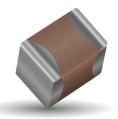
#### **General Specifications**



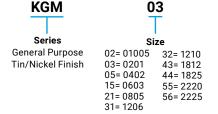


The X7R dielectric is the most popular of the intermediate EIA class II materials due to its relative temperature stability. While the capacitance change is non-linear, temperature variation is within  $\pm 15\%$  from -  $55^{\circ}$ C to +  $125^{\circ}$ C.

Capacitance for X7R varies under the influence of electrical operating conditions such as voltage and frequency. X7R dielectric chip usage covers a broad spectrum of industrial applications where known changes in capacitance due to applied voltages are acceptable.

SpiCAT is an additional online resource that KAVX offers to help create engineering simulations. Please visit spicat. kyocera-avx.com for more information.

#### **HOW TO ORDER**





See Cap Chart

R7
Dielectric

**1E**Voltage
= 4.0V 1H = 5

101
Capacitance

Capacitance
Code Code (in pF)
2 Significant Digits +
Number of zeros
eg. 106 = 10µF
103 = 10nF

Capacitance
Tolerance

Capacitance Tolerance J\* = +/- 5% K = +/- 10% M = +/- 20%

\*≤1µF only, contact factory for additional values



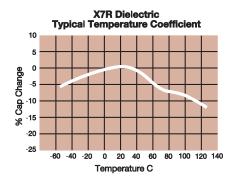
Packaging See Table Below

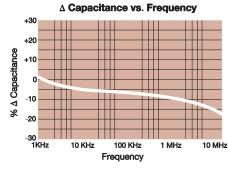


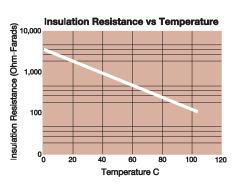
#### **PACKAGING CODES**

Code	EIA (inch)	IEC(mm)	7" Paper	7" Embossed	13" Paper	13"Embossed
02	01005	0402	Н			
03	0201	0603	Н		N	
05	0402	1005	Н		N	
15	0603	1608	Т		М	
21	0805	2012	Т	U	М	L
31	1206	3216	Т	U	М	L
32	1210	3225		U		L
43	1812	4532		V		S
44	1825	4564		V		S
55	2220	5750		V		S
56	2225	5763		V		S

<sup>\*</sup>Note: The thickness determines if packaging is paper or embossed.

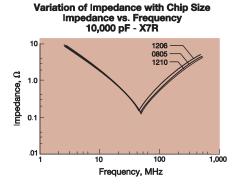


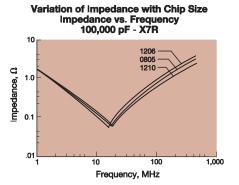




Impedance vs. Frequency 1,000 pF vs. 10,000 pF - X7R 0805 10.00 pF 10,000 pF 10,000 pF 10,000 pF

variation of impedance with Cap Value





The Important Information/Disclaimer is incorporated in the catalog where these specifications came from or available call online at www.kyocera-avx.com/disclaimer/ by reference and should be reviewed in full before placing any order.





