

# Tantalum & Niobium Oxide Capacitors (excluding F-series)



## Tape & Reel Packaging

Tape and reel packaging for automatic component placement. Please enter required Suffix on order. Bulk packaging is not available.

### TAPE SPECIFICATION

Tape dimensions comply to EIA 481-1 Dimensions A0 and B0 of the pocket and the tape thickness, K, are dependent on the component size. Tape materials do not affect component solderability during storage. Carrier Tape Thickness <0.4mm.

### TAPING SUFFIX TABLE TAJ, TMJ, TPS, TPM, TRJ, TRM, THJ, TLJ, TLN TCJ, TCM, TCN, J-CAP™, TCO, TCQ, NLJ, NOJ, NOS, NOM

Case Size	Tape width mm	P mm	180mm (7") reel Tin Termination			330mm (13") reel Tin Termination			180mm (7") reel Gold Termination	
			Suffix	Automotive Suffix	Qty.	Suffix	Automotive Suffix	Qty.	Suffix	Qty.
A	8	4	R	T	2,000	S	U	8,000	A	2,000
B	8	4	R	T	2,000	S	U	8,000	A	2,000
C	12	8	R	T	500	S	U	3,000	A	500
D	12	8	R	T	500	S	U	2,500	A	500
E	12	8	R	T	400	S	U	1,500	A	400
F	12	8	R	-	1,000	S	-	4,000	A	1,000
G	8	4	R	-	2,500	S	-	10,000	A	2,500
H	8	4	R	-	2,500	S	-	10,000	A	2,500
K	8	4	R	-	3,000	S	-	13,000	A	3,000
L	8	4	R	-	2,500	S	-	10,000	A	2,500
M	8	4	R	-	4,000	S	-	13,000	A	4,000
N	8	4	R	-	3,000	S	-	13,000	A	3,000
O	8	4	R	-	3,000	S	-	13,000	-	-
P	8	4	R	-	2,500	S	-	10,000	A	2,500
R	8	4	R	-	2,500	S	-	10,000	A	2,500
S	8	4	R	-	2,500	S	-	10,000	A	2,500
T	8	4	R	-	2,500	S	-	10,000	A	2,500
U	16	8	R	-	400	-	-	-	-	-
V	12	8	R	-	400	S	-	1,500	A	400
W	12	8	R	-	1,000	S	-	5,000	A	1,000
X	12	8	R	-	1,000	S	-	5,000	A	1,000
Y	12	8	R	-	1,000	S	-	4,000	A	1,000
Z	12	8	R	-	1,000	S	-	5,000	-	-
3	16	8	R	-	800	S	-	TBD	-	-
4	16	8	R	-	800	S	-	TBD	-	-
5	12	8	R	-	400	S	-	1,500	-	-
6	24	12	R	-	500	S	-	TBD	-	-
8	16	8	R	-	800	S	-	TBD	-	-

### TAPING SUFFIX TABLE TAC AND TLC

Case Size	Tape width mm	P mm	108mm (4.25") reel Tin Termination		180mm (7") reel Tin Termination		108mm (4.25") reel & Gold Termination		180mm (7") reel & 100% Gold Termination	
			Suffix	Qty.	Suffix	Qty.	Suffix	Qty.	Suffix	Qty.
A	8	4	XTA	500	RTA	2,000	FTA	500	ATA	2,000
B	8	4	XTA	500	RTA	2,500	FTA	500	ATA	2,500
C	8	4	XTA	500	RTA	3,500	-	-	-	-
D	8	4	XTA	500	RTA	2,500	-	-	-	-
H	8	4	XTA	500	RTA	3,500	FTA	500	ATA	3,500
I	8	4	XTA	500	RTA	2,500	FTA	500	ATA	2,500
J	8	4	XTA	500	RTA	3,500	FTA	500	ATA	3,500
K	8	2	QTA	1,000	PTA	10,000	NTA	1,000	MTA	10,000
L	8	4	XTA	500	RTA	3,500	FTA	500	ATA	3,500
M	8	4	XTA	500	RTA	2,500	FTA	500	ATA	2,500
N	8	2	QTA	1,000	PTA	10,000	-	-	-	-
Q	8	4	XTA	500	RTA	2,500	-	-	-	-
R	8	4	XTA	500	RTA	2,500	FTA	500	ATA	2,500
S	8	4	XTA	500	RTA	2,500	-	-	-	-
T	8	4	XTA	500	RTA	2,500	FTA	500	ATA	2,500
U	8	4	XTA	500	RTA	3,500	FTA	500	ATA	3,500
V	8	4	XTA	500	RTA	2,500	FTA	500	ATA	2,500
Z	8	2	QTA	1,000	PTA	10,000	-	-	-	-

