INCHES)**

EIA SIZE CODE	METRIC SIZE CODE (Ref only)	L# LENGTH	W # WIDTH		B Bandwidth	S MIN. SEPARATION	MOUNTING TECHNIQUE
0402*	1005	1.0 (.04) ± .05(.002)	0.5 (.02) ± .05 (.002)		0.20 (0.008)-0.40 (0.016)	0.3 (.012)	Solder Reflow
0603*	1608	1.6 (.063) ± 0.15 (.006)	0.8 (.032) ± 0.15 (.006)	Soo page 62	0.35 (.014) ±0.15 (.006)	0.7 (.028)	
0805*	2012	2.0 (.079) ± 0.2 (.008)	1.25 (.049) ± 0.2 (.008)	See page 63	0.5 (.02) ±.25 (.010)	0.75 (.030)	Solder Wave †
1206*	3216	3.2 (.126) ± 0.2 (.008)	1.6 (.063) ± 0.2 (.008)	for thickness	0.5 (.02) ±.25 (.010)	N/A	Solder Reflow
1210*	3225	3.2 (.126) ± 0.2 (.008)	2.5 (.098) ± 0.2 (.008)	dimensions.	0.5 (.02) ±.25 (.010)	N/A	
1812	4532	4.5 (.177) ± 0.3 (.012)	3.2 (.126) ± 0.3 (.012)		0.6 (.024) ±.35 (.014)	N/A	
1825*	4564	4.5 (.177) ± 0.3 (.012)	6.4 (.252) ± 0.4 (.016)		0.6 (.024) ±.35 (.014)	N/A	Solder
2220	5650	5.6 (.220) ± 0.4 (.016)	5.0 (.197) ± 0.4 (.016)		0.6 (.024) ±.35 (.014)	N/A	Reflow
2225	5664	5.6 (.220) ± 0.4 (.016)	6.3 (.248) ± 0.4 (.016)		0.6 (.024) ±.35 (.014)	N/A	

<sup>\*</sup> Note: Indicates EIA Preferred Case Sizes (Tightened tolerances apply for 0402, 0603, and 0805 packaged in bulk cassette, see page 82.)

<sup>†</sup> For extended value 1210 case size - solder reflow only.