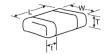
Par	ameter/Test	X7R Specification Limits	Measuring Conditions (Complies with JIS C5101 / IEC60384)								
Operating '	Temperature Range	-55°C to +125°C	Temperature Cycle Chamber								
C	apacitance	Within specified tolerance	Measure after heat treatment								
			Capacitance Frequency Volt								
			C≤10μF								
			Frequency: 1kHz±10% Volt: 1.0±0.2Vrms *0.5±0.2Vrms								
Discinat	ion Factor / Tanδ	Refer to https://spicat.kyocera-avx.com for	VOIL LOTOLZVIIIIS ~0.5TO.ZVIIIIS								
Dissipat	ion ractor / Tano	individual part number specification	C>10µF								
			Frequency: 120Hz±10%								
			Volt : 0.5±0.2Vrms								
			The charge and discharge current of the capacitor must not exceed 50mA.								
		Refer to https://spicat.kyocera-avx.com for	Apply the rated voltage for 1 minute, and measure it in normal tempera-								
Insula	tion Resistance	individual part number specifiction	ture and humidity. The charge and discharge current of the capacitor must								
		marriada part namber opcomotion	not exceed 50mA.								
B. 1			Charge device with 250% of rated voltage for 1-5 seconds, w/charge and								
Diele	ctric Strength	No breakdown or visual defects	discharge current limited to 50 mA (max)								
Dam	din a Canan ash	No significant damage with 1 mm handing	Note: Charge device with 150% of rated voltage for 500V devices.  Glass epoxy PCB: Fulcrum spacing: 90mm, duration time 10 seconds.								
Delli	ding Strength	No significant damage with 1mm bending	Soaking condition								
Sc	olderability	Solder coverage : 95% min.	Sn-3Ag-0.5Cu 245±5°C 3±0.5 sec.								
	Appearance	No problem observed	Take the initial value after heat treatment.								
	Capacitance Variation	≤ ±7.5%	Soak the sample in 260°C±5°C solder for 10±0.5 seconds and place in nor-								
	Dissipation Factor / Tanδ	Within specification	mal temperature and humidity, and measure after heat treatment.								
Resistance to	In a selection Desistence	\A/:\al-::&\al-:-	(Pre-heating conditions)								
Solder Heat	Insulation Resistance	Within specification	Order Temperature Time								
			1 80 to 100°C 2 minutes								
	Withstanding Voltage /	Resist without problem	2 150 to 200°C 2 minutes  The charge and discharge current of the capacitor must not exceed 50mA								
	Dielectric Strength	·	for IR and withstanding voltage measurement.								
	Appearance	No visual defects	Take the initial value after heat treatment.								
	Capacitance Variation	≤ ±7.5%	(Cycle)								
	Dissipation Factor	Within specification	Room temperature (3 min.)—>								
	Insulation Resistance	·	Lowest operation temperature (30 min.)—>								
Thermal Shock	ilisulation Resistance	Within specification	Room temperature (3 min.)—>								
	Med a B M Is a		Highest operation temperature(30 min.) After 5 cycles, measure after heat treatment.								
	Withstanding Voltage /	Resist without problem	The charge and discharge current of the capacitor must not exceed 50mA								
	Dielectric Strength	•	for IR and withstanding voltage measurement.								
	Appearance	No visual defects	Take the initial value after heat treatment.								
	Capacitance Variation	≤ ±12.5%	After applying *1.5 the rated voltage at the highest operation								
	Dissipation Factor / Tanδ	≤ Initial Value x 2.0 (See Above)	temperature for 1000+12/ -0 hours, and measure the sample after heat								
Load Life	Dissipation Factor / Tano	3 miliai value x 2.0 (See Above)	treatment in normal temperature and humidity.								
		Over $1000M\Omega$ or $50M\Omega \cdot \mu$ F, whichever is less.	The charge and discharge current of the capacitor must not exceed 50mA for IR measurement.								
	Insulation Resistance	*Exceptions Listed Below	*Apply 1.0 times when the rated voltage is 4V or less. Applied voltages								
		•	for respective products are indicated in the chart below.								
	Appearance	No visual defects	Take the initial value after heat treatment.								
	Capacitance Variation	≤ ±12.5%	After applying rated voltage for 500+12/ -0 hours in the condition of								
Load	Dissipation Factor / Tanδ	Within specification	$40^{\circ}\text{C} \pm 2^{\circ}\text{C}$ and 90 to 95%RH, and place in normal temperature and								
Humidity		Over $1000M\Omega$ or $50M\Omega \cdot \mu$ F, whichever is less.	humid- ity, then measure the sample after heat treatment.								
	Insulation Resistance	*Exceptions Listed Below	The charge and discharge current of the capacitor must not exceed								
Λ	ppearance	No problem observed	50mA for IR measurement.  Microscope								
	•	•	Apply a sideward force of 500g (5N) to a PCB-mounted sample. note :								
Termi	nation Strength	No problem observed	2N for 0201 size, and 1N for 01005 size.								
	Appearance	No problem observed	Take the initial value after heat treatment.								
	Capacitance	Within tolerance	Vibration frequency: 10 to 55 (Hz)								
Vibration			Amplitude: 1.5mm								
	Tanδ	Within tolerance	Sweeping condition: 10 -> 55 -> 10Hz/ 1 minute in X, Y and Z								
	rano	Within Colorumoc	directions: 2 hours each, 6 hours in total, and place in normal temperature and humidity, then measure the sample after heat treatment.								
		Expose sample in the temperature of 150+0/ -1	-10°C for 1 hour and leave the sample in normal temperature and humidity for								
Hea	at Treatment	24±2 hours.									