Under Development

### CHIP TRAY (WAFFLE) TABLE TLC

Case Size	Chip Tray Qty.	Tin Termination Suffix	Gold Termination Suffix
E	Each	HTA	-

# Tantalum & Niobium Oxide Capacitors (excluding F-series)

## Tape & Reel Packaging



### TAPING SUFFIX TABLE TPC

Case Size	Tape width mm	P mm	108mm (4.25") reel Tin Termination		180mm (7") reel Tin Termination		108mm (4.25") reel & Gold Termination		180mm (7") reel & 100% Gold Termination	
			Suffix	Qty.	Suffix	Qty.	Suffix	Qty.	Suffix	Qty.
H	8	4	Xxxxx	500	Rxxxx	3,500	Fxxxx	500	Axxxx	3,500
K	8	2	Qxxxx	1,000	Pxxxx	10,000	Nxxxx	1,000	Mxxxx	10,000
L	8	4	Xxxxx	500	Rxxxx	3,500	Fxxxx	500	Axxxx	3,500
R	8	4	Xxxxx	500	Rxxxx	2,500	Fxxxx	500	Axxxx	2,500

Note: xxxx = ESR value in Milliohms

### TAPING SUFFIX TABLE TLC

Case Size	Tape width mm	P mm	108mm (4.25") reel Tin Termination		180mm (7") reel Tin Termination		108mm (4.25") reel & Gold Termination		180mm (7") reel & 100% Gold Termination	
			Suffix	Qty.	Suffix	Qty.	Suffix	Qty.	Suffix	Qty.
L	8	4	Xxxxx	500	Rxxxx	3,500	Fxxxx	500	Axxxx	3,500

Note: xxxx = ESR value in Milliohms

# Tantalum & Niobium Oxide Capacitors (excluding F-series)



## Tape & Reel Packaging

PLASTIC TAPE DIMENSIONS TAJ, TMJ, TPS, TPM, TRJ, TRM, THJ, TLJ, TLN, TCJ, TCM, TCN, J-CAP™, TCO, TCQ, NLJ, NOJ, NOS AND NOM

Case	A0±0.10	B0±0.10	K±0.10	W±0.30	E±0.10	F±0.05	G min.	P±0.10	P2±0.05	P0±0.10	D <sup>+0.20</sup> <sub>-0.00</sub>	D1 <sup>+0.25</sup> <sub>-0.00</sub>
A	1.83	3.57	1.87	8.00	1.75	3.50	0.75	4.00	2.00	4.00	1.50	1.00
B	3.15	3.77	2.22	8.00	1.75	3.50	0.75	4.00	2.00	4.00	1.50	1.00
C	3.45	6.40	2.92	12.00	1.75	5.50	0.75	8.00	2.00	4.00	1.50	1.50
D	4.48	7.62	3.22	12.00	1.75	5.50	0.75	8.00	2.00	4.00	1.50	1.50
E	4.50	7.50	4.50	12.00	1.75	5.50	0.75	8.00	2.00	4.00	1.50	1.50
F	3.35	6.40	2.20	12.00	1.75	5.50	0.75	8.00	2.00	4.00	1.50	1.50
G	1.83	3.57	1.65	8.00	1.75	3.50	0.75	4.00	2.00	4.00	1.50	1.00
H	3.15	3.77	1.66	8.00	1.75	3.50	0.75	4.00	2.00	4.00	1.50	1.00
K	1.95	3.55	1.15	8.00	1.75	3.50	0.75	4.00	2.00	4.00	1.50	1.00
L	3.10	3.80	1.30	8.00	1.75	3.50	0.75	4.00	2.00	4.00	1.50	1.00
M	1.60	2.35	1.10	8.00	1.75	3.50	0.75	4.00	2.00	4.00	1.50	1.00
N	1.60	2.30	1.10	8.00	1.75	3.50	0.75	4.00	2.00	4.00	1.50	1.00
O	1.95	3.55	0.80	8.00	1.75	3.50	0.75	4.00	2.00	4.00	1.50	1.00
P	1.65	2.45	1.60	8.00	1.75	3.50	0.75	4.00	2.00	4.00	1.50	1.00
R	1.65	2.45	1.30	8.00	1.75	3.50	0.75	4.00	2.00	4.00	1.50	1.00
S	1.95	3.55	1.30	8.00	1.75	3.50	0.75	4.00	2.00	4.00	1.50	1.00
T	3.20	3.80	1.30	8.00	1.75	3.50	0.75	4.00	2.00	4.00	1.50	1.00
U	6.19	7.66	4.72	16.00	1.75	7.50	0.75	8.00	2.00	4.00	1.50	1.50
V	6.43	7.44	3.84	12.00	1.75	5.50	0.75	8.00	2.00	4.00	1.50	1.50
W	3.57	6.40	1.65	12.00	1.75	5.50	0.75	8.00	2.00	4.00	1.50	1.50
X	4.67	7.62	1.65	12.00	1.75	5.50	0.75	8.00	2.00	4.00	1.50	1.50
Y	4.67	7.62	2.15	12.00	1.75	5.50	0.75	8.00	2.00	4.00	1.50	1.50
Z	4.67	7.62	1.65	12.00	1.75	5.50	0.75	8.00	2.00	4.00	1.50	1.50
3	6.25	7.88	2.25	16.00	1.75	7.50±0.1	0.75	8.00	2.00±0.1	4.00	1.50	1.50
4	6.25	7.88	2.25	16.00	1.75	7.50±0.1	0.75	8.00	2.00±0.1	4.00	1.50	1.50
5	4.50	7.50	4.50	12.00	1.75	5.50	0.75	8.00	2.00	4.00	1.50	1.50
6	8.55	15.60	2.25	24.00	1.75	11.50	0.75	12.00	2.00	4.00	1.50	1.50
8	6.25	7.88	2.25	16.00	1.75	7.50±0.1	0.75	8.00	2.00±0.1	4.00	1.50	1.50