## **CERAMIC CHIP/STANDARD**

#### **COG CAPACITANCE RANGE - 1210, 1812, 1825, 2220, 2225**

Сар	Сар	Сар		C1210	*		C1812	*		C1825	*		C2220	)		C2225	
рF	Code	Tol.	50V	100V	200V	50V	100V	200V	50V	100V	200V	50V	100V	200V	50V	100V	200V
10		D J,K,M	FB	FB	FB												
12		D J,K,M	FB	FB	FB												
15	150	D G,J,K,M	FB	FB	FB												
18 22	180 220	D G,J,K,M D G,J,K,M	FB FB	FB FB	FB FB												
27	270	D,F,G,J,K,M	FB	FB	FB												
33	330	D,F,G,J,K,M	FB	FB	FB												
39	390	D,F,G,J,K,M	FB	FB	FB												
47	470	D,F,G,J,K,M	FB	FB	FB												
56	560	F,G,J,K,M	FB	FB	FB												
68	680	F,G,J,K,M	FB	FB	FB												
82	820	F,G,J,K,M	FB	FB	FB												
100 120	101 121	F,G,J,K,M F,G,J,K,M	FB FB	FB FB	FB FB												
150	131	F,G,J,K,M	FB	FB	FB												
180	181	F,G,J,K,M	FB	FB	FB												
220	221	F,G,J,K,M	FB	FB	FB												
270	271	F,G,J,K,M	FB	FB	FB												
330	331	F,G,J,K,M	FB	FB	FB												
390	391	F,G,J,K,M	FB	FB	FB	0.0	0.0	0.0									
470 560	471 561	F,G,J,K,M F,G,J,K,M	FB FB	FB FB	FB FB	GB GB	GB GB	GB GB									
680	681	F,G,J,K,M	FB	FB	FB	GB	GB	GB									
820	821	F,G,J,K,M	FB	FB	FB	GB	GB	GB									
1,000	102	F,G,J,K,M	FB	FB	FB	GB	GB	GB									
1,200	122	F,G,J,K,M	FB	FB	FB	GB	GB	GB									
1,500	152	F,G,J,K,M	FB	FB	FE	GB	GB	GB									
1,800	182	F,G,J,K,M	FB	FB	FE	GB	GB	GB									
2,200 2,700	222 272	F,G,J,K,M F,G,J,K,M	FB FB	FC FC	FG FC	GB GB	GB GB	GB GB									
3,300	332	F,G,J,K,M	FB	FF	FF	GB	GB	GB									
3,900	392	F,G,J,K,M	FB	FF		GB	GB	GB	НВ	НВ	НВ						
4,700	472	F,G,J,K,M	FF	FF		GB	GB	GD	HB	НВ	HB				KB	KB	KB
5,600	562	F,G,J,K,M	FB	FF		GB	GB	GH	HB	HB	HB				KB	KB	KB
6,800	682	F,G,J,K,M	FB	FG		GB	GB	GJ	HB	HB	HB	JB	JB		KB	KB	KB
8,200	822	F,G,J,K,M	FC			GB	GB		HB	HB	HB	JB	JB		KB	KB	KB
10,000 12,000	103	F,G,J,K,M	FF			GB GB	GD		HB	HB	HE	JB	JB JB		KB KB	KB	KB
15,000	123 153	F,G,J,K,M F,G,J,K,M	FG			GB	GD		HB HB	HB HB	HE	JB JB	JB		KB	KB KB	KB KE
18,000	183	F,G,J,K,M							HB	HB		JB	JB		KB	KB	INE.
22,000	223	F,G,J,K,M							HB	HE		JB			KB	KB	
27,000	273	F,G,J,K,M							HB	HE		JB			KB	KB	
33,000	333	F,G,J,K,M													KB		

