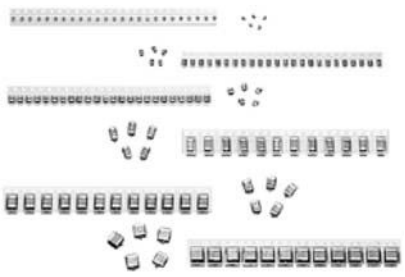
Solid Tantalum Chip Capacitors, TANTAMOUNT®, Conformal Coated



FEATURES

- Pad compatible with 194D and MIL-PRF-55365/4 (CWR06)
- 8 mm, 12 mm 16 mm tape to EIA-481 and reeling per IEC 286-3. 7" [178 mm] standard 13" [330 mm] available
- Mounting: Surface mount
- Terminations: 100 % tin (2) standard, tin/lead available
- Material categorization: For definitions please see www.vishay.com/doc?99912

Pb-free Available

RoHS* COMPLIANT

Note

* Lead (Pb)-containing terminations are not RoHS-compliant. Exemptions may apply.

PERFORMANCE CHARACTERISTICS

www.vishay.com/doc?40088

Operating Temperature: - 55 °C to + 125 °C (above 85 °C, voltage derating is required)

Capacitance Range: 1.0 µF to 270 µF

Capacitance Tolerance: ± 10 %, ± 20 % standard

Voltage Rating: 4 V_{DC} to 50 V_{DC}

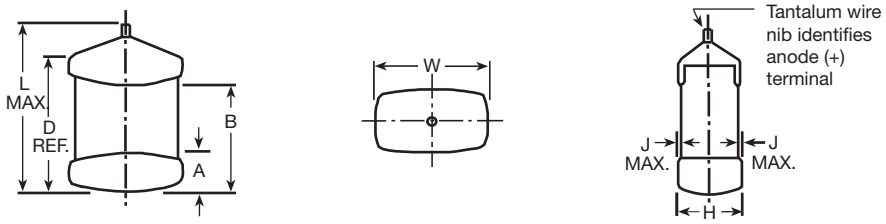
ORDERING INFORMATION

695D	475	X0	004	A	2	T
TYPE	CAPACITANCE	CAPACITANCE TOLERANCE	DC VOLTAGE RATING AT + 85 °C	CASE CODE	TERMINATION	REEL SIZE AND PACKAGING
	This is expressed in picofarads. The first two digits are the significant figures. The third is the number of zeros to follow.	**X0 = ± 20 %** X9 = ± 10 %	This is expressed in volts. To complete the three-digit block, zeros precede the voltage rating. A decimal point is indicated by an "R" (6R3 = 6.3 V).	See Ratings and Case Codes table	**2 = 100 % tin** 4 = Gold plated 8 = Solder plated (60/40) Special order	**T = Tape and reel 7" [178 mm] reel** W = 13" [330 mm] reel See tape and reel specifications

Notes

- Preferred tolerance and reel sizes are in bold
- We reserve the right to supply higher voltage ratings and tighter capacitance tolerance capacitors in the same case size.

DIMENSIONS in inches [millimeters]