Voltage to be applied in the High Temperature Load (Applied voltage is the multiple of the rated voltage)

Rated Voltage		Products
×1.0	16V	KGM21AR71C475
<load h<="" life="" load="" th=""><th>lumidit</th><th>y&gt;Insulation Resistance : Over 10MΩ·μF</th></load>	lumidit	y>Insulation Resistance : Over 10MΩ·μF
	05	KGM05AR70J474
R7	15	KGM15AR71E105
K/	21	KGM21AR71C475
	31	KGM31AR71E106, KGM31AR71H475

### **Capacitance Range**





SIZE		01005			0201			0402							0603						0805								1206										
Soldering		Reflow Only		Ref	low (	Only			F	Reflow	//Wa	/e				R	eflow	/Wa	ve						Refl	ow/V	Vave				Reflow/Wave								
Packaging		All Paper		A	II Pap	er				All F	aper					Pap	er/Er	mbos	sed					F	aper	/Emb	osse	d			Paper/Embossed								
I (I ) I ength .	nm	0.40 ± 0.02			0 ± 0					1.00							1.60 ±									1 ± 0									0 ± 0				
· · · · (II	-4	(0.016 ± 0.0008)			24 ± 0					.040						<u> </u>	.063 ±								(0.07						(0.126 ± 0.012)								
I W) Width .	nm in.)	0.20 ± 0.02 (0.008 ± 0.0008)			30 ± 0	1.03 1.001)				0.50				0.81 ± 0.15 (0.032 ± 0.006)												5 ± 0					1.60 ± 0.30 (0.063 ± 0.012)								
m	nm	0.10± 0.04			5 ± 0					0.25				(0.032 ± 0.006) 0.35 ± 0.15								(0.049 ± 0.008) 0.50 ± 0.25												0 ± 0		-			
I (T) Terminal .		(0.004 ± 0.0016)			06 ± 0					.010				0.35 ± 0.15 (0.014 ± 0.006)									(0.020 ± 0.010)													.010)			
WVDC	1	16	6.3				50	6.3	10	16	25	50	100	6.3	10		25		100	200	250	6.3	10	16	25	50	100	200	250	500	6.3	10	16	25	50	100	200	250	500
Cap 100 10	01	Α	Α	Α	Α	Α	Α	Α	Α	Α	Α	Α	Α	Α	Α	Α	Α	Α	Α	В	В									В									
(pF) 150 15	51	Α	Α	Α	Α	Α	Α	Α	Α	Α	Α	Α	Α	Α	Α	Α	Α	Α	Α	В	В									В									
220 22	21	Α	Α	Α	Α	Α	Α	Α	Α	Α	Α	Α	Α	Α	Α	Α	Α	Α	Α	В	В		N	N	N	N	N	N	N	В	В	В	В	В	В	В	Т	Т	D
330 33	31	Α	Α	Α	Α	Α	Α	Α	Α	Α	Α	Α	Α	Α	Α	Α	Α	Α	Α	В	В		N	N	N	N	N	N	N	В	В	В	В	В	В	В	Т	Т	D
470 47	71	Α	Α	Α	Α	Α	Α	Α	Α	Α	Α	Α	Α	Α	Α	Α	Α	Α	Α	В	В		N	N	N	N	N	N	N	В	В	В	В	В	В	В	Т	Т	D