#### X7R CAPACITANCE RANGE - 0402. 0603. 0805. 1206

Сар	Сар	Cap		(	C0402	*					C0603	3*						C0805	<b>i</b> *						C120	6*		
pF	Code	Tol.	6.3V	10V	16V	25V	50V	6.3V	10V	16V	25V	50V	100V	200V	6.3V	10V	16V	25V	50V	100V	200V	6.3V	10V	16V	25V	50V	100V	200V
150	151	K,M,J	BB	BB	BB	BB	BB																					
180	181	K,M,J	BB	BB	BB	BB	BB	CB	CB	CB	CB	CB	CB	CB														
220	221	K,M,J	BB	BB	BB	BB	BB	CB	CB	CB	CB	CB	CB	CB	DC	DC	DC	DC	DC	DC	DC							
270	271	K,M,J	BB	BB	BB	BB	BB	CB	CB	CB	СВ	CB	CB	CB	DC	DC	DC	DC	DC	DC	DC							
330	331	K,M,J	BB	BB	BB	BB	BB	CB	CB	CB	CB	CB	CB	CB	DC	DC	DC	DC	DC	DC	DC							
390 470	391	K,M,J	BB BB	BB BB	BB BB	BB BB	BB BB	CB CB	CB CB	CB CB	CB CB	CB CB	CB CB	CB CB	DC	DC DC	DC DC	DC DC	DC DC	DC DC	DC							
560		K,M,J K,M,J		BB	BB	BB	BB	CB	CB	CB	CB	CB	CB	CB	DC DC	DC	DC	DC	DC	DC	DC DC							
680	681	K,M,J		BB	BB	BB	BB	CB	CB	CB	CB	CB	CB	CB	DC	DC	DC	DC	DC	DC	DC							
820	821	K,M,J	BB	BB	BB	BB	BB	CB	CB	CB	CB	CB	CB	CB	DC	DC	DC	DC	DC	DC	DC							
1,000	102	K,M,J		BB	BB	BB	BB	CB	CB	CB	CB	CB	CB	CB	DC	DC	DC	DC	DC	DC	DC	EB						
1,200	122	K,M,J	BB	BB	BB	BB	BB	CB	CB	СВ	СВ	СВ	CB		DC	DC	DC	DC	DC	DC	DC	EB						
1,500		K,M,J		BB	BB	BB	BB	CB	CB	CB	CB	CB	CB		DC	DC	DC	DC	DC	DC	DC	EB						
1,800		K,M,J	BB	BB	BB	BB	BB#	CB	CB	CB	CB	CB	CB		DC	DC	DC	DC	DC	DC	DC	EB						
2,200		K,M,J		BB	BB	BB	BB#	CB	CB	CB	СВ	CB	CB		DC	DC	DC	DC	DC	DC	DC	EB						
2,700		K,M,J	BB	BB	BB	BB	BB#	CB	CB	CB	CB	CB	CB		DC	DC	DC	DC	DC	DC	DC	EB						
3,300 3,900		K,M,J K,M,J	BB BB	BB BB	BB BB	BB BB	BB# BB#	CB CB	CB CB	CB CB	CB CB	CB CB	CB CB		DC DC	DC DC	DC DC	DC DC	DC DC	DC DC	DC DC	EB EB						
4,700		K,M,J	BB	BB	BB	BB	BB#	CB	CB	CB	CB	CB	CB		DC	DC	DC	DC	DC	DC	DC	EB						
5,600		K,M,J	BB	BB	BB	BB	BB#	CB	CB	CB	CB	CB	CB		DC	DC	DC	DC	DC	DC	DC	EB						
6,800		K,M,J		BB	BB	BB	BB#	CB	CB	CB	CB	CB	CB		DC	DC	DC	DC	DC	DC	DC	EB						
8,200		K,M,J	BB	BB	BB	BB	BB#	СВ	CB	СВ	СВ	СВ	СВ		DC	DC	DC	DC	DC	DC		EB						