CASE CODE	L (MAX.)	D (REF.)	W	H	A	B	J (MAX.)
A	0.134 [3.4]	0.100 [2.54]	0.050 ± 0.015 [1.27 ± 0.38]	0.050 ± 0.015 [1.27 ± 0.38]	0.023 ± 0.010 [0.584 ± 0.25]	0.067 ± 0.015 [1.70 ± 0.38]	0.004 [0.10]
B	0.185 [4.7]	0.150 [3.81]	0.050 ± 0.015 [1.27 ± 0.38]	0.050 ± 0.015 [1.27 ± 0.38]	0.040 ± 0.015 [1.02 ± 0.38]	0.120 ± 0.015 [3.05 ± 0.38]	0.004 [0.10]
D	0.185 [4.7]	0.140 [3.56]	0.095 ± 0.015 [2.41 ± 0.38]	0.050 ± 0.015 [1.27 ± 0.38]	0.040 ± 0.015 [1.02 ± 0.38]	0.110 ± 0.020 [2.79 ± 0.51]	0.004 [0.10]
E	0.236 [6.0]	0.200 [5.08]	0.095 ± 0.015 [2.41 ± 0.38]	0.050 ± 0.015 [1.27 ± 0.38]	0.040 ± 0.015 [1.02 ± 0.38]	0.170 ± 0.020 [4.32 ± 0.51]	0.004 [0.10]
F	0.256 [6.5]	0.220 [5.59]	0.135 ± 0.015 [3.43 ± 0.38]	0.070 ± 0.015 [1.78 ± 0.38]	0.040 ± 0.015 [1.02 ± 0.38]	0.185 ± 0.020 [4.70 ± 0.51]	0.004 [0.10]
G	0.300 [7.6]	0.260 [6.60]	0.100 ± 0.015 [2.54 ± 0.38]	0.100 ± 0.015 [2.54 ± 0.38]	0.040 ± 0.015 [1.02 ± 0.38]	0.220 ± 0.020 [5.59 ± 0.51]	0.004 [0.10]
H	0.303 [7.7]	0.265 [6.73]	0.150 ± 0.015 [3.81 ± 0.38]	0.110 ± 0.015 [2.79 ± 0.38]	0.050 ± 0.015 [1.27 ± 0.38]	0.220 ± 0.020 [5.59 ± 0.51]	0.004 [0.10]

Note

- The anode termination (D less B) will be a minimum of 0.25 mm (0.010").

RATINGS AND CASE CODES

µF	4 V	6 V	10 V	15 V	20 V	25 V	35 V	50 V
0.10								A
0.15								A
0.22							A	B
0.33							A	B
0.47						A	B	D
0.68						A	B	D
1.0					A	B	D	D
1.5				A	B	D	D	E
2.2				A	B	D	E	F
3.3			A	B	D	D	F	F
4.7	A	A	B	D	D	E	F	G
6.8	B	B	D	D	E	F	F	H
10	B	D	D	D	F	F	G	H
15	D	D	D	E	F	G	H	
22	D	D	E	F	G	H		
33	E	E	F	F	G	H		
47	F	F	F	G	H			
68	F	F	G	H				
100	F	G	G	H				
120	G	G	H					
150	G	H	H					
180	H	H						
220	H	H						
270	H							

STANDARD RATINGS

CAPACITANCE (µF)	CASE CODE	PART NUMBER	MAX. DCL AT + 25 °C (µA)	MAX. DF AT + 25 °C 120 Hz (%)	MAX. ESR AT + 25 °C 100 kHz (Ω)	MAX. RIPPLE 100 kHz I_{RMS} (A)
4 V_{DC} AT + 85 °C; 2.7 V_{DC} AT + 125 °C						
4.7	A	695D475(1)004A(2)(3)	0.5	6	11.000	0.07
6.8	B	695D685(1)004B(2)(3)	0.5	6	9.000	0.09
10	B	695D106(1)004B(2)(3)	0.5	6	8.500	0.09
15	D	695D156(1)004D(2)(3)	0.6	6	2.200	0.20
22	D	695D226(1)004D(2)(3)	0.9	6	2.000	0.21
33	E	695D336(1)004E(2)(3)	1.3	6	1.500	0.25
47	F	695D476(1)004F(2)(3)	1.9	6	1.000	0.33
68	F	695D686(1)004F(2)(3)	2.7	6	0.900	0.35
100	F	695D107(1)004F(2)(3)	4.0	8	0.900	0.35
120	G	695D127(1)004G(2)(3)	4.8	8	0.700	0.41
150	G	695D157(1)004G(2)(3)	6.0	8	0.650	0.43
180	H	695D187(1)004H(2)(3)	7.2	8	0.400	0.61
220	H	695D227(1)004H(2)(3)	8.8	8	0.350	0.65
270	H	695D277(1)004H(2)(3)	10.8	8	0.350	0.65