## PLASTIC TAPE DIMENSIONS TAC, TLC AND TPC

Case	A0±0.10	B0±0.10	K±0.10	W±0.30	E±0.10	F±0.05	G min.	P±0.10	P2±0.05	P0±0.10	D <sup>+0.20</sup> <sub>-0.00</sub>	D1 <sup>+0.20</sup> <sub>-0.00</sub>
A	1.83±0.10	3.57±0.10	1.87±0.10	8.00	1.75	3.50	0.75	4.00	2.00	4.00	1.50	1.00
B	3.15±0.10	3.77±0.10	1.66±0.10	8.00	1.75	3.50	0.75	4.00	2.00	4.00	1.50	1.00
C	1.95±0.10	3.55±0.10	1.15±0.10	8.00	1.75	3.50	0.75	4.00	2.00	4.00	1.50	1.00
D	1.95±0.10	3.60±0.10	0.90±0.10	8.00	1.75	3.50	0.75	4.00	2.00	4.00	1.50	1.00
H	1.65±0.10	2.45±0.10	1.10±0.05	8.00	1.75	3.50	0.75	4.00	2.00	4.00	1.50	1.00
I	1.95±0.10	3.60±0.10	0.90±0.10	8.00	1.75	3.50	0.75	4.00	2.00	4.00	1.50	1.00
J	1.05 <sup>+0.10</sup> <sub>-0.00</sub>	1.90 <sup>+0.10</sup> <sub>-0.00</sub>	0.80 <sup>+0.10</sup> <sub>-0.00</sub>	8.00	1.75	3.50	0.75	4.00	2.00	4.00	1.50	0.80
K	0.75 <sup>+0.15</sup> <sub>-0.00</sub>	1.26 <sup>+0.10</sup> <sub>-0.00</sub>	0.67 <sup>+0.10</sup> <sub>-0.00</sub>	8.00	1.75	3.50	0.75	2.00	2.00	2.00	1.50	0.50
L	1.05 <sup>+0.10</sup> <sub>-0.00</sub>	1.90 <sup>+0.10</sup> <sub>-0.00</sub>	1.05 <sup>+0.10</sup> <sub>-0.00</sub>	8.00	1.75	3.50	0.75	4.00	2.00	4.00	1.50	0.80
M	1.05 <sup>+0.10</sup> <sub>-0.00</sub>	2.45±0.10	1.05 <sup>+0.10</sup> <sub>-0.00</sub>	8.00	1.75	3.50	0.75	4.00	2.00	4.00	1.50	0.80
Q	1.65±0.10	2.45±0.10	1.30±0.10	8.00	1.75	3.50	0.75	4.00	2.00	4.00	1.50	1.00
R	1.65±0.10	2.45±0.10	1.60±0.10	8.00	1.75	3.50	0.75	4.00	2.00	4.00	1.50	1.00
S	1.95±0.10	3.55±0.10	1.30±0.10	8.00	1.75	3.50	0.75	4.00	2.00	4.00	1.50	1.00
T	3.20±0.10	3.80±0.10	1.30±0.10	8.00	1.75	3.50	0.75	4.00	2.00	4.00	1.50	1.00
U	1.65±0.10	2.45±0.10	0.80±0.05	8.00	1.75	3.50	0.75	4.00	2.00	4.00	1.50	1.00
V	1.95±0.10	3.60±0.10	0.90±0.10	8.00	1.75	3.50	0.75	4.00	2.00	4.00	1.50	1.00
X	1.83±0.10	3.57±0.10	1.87±0.10	8.00	1.75	3.50	0.75	4.00	2.00	4.00	1.50	1.00
Z	1.75 <sup>+0.05</sup> <sub>-0.00</sub>	1.90 <sup>+0.10</sup> <sub>-0.00</sub>	0.67 <sup>+0.10</sup> <sub>-0.00</sub>	8.00	1.75	3.50	0.75	2.00	2.00	2.00	1.50	0.50