10,000	103	K,M,J	BB	BB	BB	BB	BB#	CB	CB	CB	CB	CB	CB		DC	DC	DC	DC	DC	DC		EB						
12,000	123	K,M,J						CB	CB	CB	CB	CB			DC	DC	DC	DC	DC	DC		EB						
15,000	153	K,M,J						CB	CB	CB	CB	CB			DD	DD	DD	DD	DD	DD		EB						
18,000	183	K,M,J						CB	CB	CB	CB	CB			DC	DC	DC	DC	DC	DD		EB						
22,000 27,000	223 273	K,M,J						CB CB	CB CB	CB CB	CB CB	CB CB			DC DC	DC DC	DC DC	DC DC	DC DC	DD DD		EB EB						
33,000		K,M,J K,M,J						CB	CB	CB	CB	CB			DC	DC	DC	DC	DC	DD		EB						
39,000	393	K,M,J						CB	CB	CB	CB	CB			DD	DD	DD	DD	DD	DD		EB	EB	EB	EB	EB	EC	LD
47,000		K,M,J						CB	CB	CB	CB	CB			DD	DD	DD	DD	DD	DE		EB	EB	EB	EB	EB	EC	
56,000		K,M,J						CB	CB	CB	CB	CC			DD	DD	DD	DD	DD#			EB	EB	EB	EB	EB	EB	
68,000	683	K,M,J						CB	CB	CB	CB	CC			DD	DD	DD	DD	DD#			EB	EB	EB	EB	EB	EB	
82,000	823	K,M,J						CB	CB	CB	CB	CC			DD	DD	DD	DD	DD#			EB	EB	EB	EB	EB	EB	
100,000	104	K,M,J						CB#	CB#	CB#	CB#	CC#			DD	DD	DD	DD	DD#			EB	EB	EB	EB	EB	EB	
120,000	124	K,M,J						CB#	CB#	CB#					DC	DC	DC	DC				EC	EC	EC	EC	EC	EC	
150,000 180,000		K,M,J						CB#	CB#	CB# CB#					DC DC	DC DC	DC DC	DC DC				EC EC	EC EC	EC EC	EC EC	EC#	EC#	
220.000	224	K,M,J K,M,J						CB#	CB#	CB#					DC	DC	DC	DC				EC	EC	EC	EC	EC#	EC#	
270,000	274	K,M,J						05#	ODπ	00#					DD	DD	DD	DD				EB	EB	EB	EB	LOH	Ε0π	
330,000	334	K,M,J													DE	DE	DE	DE				EB	EB	EB	EB			
390,000	394	K,M,J													DG	DG	DG	DG				EB	EB	EB	EB			
470,000	474	K,M,J													DG	DG	DG	DG				EC	EC	EC	EC			
560,000	564	K,M,J													DG	DG	DG					ED	ED	ED	ED			
680,000	684	K,M,J													DG	DG	DG					EE	EE	EE	EE			
820,000	824	K,M,J													DG DG	DG	DG					EF	EF	EF	EF			
1,000,000	105 125	K,M,J													DG	DG	DG					EE ED	EE	EE ED	EG			
1,200,000 1,500,000	155	K,M,J K,M,J																				EF	EF	EF				
1,800,000		K,M,J																				EF	EF	EF				
2,200,000		K,M,J																				EG	EG.	EG				
_,_30,000		,.vi,0	-																		•							