Note

- Part number definitions:
  (1) Tolerance: For 10 % tolerance, specify “X9”; for 20 % tolerance, change to “X0”
  (2) Termination: For 100 % tin specify “2”; for gold plated specify “4”, for solder plated 60/40 specify “8”
  (3) Packaging code: For 7" reels specify “T”, for 13" reels specify “W”

STANDARD RATINGS

CAPACITANCE (µF)	CASE CODE	PART NUMBER	MAX. DCL AT + 25 °C (µA)	MAX. DF AT + 25 °C 120 Hz (%)	MAX. ESR AT + 25 °C 100 kHz (Ω)	MAX. RIPPLE 100 kHz I_{RMS} (A)
6 V_{DC} AT + 85 °C; 4 V_{DC} AT + 125 °C						
4.7	A	695D475(1)006A(2)(3)	0.5	6	11.000	0.07
6.8	B	695D685(1)006B(2)(3)	0.5	6	9.000	0.07
10	D	695D106(1)006D(2)(3)	0.6	6	8.500	0.10
15	D	695D156(1)006D(2)(3)	0.9	6	2.200	0.20
22	D	695D226(1)006D(2)(3)	1.3	6	2.000	0.32
33	E	695D336(1)006E(2)(3)	2.0	6	1.500	0.25
47	F	695D476(1)006F(2)(3)	2.8	6	1.000	0.33
68	F	695D686(1)006F(2)(3)	4.1	6	0.900	0.35
100	G	695D107(1)006G(2)(3)	6.0	8	0.900	0.37
120	G	695D127(1)006G(2)(3)	7.2	8	0.700	0.41
150	H	695D157(1)006H(2)(3)	9.0	8	0.650	0.48
180	H	695D187(1)006H(2)(3)	10.8	8	0.400	0.61
220	H	695D227(1)006H(2)(3)	13.2	8	0.350	0.65
10 V_{DC} AT + 85 °C; 7 V_{DC} AT + 125 °C						
3.3	A	695D335(1)010A(2)(3)	0.5	6	11.500	0.07
4.7	B	695D475(1)010B(2)(3)	0.5	6	10.600	0.08
6.8	D	695D685(1)010D(2)(3)	0.7	6	2.600	0.18
10	D	695D106(1)010D(2)(3)	1.0	6	2.500	0.18
15	D	695D156(1)010D(2)(3)	1.5	6	2.200	0.2
22	E	695D226(1)010E(2)(3)	2.2	6	2.000	0.22
33	F	695D336(1)010F(2)(3)	3.3	6	1.200	0.3
47	F	695D476(1)010F(2)(3)	4.7	6	1.000	0.33
68	G	695D686(1)010G(2)(3)	6.8	6	0.750	0.4
100	G	695D107(1)010G(2)(3)	10	8	0.750	0.4
120	H	695D127(1)010H(2)(3)	12	8	0.450	0.58
150	H	695D157(1)010H(2)(3)	15	8	0.400	0.61
15 V_{DC} AT + 85 °C; 10 V_{DC} AT + 125 °C						
1.5	A	695D155(1)015A(2)(3)	0.5	6	14.000	0.07
2.2	A	695D225(1)015A(2)(3)	0.5	6	12.000	0.07
3.3	B	695D335(1)015B(2)(3)	0.5	6	10.800	0.08
4.7	D	695D475(1)015D(2)(3)	0.7	6	2.800	0.17
6.8	D	695D685(1)015D(2)(3)	1.0	6	2.600	0.18
10	D	695D106(1)015D(2)(3)	1.5	6	2.500	0.18
15	E	695D156(1)015E(2)(3)	2.3	6	2.300	0.20
22	F	695D226(1)015F(2)(3)	3.3	6	1.400	0.28
33	F	695D336(1)015F(2)(3)	5.0	6	1.200	0.30
47	G	695D476(1)015G(2)(3)	7.1	6	0.800	0.39
68	H	695D686(1)015H(2)(3)	10.2	6	0.500	0.55
100	H	695D107(1)015H(2)(3)	15.0	8	0.450	0.58