680 68	81	Α	Α	Α	Α	Α	Α	Α	Α	Α	Α	Α	Α	Α	Α	Α	Α	Α	Α	В	В		N	N	N	N	N	N	N	В	В	В	В	В	В	В	Т	Т	D
1000 10	02	А	Α	Α	Α	Α	Α	Α	Α	Α	Α	Α	Α	Α	Α	Α	Α	Α	Α	В	В		N	N	N	N	N	N	N	В	В	В	В	В	В	В	Т	Т	D
1500 15	52	А	Α	Α	Α	Α		Α	Α	Α	Α	Α	Α	Α	Α	Α	Α	Α	Α	В	В		N	N	N	N	N	N	N	В	В	В	В	В	В	В	Т	Т	D
2200 22	22	Α	Α	Α	Α	Α		Α	Α	Α	Α	Α	Α	Α	Α	Α	Α	Α	Α	В	В		N	N	N	N	N	N	N	В	В	В	В	В	В	В	Т	Т	D
3300 33	32		Α	Α	Α	Α		Α	Α	Α	Α	Α	Α	Α	Α	Α	Α	Α	Α	В	В		N	N	N	N	N	Α	Α	Α	В	В	В	В	В	В	T	Т	D
3900 39	92		Α	Α	Α	Α		Α	Α	Α	Α	Α	Α	Α	Α	Α	Α	Α	Α	В	В		N	N	N	N	N	Α	Α	Α	В	В	В	В	В	В	Т	Т	D
4700 47	72		Α	Α	Α	Α		Α	Α	Α	Α	Α	Α	Α	Α	Α	Α	Α	Α	В	В		N	N	N	N	N	Α	Α	Α	В	В	В	В	В	В	Т	Т	D
5600 56	62		Α	Α	Α	Α		Α	Α	Α	Α	Α	Α	Α	Α	Α	Α	Α	Α	В	В		N	N	N	N	N	Α	Α	Α	В	В	В	В	В	В	Т	Т	D
6800 68	82		Α	Α	Α	Α		Α	Α	Α	Α	Α	Α	Α	Α	Α	Α	Α	Α	В	В		N	N	N	N	N	Α	Α	Α	В	В	В	В	В	В	Т	Т	D
Cap 0.010 10	03		Α	Α	Α	Α		Α	Α	Α	Α	Α	Α	Α	Α	Α	Α	Α	Α	В	В		N	N	N	N	N	Α	Α	Α	В	В	В	В	В	В	D	D	D
(μF) 0.012 12	23							Α	Α	Α	Α	Α		Α	Α	Α	Α	Α	Α	В	В		N	N	N	N	N	Α	Α	Α	В	В	В	В	В	В	D	D	D
0.015 15	53							Α	Α	Α	Α	Α		Α	Α	Α	Α	Α	В	В	В		N	N	N	N	Α	Α	Α	Α	В	В	В	В	В	В	D	D	D
0.018 18								Α	Α	Α	Α	Α		Α	Α	Α	Α	Α	В	В	В		N	N	N	N	Α	Α	Α	Α	В	В	В	В	В	В	D	D	D
0.022 22	-		Α	Α	Α			Α	Α	Α	Α	Α		Α	Α	Α	Α	Α	В	В	В		N	N	N	N	Α	Α	Α	Α	В	В	В	В	В	В	D	D	Α
0.027 27								Α	Α	Α	Α	Α		Α	Α	Α	Α	В	В				N	N	N	N	Α	Α	Α		В	В	В	В	В	В	D	D	Α
0.033 33	$\rightarrow$							Α	Α	Α	Α	Α		Α	Α	Α	В	В	В				N	N	N	N	Α	Α	Α		В	В	В	В	В	В	Α	Α	Α
0.039 39								Α	Α	Α	Α	Α		Α	Α	Α	В	В	В				N	N	N	N	Α	Α	Α		В	В	В	В	В	В	Α	Α	Α
0.047 47	$\rightarrow$							Α	Α	Α	Α	Α		Α	Α	Α	В	В	В				N	N	N	N	Α	Α	Α		В	В	В	В	В	В	Α	Α	Α
0.068 68	$\rightarrow$						_	Α	Α	Α	Α	С		Α	Α	Α	В	В	В				N	N	N	N	Α	Α			В	В	В	В	В	D	Α	Α	_
0.082 82	-							Α	Α	A	Α	С	<u> </u>	Α	Α	Α	В	В	В			_	N	N	N	N	Α	Α			В	В	В	В	В	D	Α	Α	_
0.1 10	-		Α					Α	Α	Α	Α	С		Α	Α	Α	В	В	В				N	N	N	N	Α	Α			В	В	В	В	В	D	Α	Α	_
0.12 12	$\rightarrow$					-								Α	A	A	В	В			-	-	N	N	N	E	A				В	В	В	В	В	D	Α	Α	_