Under development

## CHIP TRAY (WAFFLE) TABLE TLC

Case	X Pocket Size	Y Pocket Size	Z Pocket Depth	A Pocket Draft Angle	Array
E	0.76mm ±0.05mm	0.43mm ±0.05mm	0.41mm ±0.05mm	5° ±1/2°	20 x 20 (400)



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

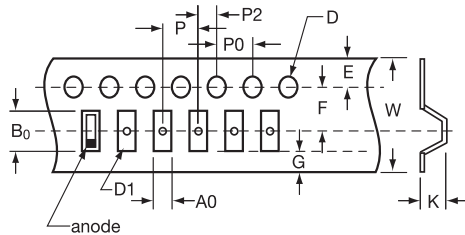
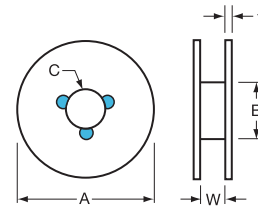
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# Tantalum & Niobium Oxide Capacitors (excluding F-series)

## Tape & Reel Packaging

### REEL DIMENSIONS

Reel Size	Tape	A	B	C	W	t
180mm (7")	16mm	180±2.00	50 min	13.0±0.50	16.4+2.0/-0	2.00±0.50
180mm (7")	12mm	180±2.00	50 min	13.0±0.50	12.4+1.5/-0	2.00±0.50
180mm (7")	8mm	180±2.00	50 min	13.0±0.50	8.4+1.5/-0	2.00±0.50
330mm (13")	12mm	330±2.00	50 min	13.0±0.50	12.4+1.5/-0	2.00±0.50
330mm (13")	8mm	330±2.00	50 min	13.0±0.50	8.4+1.5/-0	2.00±0.50
<b>TACmicrochip®</b>						
108mm (4.25")	8mm	108±2.00	50 min	13.0±0.50	8.4+1.5/-0	1.50±0.50
180mm (7")	8mm	180±2.00	50 min	13.0±0.50	8.4+1.5/-0	1.50±0.50

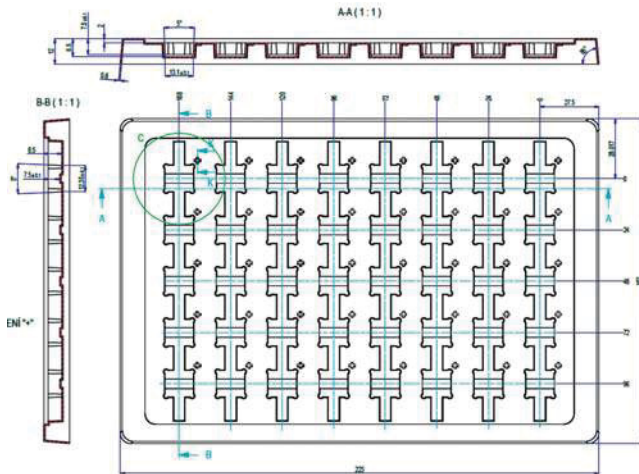


### COVER TAPE NOMINAL DIMENSIONS

Thickness: 75µm  
 Width of tape: 5.5mm (8mm tape)  
 9.5mm (12mm tape)  
 13.5mm (16mm tape)