Note

- Part number definitions:
  (1) Tolerance: For 10 % tolerance, specify “X9”; for 20 % tolerance, change to “X0”
  (2) Termination: For 100 % tin specify “2”; for gold plated specify “4”, for solder plated 60/40 specify “8”
  (3) Packaging code: For 7" reels specify “T”, for 13" reels specify “W”

STANDARD RATINGS

CAPACITANCE (µF)	CASE CODE	PART NUMBER	MAX. DCL AT + 25 °C (µA)	MAX. DF AT + 25 °C 120 Hz (%)	MAX. ESR AT + 25 °C 100 kHz (Ω)	MAX. RIPPLE 100 kHz I_{RMS} (A)
20 V_{DC} AT + 85 °C; 13 V_{DC} AT + 125 °C						
1.0	A	695D105(1)020A(2)(3)	0.5	4	15.000	0.06
1.5	B	695D155(1)020B(2)(3)	0.5	6	12.000	0.08
2.2	B	695D225(1)020B(2)(3)	0.5	6	11.000	0.08
3.3	D	695D335(1)020D(2)(3)	0.7	6	3.000	0.17
4.7	D	695D475(1)020D(2)(3)	0.9	6	2.800	0.17
6.8	E	695D685(1)020E(2)(3)	1.4	6	2.550	0.19
10	F	695D106(1)020F(2)(3)	2.0	6	1.800	0.25
15	F	695D156(1)020F(2)(3)	3.0	6	1.500	0.27
22	G	695D226(1)020G(2)(3)	4.4	6	0.900	0.37
33	G	695D336(1)020G(2)(3)	6.6	6	0.800	0.39
47	H	695D476(1)020H(2)(3)	9.4	6	0.500	0.55
25 V_{DC} AT + 85 °C; 17 V_{DC} AT + 125 °C						
0.47	A	695D474(1)025A(2)(3)	0.5	4	17.000	0.06
0.68	A	695D684(1)025A(2)(3)	0.5	4	15.000	0.06
1.0	B	695D105(1)025B(2)(3)	0.5	4	13.000	0.08
1.5	D	695D155(1)025D(2)(3)	0.5	6	4.200	0.14
2.2	D	695D225(1)025D(2)(3)	0.6	6	3.500	0.16
3.3	D	695D335(1)025D(2)(3)	0.8	6	3.000	0.17
4.7	E	695D475(1)025E(2)(3)	1.2	6	2.750	0.19
6.8	F	695D685(1)025F(2)(3)	1.7	6	2.000	0.23
10	F	695D106(1)025F(2)(3)	2.5	6	1.800	0.25
15	G	695D156(1)025G(2)(3)	3.8	6	1.000	0.35
22	H	695D226(1)025H(2)(3)	5.5	6	0.700	0.46
33	H	695D336(1)025H(2)(3)	8.3	6	0.800	0.50
35 V_{DC} AT + 85 °C; 23 V_{DC} AT + 125 °C						
0.22	A	695D224(1)035A(2)(3)	0.5	4	20.000	0.05
0.33	A	695D334(1)035A(2)(3)	0.5	4	18.000	0.06
0.47	B	695D474(1)035B(2)(3)	0.5	4	15.000	0.07
0.68	B	695D684(1)035B(2)(3)	0.5	4	14.000	0.07
1.0	D	695D105(1)035D(2)(3)	0.5	4	8.000	0.10
1.5	D	695D155(1)035D(2)(3)	0.5	6	4.200	0.14
2.2	E	695D225(1)035E(2)(3)	0.8	6	4.000	0.15
3.3	F	695D335(1)035F(2)(3)	1.2	6	3.200	0.19
4.7	F	695D475(1)035F(2)(3)	1.6	6	2.700	0.20
6.8	F	695D685(1)035F(2)(3)	2.4	6	2.000	0.23
10	G	695D106(1)035G(2)(3)	3.5	6	1.300	0.30
15	H	695D156(1)035H(2)(3)	5.3	6	0.800	0.43