\* Indicates EIA preferred chip sizes. NOTE: For non-standard capacitance values or voltages, contact your local KEMET sales representative. # X7R dielectric - Extended Range Values - Cap and DF measured @ 0.5 Vrms.

Improved product with higher ratings and tighter capacitance tolerance product may be substituted within the same size (length, width, and thickness) at KEMET's option. Reels with such substitutions will be marked with the improved KEMET part numbers.

## **CERAMIC CHIP/STANDARD**



## X7R CAPACITANCE RANGE - 1210, 1812, 1825, 2220, 2225

Сар	Сар	Сар			(	C1210	)*				C1812	*		C1825	*		C2220	)		C2225	,
pF	Code	Tol.	6.3V	10V	16V	25V	50V	100V	200V	50V	100V	200V	50V	100V	200V	50V	100V	200V	50V	100V	200V
2,200	222	K,M,J	FB	FB	FB	FB	FB	FB	FB												
2,700	272	K,M,J	FB	FB	FB	FB	FB	FB	FB												
3,300	332	K,M,J	FB	FB	FB	FB	FB	FB	FB												
3,900	392	K,M,J	FB	FB	FB	FB	FB	FB	FB												
4,700	472	K,M,J	FB	FB	FB	FB	FB	FB	FB												
5,600	562	K,M,J	FB	FB	FB	FB	FB	FB	FB												
6,800	682	K,M,J	FB	FB	FB	FB	FB	FB	FB	GB	GB	GB									
8,200	822	K,M,J	FB	FB	FB	FB	FB	FB	FB	GB	GB	GB									
10,000	103	K,M,J	FB	FB	FB	FB	FB	FB	FB	GB	GB	GB									
12,000	123	K,M,J	FB	FB	FB	FB	FB	FB	FB	GB	GB	GB									
15,000 18,000	153 183	K,M,J K,M,J	FB FB	FB FB	FB FB	FB FB	FB FB	FB FB	FB FB	GB GB	GB GB	GB GB									
22,000	223	K,M,J	FB	FB	FB	FB	FB	FB	FB	GB	GB	GB	нв	НВ	НВ						
27,000	273	K,M,J	FB	FB	FB	FB	FB	FB	FB	GB	GB	GB	НВ	НВ	НВ						
33,000	333	K,M,J	FB	FB	FB	FB	FB	FB	FB	GB	GB	GB	НВ	НВ	нв НВ						
39,000	393	K,M,J	FB	FB	FB	FB	FB	FB	FB	GB	GB	GB	HB	HB	HB						
47,000	473	K,M,J	FB	FB	FB	FB	FB	FB	FC	GB	GB	GB	HB	НВ	HB				кс	кс	KC
56,000	563	K,M,J	FB	FB	FB	FB	FB	FB	FC	GB	GB	GB	HB	HB	HB				KC	KC	KC
68,000	683	K.M.J	FB	FB	FB	FB	FB	FB	FC	GB	GB	GB	НВ	НВ	HB				KC	KC	KC
82,000	823	K,M,J	FB	FB	FB	FB	FC	FC	FF	GB	GB	GB	НВ	нв	НВ				KC	KC	KC
100,000	104	K,M,J	FB	FB	FB	FB	FB	FD	FG	GB	GB	GB	HB	НВ	HB				KC	KC	KC
120,000	124	K,M,J	FB	FB	FB	FB	FB	FD		GB	GB	GB	HB	HB	HB				KC	KC	KC
150,000	154	K,M,J	FC	FC	FC	FC	FC	FD		GB	GB	GE	HB	HB	HB				KC	KC	KC
180,000	184	K,M,J	FC	FC	FC	FC	FC	FD		GB	GB	GG	HB	HB	HB				KC	KC	KC
220,000	224	K,M,J	FC	FC	FC	FC	FC	FD		GB	GB		HB	HB	HB				KC	KC	KC
270,000	274	K,M,J	FC	FC	FC	FC	FC#	FD#		GB	GH		HB	HB	HB	JC	JC	JC	KB	KC	KC
330,000	334	K,M,J	FD	FD	FD	FD	FD#	FD#		GB	GH		HB	HB	HB	JC	JC	JC	KB	KC	KC
390,000	394	K,M,J	FD	FD	FD	FD	FD#			GB			HB	HB	HD	JC	JC	JC	KB	KC	KC
470,000	474	K,M,J	FD	FD	FD	FD	FD#			GB			HB	HB		JC	JC		KB	KC	KD
560,000	564	K,M,J	FD	FD	FD FD	FD	FD#			GC			HB	HD		JC	JD		KB	KC KC	
680,000 820,000	684 824	K,M,J K.M.J	FD FF	FD FF	FF FF	FD FF	FD# FF#			GE			HB HB	HD		JC JC	JD JF		KB KB	KC	
1.000.000	105	K,M,J	FH	FH	FH	FH	FH#			GE			нв НВ			JC	JF		KB	KD	
1,000,000	125	K,M,J	FH	FH	FH	FH	1 17#			GE			НВ			JC			KB	KD	
1,500,000	155	K,M,J	FH	FH	FH	FH							НВ			JC			KC		
1,800,000	185	K,M,J	FH	FH	FH	FH							HD			JD			KD		
2.200.000	225	K,M,J	FJ	FJ	FJ	FJ							HF			JF			KD		

\* Indicates EIA preferred chip sizes.

NOTE: For non-standard capacitance values or voltages, contact your local KEMET sales representative.

50 Volt Ceramic Chips can be used for 63 volt applications.

# Extended Range Values – Cap and DF measured @ 0.5 Vrms.

Improved product with higher ratings and tighter capacitance tolerance product may be substituted within the same size (length, width, and thickness) at KEMET's option. Reels with such substitutions will be marked with the improved KEMET part numbers.