### TCH AND THH PACKAGING SPECIFICATION

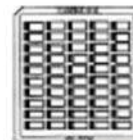
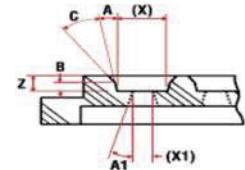
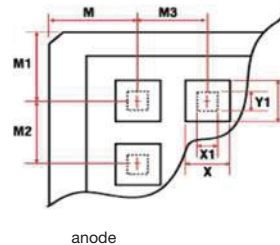
The dimensions of the tray see in the figure below. Tolerance of dimensions are ±0.1 mm. Both case size "9" and "I" have 40 pcs per tray.



### OVERALL CHIP TRAY SIZE

Size	Height	Flatness
50.80mm±0.10mm	3.96mm +0.05mm -0.08mm	0.10mm

### PLASTIC CHIP TRAY



E Case

# F-Series Tantalum Capacitors

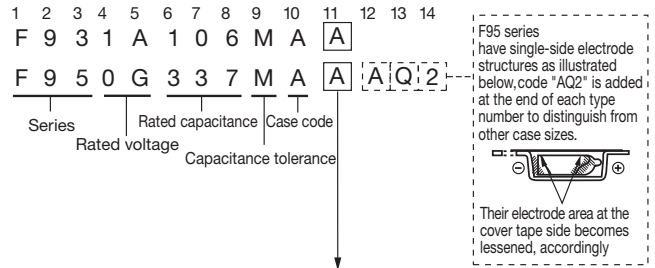
## Tape & Reel Packaging

### TAPING QUANTITY TABLE – F-SERIES CAPACITORS

Series	Case Size	180mm (7") Reel	330mm (13") Reel
		Tin Termination Qty.	Tin Termination Qty.
F38, F98	U	10,000	–
	M, S	4,000	–
F92	P	3,000	8,000
	A, B	2,500	8,000
F91, F93, F97	A	2,000	8,000
	B	2,000	6,000
	C, N	500	2,500
F95 AUDIO F95	R, P	3,000	10,000
	Q, S, A, T	2,500	10,000
	B	2,000	8,500
F72	R	1,000	–
	M	500	–
F75	C, D, M, R, U	500	–

(\*): Export packaging. There are some differences between actual minimum quantity and above list. Please confirm before you order.

### TYPE NUMBERING SYSTEM



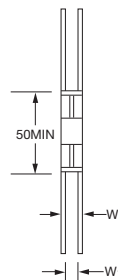
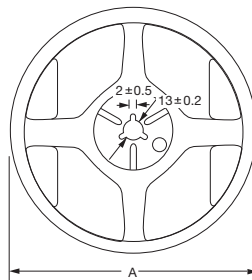
Tape Width (mm)	Polarity	Tape		Applicable Case Size		
		Reel Dia $\phi$ 180 mm	Reel Dia $\phi$ 330 mm	F91, F92, F93, F97, F38, F98	F95 AUDIO F95	F72 F75
8	R (Anode is at opposite side of feeding holes)	A	E	U, M, S, P, A, B	R, P, Q, S, A, T, B	–
12	R (Anode is at opposite side of feeding holes)	C	G	C, N	–	U, C, D, R, M

### REEL DIMENSIONS (mm)

Item	Reel Diameter	
	180 $\phi$	330 $\phi$
A	$\phi$ 180 $^{+0}_{-3}$	$\phi$ 330 $\pm$ 2

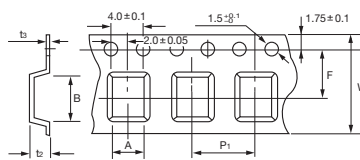
  

Item	Tape Width	
	8	12
W <sub>1</sub>	9.0 $\pm$ 0.3	13 $\pm$ 0.3
W <sub>2</sub>	11.4 $\pm$ 1.0	15.4 $\pm$ 1.0

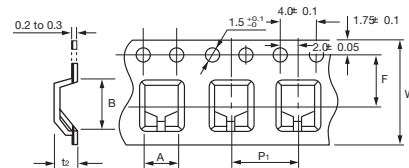


Note: The above shows the dimensions of 180 reel. In case of 330 reel, the appearance shape is slightly different.

