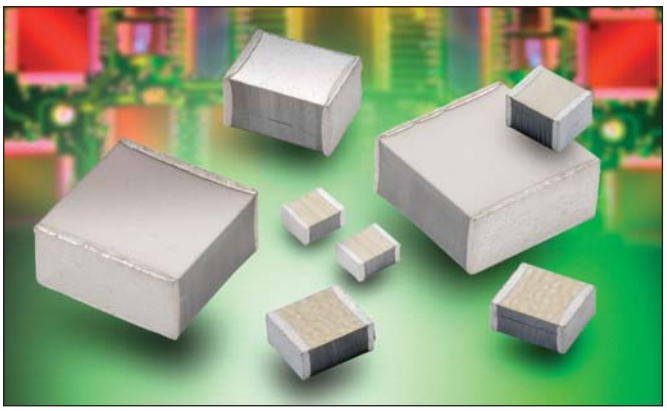
Film Chip Capacitors

PET-HT DIELECTRIC – CB Series



APPLICATIONS

General purpose function in low voltage applications where miniaturization and SMD is required. Typical applications would be:

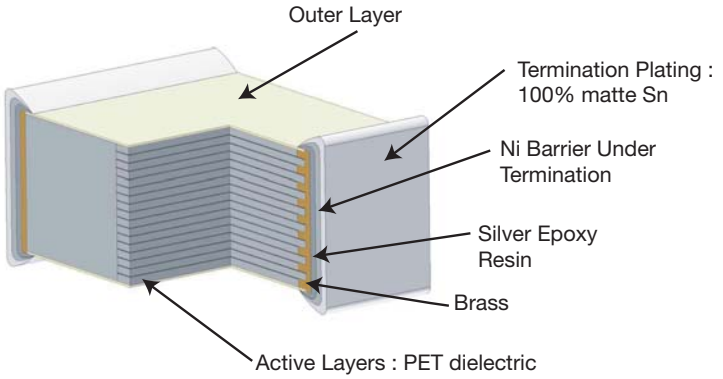
- Automotive (Airbag, Fuel injection calculator...)
- Telecom (Public switching systems, modems, telephone set, cordless, mobile)
- Industrial (SMPS, Power convertor module...)

GENERAL DESCRIPTION

Film chip capacitor using a naked and stacked construction with metallized High Temperature PET (polyethylene terephtalate).

ADVANTAGES

- Use of high temperature dielectric films makes these capacitors suitable for IR or vapor phase reflow processes. This chip is built without specific encapsulation.
- The intrinsic elasticity of the dielectric film allows an excellent compatibility of the capacitor with all types of material for printed circuit boards.
- The self-healing property of film technology results to a safety open failure mode and better overall reliability.
- Excellent thermal shock resistance.
- Low dissipation factor ESR & ESL.
- No piezoelectric effect.
- Available in tape and reel suitable for automatic placement.
- Non-polar construction.



PERFORMANCE CHARACTERISTICS

Climatic Category	55/125/56
Capacitance Range	10nF to 4.7µF
Tolerance on C_R	±5%, ±10%
Nominal Voltages	63Vdc to 630Vdc
Test Voltage	1.4Vr 2 sec. at 25°C
Soldering methods	IR or vapor phase reflow (not suitable for wave soldering)
Tangent of Loss Angle at 1kHz (DF)	$< 100 \times 10^{-4}$
Insulation resistance minimum : IR	for C ≤ 0.33µF IR > 1000 MΩ at 20°C for 1 min. charge at 10Vdc for VR < 100Vdc and 100Vdc for VR ≥ 100Vdc
	for C > 0.33µF IR C > 400 sec. at 20°C for 1 min. charge at 10Vdc for VR < 100Vdc and 100Vdc for VR ≥ 100Vdc
Temperature range	-55°C to 125°C with voltage derating of 1.25%/°C between 105°C and 125°C
A.C. applications	for high frequency A.C. application please check with AVX

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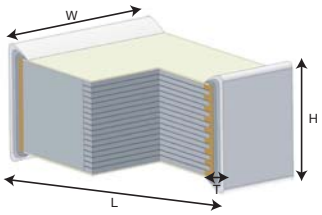
CAPACITANCE VALUES (CR) AND NOMINAL VOLTAGES (VR)



millimeters (inches)

