

TLJ Series



Tantalum Solid Electrolytic Chip Capacitors High CV Consumer Series



FEATURES

- High Volumetric Efficiency
- 3x reflow 260°C compatible
- 14 case sizes available including low profile codes
- Environmentally friendly
- Consumer applications (e.g. mobiles phones, PDA etc.)
- CV range: 10-1500µF / 2.5-20V



LEAD-FREE COMPATIBLE COMPONENT

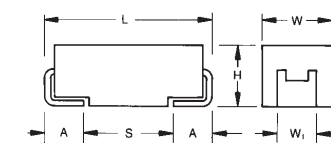
APPLICATIONS

- Mobile phones
- MP3/4 players

CASE DIMENSIONS: millimeters (inches)

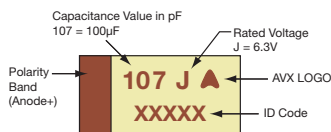
Code	EIA Code	EIA Metric	L±0.20 (0.008)	W+0.20 (0.008) -0.10 (0.004)	H+0.20 (0.008) -0.10 (0.004)	W ₁ ±0.20 (0.008)	A+0.30 (0.012) -0.20 (0.008)	S Min.
A	1206	3216-18	3.20 (0.126)	1.60 (0.063)	1.60 (0.063)	1.20 (0.047)	0.80 (0.031)	1.10 (0.043)
B	1210	3528-21	3.50 (0.138)	2.80 (0.110)	1.90 (0.075)	2.20 (0.087)	0.80 (0.031)	1.40 (0.055)
F	2312	6032-20	6.00 (0.236)	3.20 (0.126)	2.00 (0.079) max.	2.20 (0.087)	1.30 (0.051)	2.90 (0.114)
G	1206	3216-15	3.20 (0.126)	1.60 (0.063)	1.50 (0.059) max	1.20 (0.047)	0.80 (0.031)	1.10 (0.043)
H	1210	3528-15	3.50 (0.138)	2.80 (0.110)	1.50 (0.059) max	2.20 (0.087)	0.80 (0.031)	1.40 (0.055)
K	1206	3216-10	3.20 (0.126)	1.60 (0.063)	1.00 (0.039) max	1.20 (0.047)	0.80 (0.031)	1.10 (0.043)
N	0805	2012-10	2.05 (0.081)	1.30 (0.051)	1.00 (0.039) max	1.00 (0.039)	0.50 (0.020)	0.85 (0.033)
P	0805	2012-15	2.05 (0.081)	1.35 (0.053)	1.50 (0.059) max	1.00±0.10 (0.039±0.004)	0.50 (0.020)	0.85 (0.033)
R	0805	2012-12	2.05 (0.081)	1.30 (0.051)	1.20 (0.047) max	1.00±0.10 (0.039±0.004)	0.50 (0.020)	0.85 (0.033)
S	1206	3216-12	3.20 (0.126)	1.60 (0.063)	1.20 (0.047) max	1.20 (0.047)	0.80 (0.031)	1.10 (0.043)
T	1210	3528-12	3.50 (0.138)	2.80 (0.110)	1.20 (0.047) max	2.20 (0.087)	0.80 (0.031)	1.40 (0.033)
V	2924	7361-38	7.30 (0.287)	6.10 (0.240)	3.55 (0.140)	3.10 (0.120)	1.30 (0.051)	4.40 (0.173)
W	2312	6032-15	6.00 (0.236)	3.20 (0.126)	1.50 (0.059) max	2.20 (0.087)	1.30 (0.051)	2.90 (0.114)
Y	2917	7343-20	7.30 (0.287)	4.30 (0.169)	2.00 (0.079) max	2.40 (0.094)	1.30 (0.051)	4.40 (0.173)

W1 dimension applies to the termination width for A dimensional area only.