## **X5R CAPACITANCE RANGE**

Сар	Сар	Сар	C04	02*	(	C0603*			C080	)5*			C12	06*			(	C1210	,	
pF	Code	Tol.	6.3V	10V	6.3V	10V	16V	6.3V	10V	16V	25V	6.3V	10V	16V	25V	6.3V	10V	16V	25V	50V
12,000	123	K,M	BB	BB																
15,000	153	K,M	BB	BB																
18,000 22,000	183 223	K,M K,M	BB BB	BB BB																
27,000	273	K,M	BB	BB																
33,000	333	K,M	BB	BB																
39,000	393	K,M	BB	BB																i I
47,000	473	K,M	BB	BB																i I
56,000	563	K,M	BB	BB																j l
68,000	683	K,M	BB	BB																j l
82,000	823	K,M	BB	BB																
100,000	104	K,M	BB	BB																
120,000	124	K,M																		
150,000	154	K,M																		
180,000	184	K,M																		
220,000 270,000	224 274	K,M K,M			СС	СС	СС								EB					j l
330,000	334	K,M			CC	CC	CC								EB					i I
390,000	394	K,M			CC	CC	CC								EB					i I
470.000	474	K,M			CC	CC	CC				DC				EC					i I
560,000	564	K,M			CC	CC	CC				DD				ED					
680,000		K,M			CC	CC	CC				DE				EE					
820,000	824	K,M			CC	CC	CC				DF				EF					
1,000,000	105	K,M			CC	CC	CC				DG				EH			FH+	FH+	FH+
1,200,000	125	K,M			CC			DD	DD	DD					EC			FD+	FD+	
1,500,000	155	K,M			CC			DE	DE	DE		EC	EC	EC	EC			FD+	FD+	j l
1,800,000	185	K,M			CC			DH	DH	DH		EC	EC	EC	EC			FD+	FD+	i '
2,200,000	225	K,M			CC			DH	DH	DH		EE	EE	EE	EE			FG+	FG+	i '
2,700,000	275 335	K,M						DD DE	DD DE	DD DE		EF EH	EF EH	EF EH	EF EH			FG+ FH+	FG+ FH+	1
3,300,000 4,700,000	475	K,M K,M						DH	DH	DH		EH	EH	EH	EH	FK+	FK+	FH+	FH+	
6,800,000	685	K,M						DH	υп	υп		EH	EH	EH	CH	FJ+	FJ+	FJ+	FJ+	
8.200.000	825	K,M						DH				EH	EH	EH		FK+	FK+	FK+	FK+	
10,000,000	106	K,M						DH				EH	EH	EH		FK+	FK+	FK+	FK+	
12,000,000	126	K,M										EH				FD+	FD+	FG+		
15,000,000	156	K,M										EH				FD+	FD+	FL+		
18,000,000	186	K,M										EH				FL+	FL+	FH+		1
22,000,000	226	K,M										EH				FH+	FH+	FJ+		

NOTE: For non-standard capacitance values or voltages, contact your local KEMET sales representative. + Reflow only

Improved product with higher ratings and tighter capacitance tolerance product may be substituted within the same size (length, width, and thickness) at KEMET's option. Reels with such substitutions will be marked with the improved KEMET part numbers.