Note

- Part number definitions:
  (1) Tolerance: For 10 % tolerance, specify “X9”; for 20 % tolerance, change to “X0”
  (2) Termination: For 100 % tin specify “2”; for gold plated specify “4”, for solder plated 60/40 specify “8”
  (3) Packaging code: For 7" reels specify “T”, for 13" reels specify “W”

STANDARD RATINGS

CAPACITANCE (µF)	CASE CODE	PART NUMBER	MAX. DCL AT + 25 °C (µA)	MAX. DF AT + 25 °C 120 Hz (%)	MAX. ESR AT + 25 °C 100 kHz (Ω)	MAX. RIPPLE 100 kHz I_{RMS} (A)
		50 V_{DC} AT + 85 °C; 33 V_{DC} AT + 125 °C				
0.10	A	695D104(1)050A(2)(3)	0.5	4	32.000	0.04
0.15	A	695D154(1)050A(2)(3)	0.5	4	30.000	0.04
0.22	B	695D224(1)050B(2)(3)	0.5	4	18.000	0.06
0.33	B	695D334(1)050B(2)(3)	0.5	4	16.000	0.07
0.47	D	695D474(1)050D(2)(3)	0.5	4	9.000	0.10
0.68	D	695D684(1)050D(2)(3)	0.5	4	8.500	0.10
1.0	D	695D105(1)050D(2)(3)	0.5	4	8.000	0.10
1.5	E	695D155(1)050E(2)(3)	0.8	6	5.500	0.13
2.2	F	695D225(1)050F(2)(3)	1.1	6	3.900	0.17
3.3	F	695D335(1)050F(2)(3)	1.7	6	3.200	0.19
4.7	G	695D475(1)050G(2)(3)	2.4	6	2.500	0.22
6.8	H	695D685(1)050H(2)(3)	3.4	6	1.200	0.35
10	H	695D106(1)050H(2)(3)	5.0	6	1.000	0.39

Note

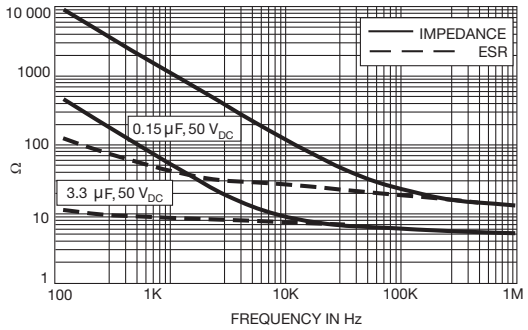
- Part number definitions:
  (1) Tolerance: For 10 % tolerance, specify “X9”; for 20 % tolerance, change to “X0”
  (2) Termination: For 100 % tin specify “2”; for gold plated specify “4”, for solder plated 60/40 specify “8”
  (3) Packaging code: For 7" reels specify “T”, for 13" reels specify “W”

RECOMMENDED VOLTAGE DERATING GUIDELINES (for temperatures below + 85 °C)

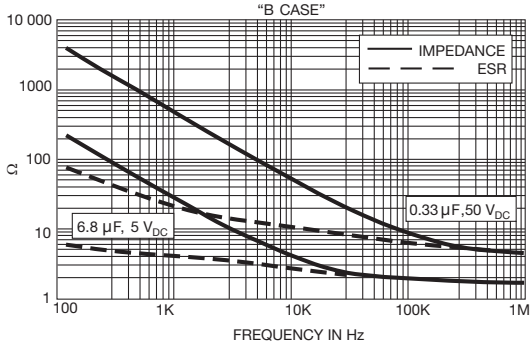
STANDARD CONDITIONS. FOR EXAMPLE: OUTPUT FILTERS	
Capacitor Voltage Rating	**Operating Voltage**
4.0	2.5
6.0	3.6
10	6.0
15	9.0
20	12
25	15
35	24
50	28
SEVERE CONDITIONS. FOR EXAMPLE: INPUT FILTERS	
Capacitor Voltage Rating	**Operating Voltage**
4.0	2.5
6.0	3.0
10	5.0
15	7.5
20	10
25	12
35	15
50	24