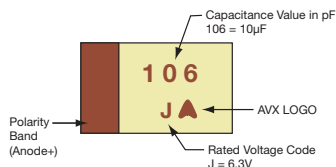


MARKING

A, B, F, G, H, K, S, T, V, W, Y CASE



N, P, R CASE



HOW TO ORDER

TLJ

Type

W

Case Size
See table above

157

Capacitance Code
pF code: 1st two digits represent significant figures, 3rd digit represents multiplier (number of zeros to follow)

M

Tolerance
M = ±20%

010

Rated DC Voltage
002 = 2.5Vdc
004 = 4Vdc
006 = 6.3Vdc
010 = 10Vdc
016 = 16Vdc
020 = 20Vdc

R

Packaging
R = Pure Tin 7" Reel
S = Pure Tin 13" Reel

0200

ESR in mΩ

TECHNICAL SPECIFICATIONS

Technical Data:

All technical data relate to an ambient temperature of +25°C

Capacitance Range:

10 µF to 1500 µF

Capacitance Tolerance:

±20%

Rated Voltage (V_R) -55°C ≤ +40°C:

2.5 4 6.3 10 16 20

Category Voltage (V_C) at 85°C:

1.3 2 3.2 5 8 10

Category Voltage (V_C) at 125°C:

0.5 0.8 1.3 2 3.2 4

Temperature Range:

-55°C to +125°C with category voltage

Reliability:

0.2% per 1000 hours at 85°C, 0.5xV_R with 0.1Ω/V series impedance with 60% confidence level



TLJ Series



Tantalum Solid Electrolytic Chip Capacitors High CV Consumer Series

CAPACITANCE AND RATED VOLTAGE RANGE (LETTER DENOTES CASE SIZE)

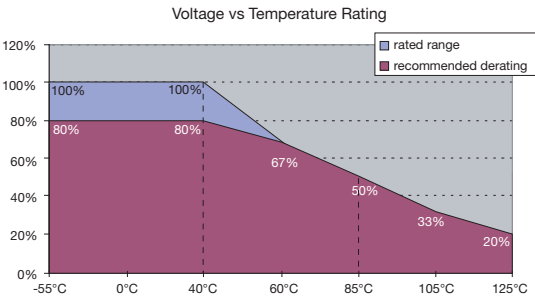
Capacitance		Rated Voltage DC to 40°C / 0.5DC to 85°C / 0.2DC to 125°C					
μF	Code	2.5V (e)	4V (G)	6.3V (J)	10V (A)	16V (C)	20V (D)
6.8	685						
10	106				N(2500) R(2000,3000)	S(2200)	T(1000)
15	156				R(2000)		
22	226			N(5400)/R(3500)	K(1800)/N(3800) R(3800)	T(1000)	
33	336		N(8000)/R(3000)	K(1700)/N(8000) P(3000)/R(3000)	K(1500)/N(9600) P(3500) R(3500)/S(1500)	T(1000)	
47	476		K(1500)/N(4000) P(3000)/R(3000)	K(1500)/N(8300) P(700,900,1800,2500) R(3200)/S(1500)	A(600)/G(1500) P(3200)/R(3200) S(1500)/T(600)		
68	686		K(1200)/N(8000) P(3000) R(2900)/S(1500)	A(500)/G(800) K(2000) S(1500)/T(600)	A(1500)		
100	107		A(500)/G(800) K(2000)/N(5200) P(2700)/S(1400)	A(500,800)/G(800) K(2000) P(5400)/T(800)	A(1400) H(900)/T(900)		
150	157		A(800)/T(800)	A(900)/G(2500)* H(900)/T(1200)	B(500) W(150,200)		
220	227	T(1100)	A(1100)/G(3000) H(900)/T(1100)	B(500)/T(2000) W(200)	F(300)		
330	337		T(2700)/W(200)	F(300)			
470	477						
680	687			Y(100,150)			
1000	108						
1500	158			V(100)			

Available Ratings, (ESR ratings in mOhms in brackets)

Engineering samples - please contact manufacturer

*Codes under development - subject to change

Note: Voltage ratings are minimum values. AVX reserves the right to supply higher ratings in the same case size, to the same reliability standards.