0.15 15	$\rightarrow$					-		Α	A	A	A	-		Α	A	A	В	В			-	-	E	E	E	E	Α				٧	V	V	M	M	A	Α	Α	_
0.22 22	-				-	-	<u> </u>	Α	Α	Α	Α	$\vdash$	$\vdash$	A	В	В	В	В	-		-	$\vdash$	A	Α	A	Α	A	$\vdash$	$\vdash$	$\vdash$	V	V	V	M	M P	Α	Α	Α	
0.33 33	-				$\vdash$	-	<u> </u>	Α.	Λ.		-	$\vdash$	_	B	B B	В	B	B	-		-	$\vdash$	A	A	A	Α	A			$\vdash$	H	V H	H	M H	Н	A	$\vdash$	-	
4	• •				-	-		Α	Α	-		_	_	В	В	B B	В	В		-	-	-		A	A	A	A	_			Н	Н	Н	Н	Н	H	$\vdash$	$\vdash$	
0.68 68	-				-	-	_		Λ.		-	_	_	В	В	В	В	С	$\vdash$	$\vdash$	-	$\vdash$	A	A	A	A	A	_			Н	Н	Н	Н	Н	Н	$\vdash$	$\vdash$	
2.2 22	_				<del>                                     </del>		$\vdash$	Α	Α	-		$\vdash$	$\vdash$	В	В	С	Б	U			$\vdash$	$\vdash$	A	A	A	A	A				Н	Н	Н	Н	Н	Н	$\vdash$		$\dashv$
4.7 47					<u> </u>		<u> </u>		-	$\vdash$		$\vdash$	-	С	D	U		-		_	$\vdash$	$\vdash$	A	A	A	A	-				Н	Н	Н	А	A	П	$\vdash$	$\vdash$	$\dashv$
10 10	_				<u> </u>		-		-	$\vdash$		<u> </u>	-	U	_			-		_	$\vdash$	Α	A	A	A	_	<del>                                     </del>				Н	Н	А	A	H	$\vdash$	$\vdash$		$\dashv$
22 22	_				$\vdash$		<u> </u>			$\vdash$		$\vdash$					$\vdash$	<u> </u>			$\vdash$	A	A	А	$\vdash$	$\vdash$	$\vdash$			$\vdash$	А	А	А	A	П		$\vdash$		$\dashv$
47 47					$\vdash$				$\vdash$	$\vdash$	$\vdash$	$\vdash$			$\vdash$						$\vdash$	$\vdash$	$\vdash$	$\vdash$	$\vdash$	$\vdash$	$\vdash$			$\vdash$	А	A			_	1	$\vdash$		$\dashv$
100 10	_				$\vdash$				$\vdash$	$\vdash$	$\vdash$	$\vdash$			$\vdash$						$\vdash$	$\vdash$	$\vdash$	$\vdash$	$\vdash$	$\vdash$	$\vdash$			$\vdash$		$\vdash$	$\vdash$		_	$\vdash$	$\vdash$		$\dashv$
WVDC	07	16	62	10	16	25	50	62	10	16	25	50	100	62	10	16	25	50	100	200	250	62	10	16	25	50	100	200	250	500	62	10	16	25	50	100	200	250	500
SIZE	-	01005	0.3	_			50	0.3	10			30	100	0 6.3 10 16 25 50 100 200 250 6					0.3	10	10		0805		200	230	300	0.3	10	10		1 <b>206</b>		200	230	500			
SIZE	_	01003		0201 0402 0603														L				0000									1200								