TYPICAL CURVES AT + 25 °C, IMPEDANCE AND ESR VS. FREQUENCY

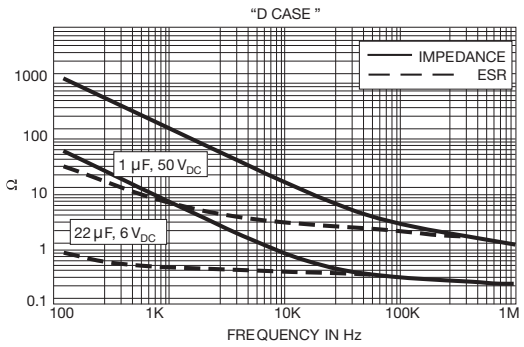
"A CASE"



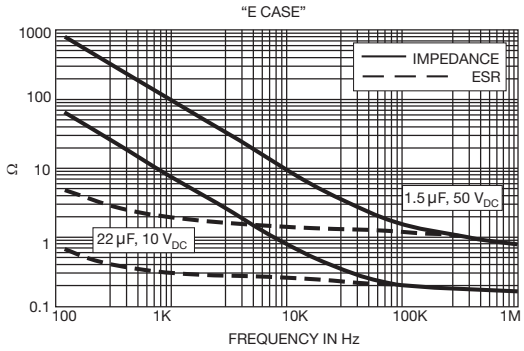
"B CASE"



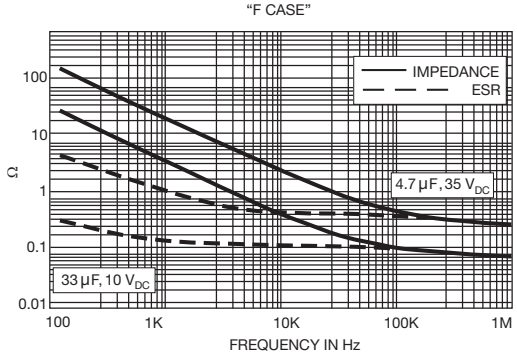
"D CASE "



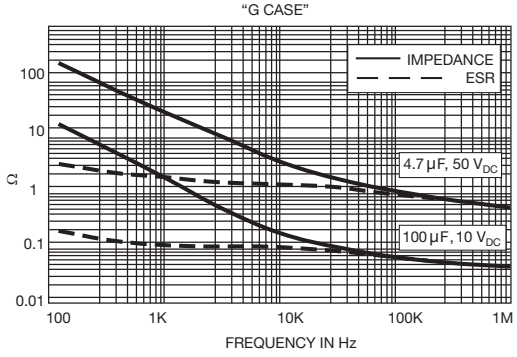
"E CASE"



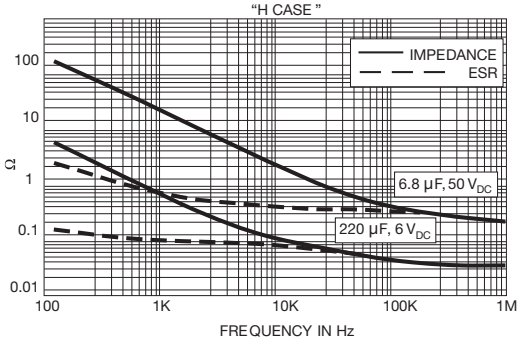
"F CASE"



"G CASE"



"H CASE "