TLJ Series



Tantalum Solid Electrolytic Chip Capacitors High CV Consumer Series

RATINGS & PART NUMBER REFERENCE

AVX Part No.	Case Size	Capacitance (μF)	Rated Voltage (V)	Rated Temperature (°C)	Category Voltage (V)	Category Temperature (°C)	Maximum Surge Current (A)	DCL (μA) Max.	ESR Max. (mΩ) @ 100kHz	MSL	100kHz RMS Current (mA)			Product Category
											25°C	85°C	125°C	
2.5 Volt @ 40°C														
TLJT227M002#1200	T	220	2.5	40	0.5	125	0.8	5.5	1100	3	270	243	108	2
4 Volt @ 40°C														
TLJN336M004#8000	N	33	4	40	0.8	125	0.2	1.3	8000	3	79	71	32	1
TLJR336M004#3000	R	33	4	40	0.8	125	0.6	1.3	3000	3	135	122	54	2
TLJK476M004#1500	K	47	4	40	0.8	125	1.0	1.9	1500	3	208	187	83	2
TLJN476M004#4000	N	47	4	40	0.8	125	0.6	1.9	4000	3	112	101	45	1
TLJP476M004#3000	P	47	4	40	0.8	125	0.6	1.9	3000	3	141	127	57	2
TLJR476M004#3000	R	47	4	40	0.8	125	0.6	1.9	3000	3	135	122	54	2
TLJK686M004#1200	K	68	4	40	0.8	125	1.2	2.7	1200	3	233	209	93	2
TLJN686M004#8000	N	68	4	40	0.8	125	0.2	5.4	8000	3	79	71	32	1
TLJP686M004#3000	P	68	4	40	0.8	125	1.2	2.7	3000	3	141	127	57	2
TLJR686M004#2900	R	68	4	40	0.8	125	0.6	2.7	2900	3	138	124	55	2
TLJS686M004#1500	S	68	4	40	0.8	125	1.0	2.7	1500	3	208	187	83	2
TLJA107M004#0500	A	100	4	40	0.8	125	2.1	4.0	500	3	387	349	155	1
TLJG107M004#0800	G	100	4	40	0.8	125	1.6	4.0	800	3	296	266	118	2
TLJK107M004#2000	K	100	4	40	0.8	125	0.8	8.0	2000	3	180	162	72	2
TLJN107M004#5200	N	100	4	40	0.8	125	0.4	8.0	5200	3	98	88	39	1
TLJP107M004#2700	P	100	4	40	0.8	125	0.6	8.0	2700	3	149	134	60	2
TLJS107M004#1400	S	100	4	40	0.8	125	1.1	4.0	1400	3	215	194	86	2
TLJA157M004#0800	A	150	4	40	0.8	125	1.6	6.0	800	3	306	276	122	2
TLJT157M004#0800	T	150	4	40	0.8	125	1.6	6.0	800	3	316	285	126	2
TLJA227M004#1100	A	220	4	40	0.8	125	1.3	17.6	1100	3	261	235	104	2
TLJG227M004#3000	G	220	4	40	0.8	125	0.6	17.6	3000	3	153	137	61	2
TLJH227M004#0900	H	220	4	40	0.8	125	1.5	8.8	900	3	298	268	119	2
TLJT227M004#1100	T	220	4	40	0.8	125	1.3	17.6	1100	3	270	243	108	2
TLJT337M004#2700	T	330	4	40	0.8	125	0.6	26.4	2700	3	172	155	69	2
TLJW337M004#0200	W	330	4	40	0.8	125	3.1	13.2	200	3	671	604	268	1
6.3 Volt @ 40°C														
TLJN226M006#5400	N	22	6.3	40	1.3	125	0.5	1.3	5400	3	96	87	38	1
TLJR226M006#3500	R	22	6.3	40	1.3	125	0.8	1.3	3500	3	125	113	50	2