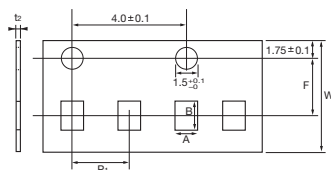
### CARRIER TAPE DIMENSIONS (mm)



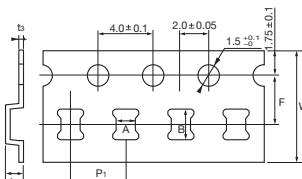
F91, F92, F93, F97, F98 M, F38 M



F95, AUDIO F95, F72, F75



F98 U, F38 U



F98 S, F38 S

Case Code	W	A	B	F	P <sub>1</sub>	t <sub>2</sub>	t <sub>3</sub>
U	8.0 $\pm$ 0.3	0.73 $\pm$ 0.08	1.20 $\pm$ 0.05	3.5 $\pm$ 0.05	2.0 $\pm$ 0.1	0.8 Max.	–
M	8.0 $\pm$ 0.3	0.97 $\pm$ 0.05	1.85 $\pm$ 0.05	3.5 $\pm$ 0.05	4.0 $\pm$ 0.1	1.3 Max.	0.20 $\pm$ 0.05
S	8.0 $\pm$ 0.3	1.35 $\pm$ 0.1	2.15 $\pm$ 0.1	3.5 $\pm$ 0.1	4.0 $\pm$ 0.1	1.4 Max.	0.2 to 0.3
P	8.0 $\pm$ 0.3	1.55 $\pm$ 0.1	2.3 $\pm$ 0.1	3.5 $\pm$ 0.05	4.0 $\pm$ 0.1	(1.7 Max.)	0.2 to 0.3
A	8.0 $\pm$ 0.3	1.9 $\pm$ 0.1	3.5 $\pm$ 0.1	3.5 $\pm$ 0.05	4.0 $\pm$ 0.1	2.1 Max (1.7)	0.2 to 0.3
B	8.0 $\pm$ 0.3	3.3 $\pm$ 0.1	3.8 $\pm$ 0.1	3.5 $\pm$ 0.05	4.0 $\pm$ 0.1	2.4 Max (1.7)	0.2 to 0.3
C	12.0 $\pm$ 0.3	3.6 $\pm$ 0.1	6.3 $\pm$ 0.1	5.5 $\pm$ 0.05	8.0 $\pm$ 0.1	2.9 Max.	0.2 to 0.3
N	12.0 $\pm$ 0.3	4.8 $\pm$ 0.1	7.7 $\pm$ 0.1	–	–	3.5 Max.	0.2 to 0.3

Type	Case Code	W	A	B	F	P <sub>1</sub>	t <sub>2</sub>
F95 AUDIO F95	R	8.0 $\pm$ 0.3	1.5 $\pm$ 0.2	2.6 $\pm$ 0.2	3.5 $\pm$ 0.05	4.0 $\pm$ 0.1	1.05 Max.
	P		2.0 $\pm$ 0.2	3.6 $\pm$ 0.2			1.5 Max.
	Q, S		2.1 $\pm$ 0.2	3.7 $\pm$ 0.2			1.5 Max.
	A		3.0 $\pm$ 0.2	3.75 $\pm$ 0.2			2.0 Max.
	T		3.25 $\pm$ 0.2	3.7 $\pm$ 0.2			1.5 Max.
F72	B	12.0 $\pm$ 0.3	3.25 $\pm$ 0.2	3.7 $\pm$ 0.2	5.5 $\pm$ 0.1	8.0 $\pm$ 0.1	2.4 Max.
	R		6.5 $\pm$ 0.2	7.6 $\pm$ 0.2			2.2 Max.
F75	M	12.0 $\pm$ 0.3	6.6 $\pm$ 0.2	7.8 $\pm$ 0.2	5.5 $\pm$ 0.1	8.0 $\pm$ 0.1	2.5 Max.
	U		3.7 $\pm$ 0.2	7.6 $\pm$ 0.2			2.7 Max.
	C		4.8 $\pm$ 0.2	7.9 $\pm$ 0.2			3.6 Max.
	D		6.6 $\pm$ 0.2	7.6 $\pm$ 0.2			3.9 Max.
	M		6.6 $\pm$ 0.2	7.6 $\pm$ 0.2			3.3 Max.
	R		6.7 $\pm$ 0.2	7.6 $\pm$ 0.2			4.6 Max.