Case Size	01005 (KGM 02)	0201 (KGM03)	0402 (F	(GM05)	06	03 (KGM	15)	080	)5 (KGM:	21)	1206 (KGM31)											
Thickness Letter	Α	Α	Α	С	Α	В	С	N	Е	Α	В	٧	М	Т	Р	D	Α	Н				
Max Thickness (mm)	0.22	0.33	0.55	0.70	0.90	0.95	1.00	1.00	1.35	1.45	0.94	1.22	1.25	1.35	1.40	1.45	1.80	1.90				
Carrier Tape	PAPER	PAPER	PAI	PER	PAPER	PAPER	PAPER	PAPER	EMB	EMB	PAPER	EMB										
Packaging Code 7"reel	Н	Н	Н	Н	T	T	T	T	U	U	T	U	U	U	U	U	U	U				
Packaging Code 13"reel	n/a	N	N	N	М	М	М	М	L	L	М	L	L	L	L	L	L	L				
			EMBOSSED (EMB)																			





SIZE					1210						18	12				18	25				2220		2225						
Soldering	J			Re	flow Or	nly					Reflov	v Only				Reflo	v Only			Re	flow Or		Reflow Only						
Packagin	g			Pape	r/Embo	ssed					All Eml	ossed				All Em	bossed			All	Embos	sed			All Em	bossed			
(L) Length	mm				.30 ± 0.						4.50 :	£ 0.40				4.50 :	± 0.40			5.	70 ± 0.5	50			5.70	± 0.40			
(L) Length	(in.)				30± 0.0				(0.177 ± 0.016)								± 0.016)	)	(0.224 ± 0.020)						(0.224 ± 0.016)				
W) Width	mm				50 ± 0.3							± 0.40					± 0.40				00 ± 0.4					± 0.40			
,	(in.)				98 ± 0.0						(0.126 :		)		-	<u> </u>	± 0.016)	)			97 ± 0.0				(0.248		)		
(t) Terminal	mm (in.)				50 ± 0.2 20 ± 0.0							1 ± 0.36 4 ± 0.014)					± 0.36	,			$64 \pm 0.3$	0.64 ± 0.39 (0.025 ± 0.015)							
W	VVDC	10	16	25	50	100	200	500	16	25	50	100	200	500	(0.024 ± 0.014) 50   100   200   500				(0.025 ± 0.015) 25   50   100   200   500						100	200	500		
Cap 100	101	10	10	20	30	100	200	300	10	25	30	100	200	300	30	100	200	300	20	30	100	200	300	50	100	200	300		
(pF) 150	151																					Η,	1	$\sim$	W				
220	221	R	R	R	R	R	R	D														- <	<u> </u>	`	) <u>T</u> T				
330	331	R	R	R	R	R	R	D	Α	Α	Α	Α	Α	Α								۱ ا	$\overline{}$						
470	471	R	R	R	R	R	R	D	Α	Α	Α	Α	Α	Α								_	<u> </u>						
680	681	R	R	R	R	R	R	D	Α	Α	Α	Α	Α	Α								<u> </u>	i '	i	ı				
1000	102	R	R	R	R	R	R	D	Α	Α	Α	Α	Α	В	С	С	С	С	Z	Z	Z	Z	Z	D	D	D	D		
1500	152	R	R	R	R	R	R	D	Α	Α	Α	Α	Α	В	С	С	С	С	Z	Z	Z	Z	Z	D	D	D	D		
2200	222	R	R	R	R	R	R	D	Α	Α	Α	Α	Α	В	С	С	С	С	Z	Z	Z	Z	Z	D	D	D	D		
3300	332	R	R	R	R	R	R	Е	Α	Α	Α	Α	Α	В	С	С	С	С	Z	Z	Z	Z	Z	D	D	D	D		
3900	392	R	R	R	R	R	R	Е	Α	Α	Α	Α	Α	В	С	С	С	С	Z	Z	Z	Z	Z	D	D	D	D		
4700	472	R	R	R	R	R	R	E	Α	Α	Α	Α	Α	В	С	С	С	С	Z	Z	Z	Z	Z	D	D	D	D		