TLJK336M006#1700	K	33	6.3	40	1.3	125	1.5	2.0	1700	3	196	176	78	2
TLJN336M006#8000	N	33	6.3	40	1.3	125	0.4	2.0	8000	3	79	71	32	1
TLJP336M006#3000	P	33	6.3	40	1.3	125	0.9	2.0	3000	3	141	127	57	1
TLJR336M006#3000	R	33	6.3	40	1.3	125	0.9	2.0	3000	3	135	122	54	2
TLJK476M006#1500	K	47	6.3	40	1.3	125	1.6	2.8	1500	3	208	187	83	2
TLJN476M006#8300	N	47	6.3	40	1.3	125	0.4	5.6	8300	3	78	70	31	1
TLJP476M006#0700	P	47	6.3	40	1.3	125	2.7	2.8	700	3	293	263	117	2
TLJP476M006#0900	P	47	6.3	40	1.3	125	2.3	2.8	900	3	258	232	103	2
TLJP476M006#1800	P	47	6.3	40	1.3	125	1.4	2.8	1800	3	183	164	73	2
TLJP476M006#2500	P	47	6.3	40	1.3	125	1.1	2.8	2500	3	155	139	62	2
TLJR476M006#3200	R	47	6.3	40	1.3	125	0.9	2.8	3200	3	131	118	52	2
TLJS476M006#1500	S	47	6.3	40	1.3	125	1.6	2.8	1500	3	208	187	83	2
TLJA686M006#0500	A	68	6.3	40	1.3	125	3.3	4.1	500	3	387	349	155	1
TLJG686M006#0800	G	68	6.3	40	1.3	125	1.9	4.1	800	3	296	266	118	2
TLJK686M006#2000	K	68	6.3	40	1.3	125	1.3	8.16	2000	3	180	162	72	2
TLJS686M006#1500	S	68	6.3	40	1.3	125	1.6	4.1	1500	3	208	187	83	2
TLJT686M006#0600	T	68	6.3	40	1.3	125	3.0	4.1	600	3	365	329	146	1
TLJA107M006#0500	A	100	6.3	40	1.3	125	3.3	6.0	500	3	387	349	155	2
TLJA107M006#0800	A	100	6.3	40	1.3	125	2.5	6.0	800	3	306	276	122	2
TLJG107M006#0800	G	100	6.3	40	1.3	125	2.5	6.0	800	3	296	266	118	2
TLJK107M006#2000	K	100	6.3	40	1.3	125	1.3	12.0	2000	3	180	162	72	2
TLJP107M006#5400	P	100	6.3	40	1.3	125	0.5	12.0	5400	3	105	95	42	2
TLJT107M006#0800	T	100	6.3	40	1.3	125	2.5	6.0	800	3	316	285	126	2
TLJA157M006#0900	A	150	6.3	40	1.3	125	2.3	9.0	900	3	289	260	115	2
TLJG157M006#2500	G	150	6.3	40	1.3	125	1.1	18.0	2500	3	167	151	67	1
TLJH157M006#0900	H	150	6.3	40	1.3	125	2.3	9.0	900	3	298	268	119	2
TLJT157M006#1200	T	150	6.3	40	1.3	125	1.9	9.0	1200	3	258	232	103	2
TLJB227M006#0500	B	220	6.3	40	1.3	125	3.3	13.2	500	3	412	371	165	1
TLJT227M006#2000	T	220	6.3	40	1.3	125	1.3	26.4	2000	3	200	180	80	2
TLJW227M006#0200	W	220	6.3	40	1.3	125	4.8	13.2	200	3	671	604	268	1
TLJF337M006#0300	F	330	6.3	40	1.3	125	4.2	19.8	300	3	577	520	231	1
TLJY687M006#0100	Y	680	6.3	40	1.3	125	5.7	40.8	100	3	1118	1006	447	1
TLJY687M006#0150	Y	680	6.3	40	1.3	125	5.7	40.8	150	3	913	822	365	1
TLJV158M006#0100	V	1500	6.3	40	1.3	125	5.7	90	100	3	1581	1423	632	1