POWER DISSIPATION	
CASE CODE	MAXIMUM PERMISSIBLE POWER DISSIPATION AT + 25 °C (W) IN FREE AIR
A	0.060
B	0.075
D	0.085
E	0.095
F	0.110
G	0.120
H	0.150

STANDARD PACKAGING QUANTITY		
CASE CODE	UNITS PER REEL	
	7" REEL	13" REEL
A	2500	10 000
B	2500	10 000
D	2500	10 000
E	2500	10 000
F	1000	4000
G	1500	5000
H	600	2500

PRODUCT INFORMATION	
Conformal Coated Guide	www.vishay.com/doc?40150
Moisture Sensitivity	www.vishay.com/doc?40135
SELECTOR GUIDES	
Solid Tantalum Selector Guide	www.vishay.com/doc?49053
Solid Tantalum Chip Capacitors	www.vishay.com/doc?40091
FAQ	
Frequently Asked Questions	www.vishay.com/doc?40110

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Material Category Policy

Vishay Intertechnology, Inc. hereby certifies that all its products that are identified as RoHS-Compliant fulfill the definitions and restrictions defined under Directive 2011/65/EU of The European Parliament and of the Council of June 8, 2011 on the restriction of the use of certain hazardous substances in electrical and electronic equipment (EEE) - recast, unless otherwise specified as non-compliant.

Please note that some Vishay documentation may still make reference to RoHS Directive 2002/95/EC. We confirm that all the products identified as being compliant to Directive 2002/95/EC conform to Directive 2011/65/EU.

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OCEAN CHIPS
Океан Электроники
Поставка электронных компонентов

Компания «Океан Электроники» предлагает заключение долгосрочных отношений при поставках импортных электронных компонентов на взаимовыгодных условиях!

Наши преимущества:

- Поставка оригинальных импортных электронных компонентов напрямую с производств Америки, Европы и Азии, а так же с крупнейших складов мира;
- Широкая линейка поставок активных и пассивных импортных электронных компонентов (более 30 млн. наименований);
- Поставка сложных, дефицитных, либо снятых с производства позиций;
- Оперативные сроки поставки под заказ (от 5 рабочих дней);
- Экспресс доставка в любую точку России;
- Помощь Конструкторского Отдела и консультации квалифицированных инженеров;
- Техническая поддержка проекта, помощь в подборе аналогов, поставка прототипов;
- Поставка электронных компонентов под контролем ВП;
- Система менеджмента качества сертифицирована по Международному стандарту ISO 9001;
- При необходимости вся продукция военного и аэрокосмического назначения проходит испытания и сертификацию в лаборатории (по согласованию с заказчиком);
- Поставка специализированных компонентов военного и аэрокосмического уровня качества (Xilinx, Altera, Analog Devices, Intersil, Interpoint, Microsemi, Actel, Aeroflex, Peregrine, VPT, Syfer, Eurofarad, Texas Instruments, MS Kennedy, Miteq, Cobham, E2V, MA-COM, Hittite, Mini-Circuits, General Dynamics и др.);

Компания «Океан Электроники» является официальным дистрибьютором и эксклюзивным представителем в России одного из крупнейших производителей разъемов военного и аэрокосмического назначения «**JONHON**», а так же официальным дистрибьютором и эксклюзивным представителем в России производителя высокотехнологичных и надежных решений для передачи СВЧ сигналов «**FORSTAR**».

AVIC JONHON

«JONHON» (основан в 1970 г.)

Разъемы специального, военного и аэрокосмического назначения:

(Применяются в военной, авиационной, аэрокосмической, морской, железнодорожной, горно- и нефтедобывающей отраслях промышленности)

«FORSTAR» (основан в 1998 г.)

ВЧ соединители, коаксиальные кабели, кабельные сборки и микроволновые компоненты:

(Применяются в телекоммуникациях гражданского и специального назначения, в средствах связи, РЛС, а так же военной, авиационной и аэрокосмической отраслях промышленности).

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