Capacitance Range (CR)	Ordering Code	Chip Dimensions *Tolerances (page 6)				Tape Dimensions			Reel Dimensions			Packaging Unit		Reel Pkg Code
		L	W	H max	T	W	P1	K0	A	W1	W2 max	Bulk	Reel	
VOLTAGE Vdc: 63V Vac: 40V														
0.270µF	CB042D0274+ --	5.8 (0.228)	5.0 (0.195)	2.8 (0.110)	0.8 (0.032)	12.0 (0.472)	8.0 (0.315)	3.1 (0.122)	330 (12.99)	12.4 (0.488)	18.4 (0.724)	1500	3000	BC
0.330µF	CB042D0334+ --	5.80 (0.228)	5.00 (0.195)	3.30 (0.130)	0.80 (0.032)	12.0 (0.472)	8.00 (0.315)	3.45 (0.136)	330 (12.99)	12.4 (0.488)	18.4 (0.724)	1500	2800	BC
0.390	CB042D0394++ --	5.80 (0.228)	5.00 (0.195)	3.40 (0.134)	0.80 (0.032)	12.0 (0.472)	8.00 (0.315)	3.45 (0.136)	330 (12.99)	12.4 (0.488)	18.4 (0.724)	1500	2800	BC
0.470	CB042D0474+ --	5.80 (0.228)	5.00 (0.195)	3.50 (0.138)	0.80 (0.032)	12.0 (0.472)	8.00 (0.315)	4.10 (0.162)	330 (12.99)	12.4 (0.488)	18.4 (0.724)	1500	2300	BC
0.560	CB042D0564+ --	5.80 (0.228)	5.00 (0.195)	3.50 (0.138)	0.80 (0.032)	12.0 (0.472)	8.00 (0.315)	4.10 (0.162)	330 (12.99)	12.4 (0.488)	18.4 (0.724)	1500	2300	BC
0.680	CB042D0684+ --	5.80 (0.228)	5.00 (0.195)	4.00 (0.158)	0.80 (0.032)	12.0 (0.472)	8.00 (0.315)	4.10 (0.162)	330 (12.99)	12.4 (0.488)	18.4 (0.724)	1500	2300	BC
0.820	CB052D0824+ --	7.2 (0.283)	6.1 (0.24)	3.7 (0.146)	0.8 (0.032)	24.0 (0.944)	12 (0.472)	3.8 (0.149)	330 (12.99)	24.4 (0.96)	30.4 (1.196)	1000	2250	BC
1µF	CB052D0105+ --	7.2 (0.283)	6.1 (0.24)	3.7 (0.146)	0.8 (0.032)	24.0 (0.944)	12 (0.472)	3.8 (0.149)	330 (12.99)	24.4 (0.96)	30.4 (1.196)	1000	2250	BC
1.5	CB052D0155+ --	7.20 (0.283)	6.10 (0.240)	5.30 (0.209)	0.80 (0.032)	16.0 (0.629)	12.0 (0.472)	5.50 (0.216)	330 (12.99)	16.4 (0.645)	22.4 (0.881)	1000	1000	BC
2.2	CB162D0225+ --	10.5 (0.413)	7.6 (0.299)	5.8 (0.229)	0.8 (0.032)	24.0 (0.944)	12 (0.472)	6.19 (0.244)	330 (12.99)	24.4 (0.96)	30.4 (1.196)	500	900	BC
3.3	CB172D0335+ --	12.8 (0.503)	10.2 (0.401)	5.50 (0.216)	0.80 (0.032)	24.0 (0.944)	16.0 (0.629)	5.70 (0.224)	330 (12.99)	24.4 (0.961)	30.4 (1.196)	300	700	BC
4.7µF	CB182D0475+ --	15.3 (0.601)	13.7 (0.539)	4.90 (0.193)	0.80 (0.032)	24.0 (0.944)	24.0 (0.944)	5.50 (0.216)	330 (12.99)	24.4 (0.961)	30.4 (1.196)	300	500	BC
		VOLTAGE Vdc: 100V Vac: 63V												
0.180µF	CB042E0184+ --	5.8 (0.228)	5.0 (0.195)	2.3 (0.091)	0.8 (0.032)	12.0 (0.472)	8.0 (0.315)	2.43 (0.096)	330 (12.99)	12.4 (0.488)	18.4 (0.724)	1500	3500	BC
0.220µF	CB042E0224+ --	5.80 (0.228)	5.00 (0.195)	3.30 (0.130)	0.80 (0.032)	12.0 (0.472)	8.00 (0.315)	3.45 (0.136)	330 (12.99)	12.4 (0.488)	18.4 (0.724)	1500	3000	BC
0.270µF	CB042E0274 +--	5.8 (0.228)	5.0 (0.195)	3.4 (0.134)	0.8 (0.032)	12.0 (0.472)	8.0 (0.315)	3.45 (0.136)	330 (12.99)	12.4 (0.488)	18.4 (0.724)	1500	2800	BC
0.330	CB042E0334+ --	5.80 (0.228)	5.00 (0.195)	4.00 (0.158)	0.80 (0.032)	12.0 (0.472)	8.00 (0.315)	4.10 (0.161)	330 (12.99)	12.4 (0.488)	18.4 (0.724)	1500	2300	BC
0.390	CB042E0394+ --	5.80 (0.228)	5.00 (0.195)	3.90 (0.154)	0.80 (0.032)	12.0 (0.472)	8.00 (0.315)	4.10 (0.161)	330 (12.99)	12.4 (0.488)	18.4 (0.724)	1500	2300	BC
0.470	CB042E0474+ --	5.80 (0.228)	5.00 (0.195)	4.30 (0.169)	0.80 (0.032)	12.0 (0.472)	8.0 (0.315)	4.50 (0.177)	330 (12.99)	12.4 (0.488)	18.4 (0.724)	1500	1900	BC
0.560	CB052E0564+ --	7.20 (0.283)	6.10 (0.240)	4.20 (0.165)	0.80 (0.032)	16.0 (0.629)	12.0 (0.472)	4.80 (0.189)	330 (12.99)	16.4 (0.645)	22.4 (0.881)	1000	1800	BC
0.680	CB052E0684+ --	7.20 (0.283)	6.10 (0.240)	5.00 (0.197)	0.80 (0.032)	16.0 (0.629)	12.0 (0.472)	5.23 (0.206)	330 (12.99)	16.4 (0.645)	22.4 (0.881)	1000	1100	BC
0.820	CB052E0824+ --	7.20 (0.283)	6.10 (0.240)	4.70 (0.185)	0.80 (0.032)	16.0 (0.629)	12.0 (0.472)	4.80 (0.189)	330 (12.99)	16.4 (0.645)	22.4 (0.881)	1000	1800	BC
1µF	CB052E0105+ --	7.20 (0.283)	6.10 (0.240)	5.70 (0.224)	0.80 (0.032)	16.0 (0.629)	12.0 (0.472)	5.90 (0.232)	330 (12.99)	16.4 (0.645)	22.4 (0.881)	1000	900	BC
1.5	CB162E0155+ --	10.5 (0.413)	7.60 (0.299)	6.10 (0.240)	0.80 (0.032)	24.0 (0.944)	12.0 (0.472)	6.19 (0.244)	330 (12.99)	24.4 (0.961)	30.4 (1.196)	500	900	BC