TLJ Series



Tantalum Solid Electrolytic Chip Capacitors High CV Consumer Series

RATINGS & PART NUMBER REFERENCE

AVX Part No.	Case Size	Capacitance (µF)	Rated Voltage (V)	Rated Temperature (°C)	Category Voltage (V)	Category Temperature (°C)	Maximum Surge Current (A)	DCL (µA) Max.	ESR Max. (mΩ) @ 100kHz	MSL	100kHz RMS Current (mA)			Product Category
											25°C	85°C	125°C	
10 Volt @ 40°C														
TLJN106M010#2500	N	10	10	40	2	125	1.7	1.0	2500	3	141	127	57	1
TLJR106M010#2000	R	10	10	40	2	125	2.0	1.0	2000	3	166	149	66	1
TLJR106M010#3000	R	10	10	40	2	125	1.4	1.0	3000	3	135	122	54	1
TLJR156M010#2000	R	15	10	40	2	125	2.0	1.5	2000	3	166	149	66	1
TLJK226M010#1800	K	22	10	40	2	125	2.2	2.2	1800	3	167	150	67	2
TLJN226M010#3800	N	22	10	40	2	125	1.2	2.2	3800	3	115	103	46	1
TLJR226M010#3800	R	22	10	40	2	125	1.2	2.2	3800	3	120	108	48	2
TLJK336M010#1500	K	33	10	40	2	125	2.6	3.3	1500	3	208	187	83	2
TLJN336M010#9600	N	33	10	40	2	125	0.5	6.6	9600	3	72	65	29	1
TLJP336M010#3500	P	33	10	40	2	125	1.3	3.3	3500	3	131	118	52	2
TLJR336M010#3500	R	33	10	40	2	125	1.3	3.3	3500	3	125	113	50	2
TLJS336M010#1500	S	33	10	40	2	125	2.6	3.3	1500	3	208	187	83	2
TLJA476M010#0600	A	47	10	40	2	125	4.8	4.7	600	3	354	318	141	1
TLJG476M010#1500	G	47	10	40	2	125	2.6	4.7	1500	3	216	194	86	2
TLJP476M010#3200	P	47	10	40	2	125	1.4	4.7	3200	3	137	123	55	2
TLJR476M010#3200	R	47	10	40	2	125	1.4	9.4	3200	3	131	118	52	2
TLJS476M010#1500	S	47	10	40	2	125	2.6	4.7	1500	3	208	187	83	2
TLJT476M010#0600	T	47	10	40	2	125	4.8	4.7	600	3	365	329	146	1
TLJA686M010#1500	A	68	10	40	2	125	2.6	6.8	1500	3	224	201	89	2
TLJA107M010#1400	A	100	10	40	2	125	2.7	10.0	1400	3	231	208	93	2
TLJH107M010#0900	H	100	10	40	2	125	3.7	10.0	900	3	298	268	119	2
TLJT107M010#0900	T	100	10	40	2	125	3.7	10.0	900	3	298	268	119	2
TLJB157M010#0500	B	150	10	40	2	125	5.3	15.0	500	3	412	371	165	1
TLJW157M010#0150	W	150	10	40	2	125	8.3	15.0	150	3	775	697	310	1
TLJW157M010#0200	W	150	10	40	2	125	7.7	15.0	200	3	671	604	268	1
TLJF227M010#0300	F	220	10	40	2	125	6.7	22.0	300	3	577	520	231	1
16 Volt @ 40°C														
TLJS106M016#2200	S	10	16	40	3.2	125	3.0	1.6	2200	3	172	155	69	1
TLJT226M016#1000	T	22	16	40	3.2	125	5.5	3.5	1000	3	283	255	113	1
TLJT336M016#1000	T	33	16	40	3.2	125	5.5	5.3	1000	3	283	255	113	1
20 Volt @ 40°C														
TLJT106M020#1000	T	10	20	40	4	125	6.9	2.0	1000	3	283	255	113	1

Moisture Sensitivity Level (MSL) is defined according to J-STD-020.