5600	562	R	R	R	R	R	R	E	Α	Α	Α	Α	Α	В	С	С	С	С	Z	Z	Z	Z	Z	D	D	D	D		
6800	682	R	R	R	R	R	R	E	Α	Α	Α	Α	Α	В	С	С	С	С	Z	Z	Z	Z	Z	D	D	D	D		
Cap 0.010	103	R	R	R	R	R	R	E	Α	Α	Α	Α	Α	В	С	С	С	С	Z	Z	Z	Z	Z	D	D	D	D		
(μF) 0.012	123	R	R	R	R	R	R	Е	Α	Α	Α	Α	Α	В	С	С	С	С	Z	Z	Z	Z	Z	D	D	D	D		
0.015	153	R	R	R	R	R	R	Е	Α	Α	Α	Α	Α	В	С	С	С	С	Z	Z	Z	Z	Z	D	D	D	D		
0.018	183	R	R	R	R	R	R	Е	Α	Α	Α	Α	Α	В	С	С	С	С	Z	Z	Z	Z	Z	D	D	D	D		
0.022	223	R	R	R	R	R	E	E	Α	Α	Α	Α	Α	В	С	С	С	С	Z	Z	Z	Z	Z	D	D	D	D		
0.027	273	R	R	R	R	R	E	Н	A	A	A	A	A	В	С	С	С	С	Z	Z	Z	Z	Z	D	D	D	D		
0.033	333	R	R	R	R	R	E	Н	A	A	A	A	A	В	С	C	C	C	Z	Z	Z	Z	Z	D D	D D	D D	D D		
0.039	393 473	R R	R R	R R	R R	R R	E	H	A	A	A	A	A B	B B	C	C	C	C	Z	Z	Z	Z	Z	D	D	D	D		
0.047	683	R	R	R	R	R	Н	Р	A	A	A	A	В	F	C	C	C	C	Z	Z	Z	Z	Z	D	D	D	D		
0.082	823	R	R	R	R	R	Н	P	A	A	A	A	В	F	С	C	C	C	Z	Z	Z	Z	Z	D	D	D	D		
0.100	104	R	R	R	R	R	H	Р	A	A	A	В	В	F	С	C	C	C	Z	Z	Z	Z	Z	D	D	D	D		
0.100	124	R	R	R	R	R	Н	'	A	A	A	B	В	J	С	C	С	C	Z	Z	Z	Z	Z	D	D	D	D		
0.150	154	E	E	E	E	E	L		A	A	A	В	F	J	С	C	C	C	Z	Z	Z	Z	Z	D	D	D	D		
0.220	224	E	E	E	E	E	L		A	A	A	В	F	J	С	C	С	С	Z	Z	Z	Z	Z	D	D	D	D		
0.330	334	E	E	E	E	Н	L		A	A	A	В	F	J	С	C	С	C	Z	Z	Z	Z	Z	D	D	D	D		
0.470	474	E	E	E	E	L	L		Α	Α	Α	F	F	J	С	С	С	С	Z	Z	Z	Z	Z	D	D	D	D		
0.680	684	Е	Е	Е	Е	L	L		F	F	F	F	J		С	С	С		Z	Z	Z	Z	С	D	D	D	G		
1.000	105	Е	Е	Е	Е	L			F	F	F	F	J		С	С	С		Z	Z	Z	Z	D	D	D	D			
2.200	225	L	L	L	L	L			F	F	F	J			С	С	F		Z	Z	Z	С		D	D	G			
4.700	475	L	L	L	L				J	J	J	J			С	F			Z	Z	Z			D	G				
10	106	L	L	L	Α				J	J	J				F	F			С	С	D			G	G				
22	226	L	Α	L															D	D	Н								
47	476	L																											
100	107																												
WVDC		10	16	25	50	100	200	500	16	25	50	100	200	500	50	100	200	500	25	50	100	200	500	50	100	200	500		
SIZE					1210						18	12				18	25				2220				22	25			

Case Size			121	10 (KGM	32)				1812 (K	GM 43)		1825 (K	(GM 44)		2220 (K	2225 (KGM56)			
Thickness Letter	R	D	E	Н	Р	Α	L	Α	В	F	J	С	F	Z	С	D	Н	D	G
Max Thickness (mm)	1.05	1.4	1.45	1.8	2.2	2.70	2.80	1.4	1.45	2.21	2.80	2.21	2.80	2.21	2.80	3.3	3.4	2.21	2.80
Carrier Tape	EMB	EMB	EMB	EMB	EMB	EMB	EMB	EMB	EMB	EMB	EMB	EMB	EMB	EMB	EMB	EMB	EMB	EMB	EMB
Packaging Code 7"reel	U	U	U	U	U	U	U	V	V	V	V	V	٧	٧	V	٧	V	V	V
Packaging Code 13"reel	L	L	L	L	L	L	L	S	S	S	S	S	S	S	S	S	S	S	S
									EMB	OSSED(E	MB)								