#### See page 63 for Thickness Code Reference Chart.

## **CERAMIC CHIP CAPACITORS**



# THICKNESS CODE REFERENCE CHART PACKAGING QTY BASED ON FINISHED CHIP THICKNESS SPECIFICATIONS

Thickness Code	Chip Size	Chip Thickness Range (mm)	Qty per Reel 7" Plastic	Qty per Reel 13" Plastic	Qty per Reel 7" Paper	Qty per Reel 13" Paper	Qty per Bulk Cassette
AA	0201	.30 ± .03	N/A	N/A	15,000	N/A	N/A
BB	0402	.50 ± .05	N/A	N/A	10,000	50,000	50,000
СВ	0603	.80 ± .07	N/A	N/A	4,000	10,000	15,000
CC	0603	.80 ± .10	N/A	N/A	4,000	10,000	N/A
DB	0805	.60 ± .10	N/A	N/A	N/A	N/A	10,000
DC	0805	.78 ± .10	4,000	10,000	4,000	10,000	N/A
DD	0805	.90 ± .10	4,000	10,000	N/A	N/A	N/A
DE	0805	1.00 ± .10	2,500	10,000	N/A	N/A	N/A
DF	0805	1.10 ± .10	2,500	10,000	N/A	N/A	N/A
DG	0805	1.25 ± .15	2,500	10,000	N/A	N/A	N/A
DH	0805	1.25 ± .20	2,500	10,000	N/A	N/A	N/A
EB	1206	.78 ± .10	4,000	10,000	4,000	10,000	N/A
EC	1206	.90 ± .10	4,000	10.000	N/A	N/A	N/A
ED	1206	1.00 ± .10	2,500	10,000	N/A	N/A	N/A
EE	1206	1.10 ± .10	2,500	10,000	N/A	N/A	N/A
EF	1206	1.20 ± .15	2,500	10,000	N/A	N/A	N/A
EG	1206	1.60 ± .15	2,000	8,000	N/A	N/A	N/A
EH	1206	1.60 ± .20	2,000	8,000	N/A	N/A	N/A
EJ	1206	1.70 ± .20	2,000	8,000	N/A	N/A	N/A
FB	1210	.78 ± .10	4,000	10,000	N/A	N/A	N/A
FC	1210	.90 ± .10	4,000	10.000	N/A	N/A	N/A
FD	1210	.95 ± .10	2,500	10,000	N/A	N/A	N/A
FE	1210	1.00 ± .10	2,500	10,000	N/A	N/A	N/A
FF	1210	1.10 ± .10	2,500	10,000	N/A	N/A	N/A
FG	1210	1.25 ± .15	2,500	10,000	N/A	N/A	N/A
FH	1210	1.55 ± .15	2,000	8,000	N/A	N/A	N/A
FJ	1210	1.85 ± .20	2,000	8,000	N/A	N/A	N/A
FK	1210	2.10 ± .20	2,000	8,000	N/A	N/A	N/A
FL	1210	1.40 ± .15	2,000	8,000	N/A N/A	N/A N/A	N/A N/A
FM	1210	1.40 ± .15 1.70 ± .20	2,000	8,000	N/A N/A	N/A N/A	N/A N/A
FN	1210		2,000	,	N/A N/A	N/A N/A	N/A N/A
		1.85 ± .20		8,000			
GB GC	1812	1.00 ± .10	1,000	4,000	N/A	N/A	N/A
GD	1812 1812	1.10 ± .10	1,000	4,000	N/A N/A	N/A	N/A
		1.25 ± .15	1,000	4,000		N/A	N/A
GE	1812	1.30 ± .10	1,000	4,000	N/A	N/A	N/A
GF	1812	1.50 ± .10	1,000	4,000	N/A	N/A	N/A
GG	1812	1.55 ± .10	1,000	4,000	N/A	N/A	N/A
GH GJ	1812	1.40 ± .15	1,000	4,000	N/A	N/A	N/A
GK GK	1812	1.70 ± .15	1,000	4,000	N/A	N/A	N/A
	1812	1.60 ± .20	1,000	4,000	N/A	N/A	N/A
GL	1812	1.90 ± .20	1,000	4,000	N/A	N/A	N/A
GM	1812	2.00 ± .20	1,000	4,000	N/A	N/A	N/A
HB	1825	1.10 ± .15	1,000	4,000	N/A	N/A	N/A
HC	1825	1.15 ± .15	1,000	4,000	N/A	N/A	N/A
HD	1825	1.30 ± .15	1,000	4,000	N/A	N/A	N/A
HE	1825	1.40 ± .15	1,000	4,000 4.000	N/A	N/A	N/A
HF	1825	1.50 ± .15	1,000	,	N/A	N/A	N/A
JB	2220	1.00 ± .15	1,000	4,000	N/A	N/A	N/A
JC	2220	1.10 ± .15	1,000	4,000	N/A	N/A	N/A
JD	2220	1.30 ± .15	1,000	4,000	N/A	N/A	N/A
JE	2220	1.40 ± .15	1,000	4,000	N/A	N/A	N/A
JF	2220	1.50 ± .15	1,000	4,000	N/A	N/A	N/A
KB	2225	1.00 ± .15	1,000	4,000	N/A	N/A	N/A
KC	2225	1.10 ± .15	1,000	4,000	N/A	N/A	N/A
KD	2225	1.30 ± .15	1,000	4,000	N/A	N/A	N/A
KE	2225	1.40 ± .15	1,000	4,000	N/A	N/A	N/A

This chart refers to ceramic chip thickness codes on pages 59-62.