All technical data relates to an ambient temperature of +25°C. Capacitance is measured at 120Hz, 0.5V RMS with a maximum DC bias of 2.2 volts. DCL is measured at rated voltage after 5 minutes.

ESR allowed to move up to 1.25 times catalogue limit post mounting

DCL allowed to move up to 2.00 times catalogue limit post mounting

For typical weight and composition see page 214.

NOTE: AVX reserves the right to supply a higher voltage rating or tighter tolerance part in the same case size, to the same reliability standards.

Tantalum Solid Electrolytic Chip Capacitors High CV Consumer Series

QUALIFICATION TABLE – CATEGORY 1

TEST	TLJ series (Temperature range -55°C to +125°C)										
	Condition			Characteristics							
Endurance	Determine after application of rated voltage for 2000 +48/-0 hours at 40±2°C and then leaving 1-2 hours at room temperature. Also determine of 85°C temperature, category voltage for 2000 +48/-0 hours and then leaving 1-2 hours at room temperature. Power supply impedance to be ≤0.1Ω/V.			Visual examination	no visible damage						
				DCL	2 x initial limit						
				ΔC/C	within ±10% of initial value						
				ESR	1.25 x initial limit						
Humidity	Determine after storage without applied voltage at 65±2°C and 90-95% relative humidity for 500hrs and then recovery 1-2 hours at room temperature			Visual examination	no visible damage						
				DCL	2 x initial limit						
				ΔC/C	within ±10% of initial value						
				ESR	1.25 x initial limit						
Temperature Stability	Step	Temperature°C	Duration(min)		+20°C	-55°C	+20°C	+85°C	+125°C	+20°C	
	1	+20±2	15	DCL	2 x IL*	n/a	2 x IL*	20 x IL*	25 x IL*	IL*	
	2	-55+0/-3	15		ΔC/C	n/a	+0/-20%	±5%	+20/-0%	+25/-0%	±5%
	3	+20±2	15			ESR	1.25 x IL*	2.5 x IL*	1.25 x IL*	1.25 x IL*	1.25 x IL*
	4	+85+3/-0	15								
	5	+125+3/-0	15								
	6	+20±2	15								
Surge Voltage	Test temperature: 40°C+3/0°C Test voltage: 1.3 x rated voltage Series protection resistance 1000±100Ω Discharge resistance: 1000Ω Number of cycles: 1000x Cycle duration: 6 min; 30 sec charge, 5 min 30 sec discharge			Visual examination	no visible damage						
				DCL	2 x initial limit						
				ΔC/C	within ±5% of initial value						
				ESR	1.25 x initial limit						

*Initial Limit

QUALIFICATION TABLE – CATEGORY 2

TEST	TLJ series (Temperature range -55°C to +125°C)										
	Condition			Characteristics							
Endurance	Determine after application of rated voltage for 2000 +48/-0 hours at 40±2°C and then leaving 1-2 hours at room temperature. Also determine of 85°C temperature, category voltage for 2000 +48/-0 hours and then leaving 1-2 hours at room temperature. Power supply impedance to be ≤0.1Ω/V.			Visual examination	no visible damage						
				DCL	2 x initial limit						
				ΔC/C	within +5/-30% of initial value						
				ESR	1.25 x initial limit						
Humidity	Determine after storage without applied voltage at 65±2°C and 90-95% relative humidity for 500hrs and then recovery 1-2 hours at room temperature			Visual examination	no visible damage						
				DCL	2 x initial limit						
				ΔC/C	within ±10% of initial value						
				ESR	1.25 x initial limit						
Temperature Stability	Step	Temperature°C	Duration(min)		+20°C	-55°C	+20°C	+85°C	+125°C	+20°C	
	1	+20±2	15	DCL	2 x IL*	n/a	2 x IL*	20 x IL*	25 x IL*	2 x IL*	
	2	-55+0/-3	15		ΔC/C	n/a	+5/-20%	±10%	+20/-0%	+25/-0%	±10%
	3	+20±2	15			ESR	1.25 xIL*	2.5 x IL*	1.25 x IL*	1.25 x IL*	1.25 x IL*
	4	+85+3/-0	15								
	5	+125+3/-0	15								
	6	+20±2	15								
Surge Voltage	Test temperature: 40°C+3/0°C Test voltage: 1.3 x rated voltage Series protection resistance 1000±100Ω Discharge resistance: 1000Ω Number of cycles: 1000x Cycle duration: 6 min; 30 sec charge, 5 min 30 sec discharge			Visual examination	no visible damage						
				DCL	2 x initial limit						
				ΔC/C	within ±5% of initial value						
				ESR	1.25 x initial limit						

*Initial Limit

Mouser Electronics

Authorized Distributor

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AVX:

TLJT226M016R1000	TLJT227M004R1100	TLJA107M004R0500	TLJA107M006R0800	TLJA157M004R0800
TLJA476M010R0600	TLJA686M006R0500	TLJB227M006R0500	TLJG107M004R0800	TLJG476M010R1500
TLJG686M006R0800	TLJH107M010R0900	TLJH157M006R0900	TLJH227M004R0900	TLJK336M006R1700
TLJK476M006R1500	TLJP336M006R3000	TLJP476M006R2500	TLJR106M010R3000	TLJR156M010R2000
TLJR226M006R3500	TLJR336M004R3000	TLJR336M006R3000	TLJR476M004R3000	TLJS107M004R1400
TLJS336M010R1500	TLJS476M006R1500	TLJS476M010R1500	TLJS686M004R1500	TLJT107M006R0800
TLJT157M004R0800	TLJT157M006R1200	TLJT227M002R1100	TLJT476M010R0600	TLJT686M006R0600
TLJW157M010R0200	TLJW157M010S0200	TLJW227M006R0200	TLJW337M004R0200	TLJB157M010R0500
TLJT107M010R0900	TLJR336M010R3500	TLJJ475M010RKJ	TLJA157M006R0900	TLJK476M004R1500
TLJS686M006R1500	TLJJ106M006RKJ	TLJK686M004R1200	TLJP476M004R3000	TLJJ685M006RKJ
TLJJ685M004RKJ	TLJK226M010R1800	TLJP686M004R3000	TLJP476M010R3200	TLJJ106M004RKJ
TLJJ475M006RKJ	TLJF337M006R0300	TLJG107M004S0800	TLJP476M006R0700	TLJA227M004R1100
TLJG107M006R0800	TLJP107M004R2700	TLJP107M006R5400	TLJP476M006R0900	TLJR686M004R2900
TLJT336M016R1000	TLJY687M006R0150	TLJA107M010R1400	TLJN336M010R9600	TLJN476M004R4000
TLJN107M004R5200	TLJN686M004R8000	TLJN476M006R8300	TLJN106M010R2500	TLJY687M006R0100
TLJA107M006R0500	TLJN226M010R3800	TLJR476M006R3200	TLJS106M016R2200	TLJN336M006R8000
TLJR226M010R3800	TLJP336M010R3500	TLJN226M006R5400	TLJW157M010R0150	TLJK336M010R1500
TLJN336M004R8000	TLJT106M020R1000	TLJB227M006S0500	TLJA686M010R1500	TLJG227M004R3000
TLJG227M004S3000	TLJR476M010R3200	TLJR476M010S3200	TLJT227M006R2000	TLJT227M006S2000
TLJT337M004R2700	TLJT337M004S2700	TLJF227M010R0300	TLJR106M010R2000	TLJR106M010S2000