Replace the + by the tolerance code: J = 5% or K = 10%
Replace the -- by the packaging suffix: -- = bulk
BC = tape & reel

Film Chip Capacitors

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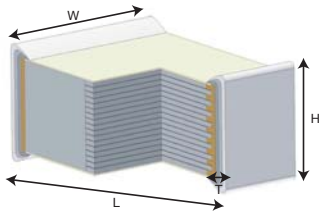
CAPACITANCE VALUES (CR) AND NOMINAL VOLTAGES (VR)



millimeters (inches)

Capacitance Range (CR)	Ordering Code	Chip Dimensions *Tolerances (page 6)				Tape Dimensions			Reel Dimensions			Packaging Unit		Reel Pkg Code
		L	W	H max	T	W	P1	K0	A	W1	W2 max	Bulk	Reel	
		VOLTAGE Vdc: 100V Vac: 63V												
2.2	CB172E0225+ --	12.8 (0.503)	10.2 (0.401)	5.50 (0.216)	0.80 (0.032)	24.0 (0.944)	16.0 (0.629)	5.70 (0.224)	330 (12.99)	24.4 (0.961)	30.4 (1.196)	300	700	BC
3.3	CB182E0335+ --	15.3 (0.601)	13.7 (0.539)	5.20 (0.204)	0.80 (0.032)	24.0 (0.944)	24.0 (0.944)	5.50 (0.216)	330 (12.99)	24.4 (0.961)	30.4 (1.196)	300	500	BC
4.7µF	CB182E0475+ --	15.3 (0.601)	13.7 (0.539)	7.10 (0.279)	0.80 (0.032)	24.0 (0.944)	24.0 (0.944)	7.60 (0.299)	330 (12.99)	24.4 (0.961)	30.4 (1.196)	300	300	BC
		VOLTAGE Vdc: 250V Vac: 160V												
0.047µF	CB042G0473+ --	5.80 (0.228)	5.00 (0.195)	3.00 (0.118)	0.80 (0.032)	12.0 (0.472)	8.00 (0.315)	3.10 (0.122)	330 (12.99)	12.4 (0.488)	18.4 (0.724)	1500	3000	BC
0.056	CB042G0563+ --	5.80 (0.228)	5.00 (0.195)	3.60 (0.142)	0.80 (0.032)	12.0 (0.472)	8.00 (0.315)	4.10 (0.161)	330 (12.99)	12.4 (0.488)	18.4 (0.724)	1500	2300	BC
0.068	CB042G0683+ --	5.80 (0.228)	5.00 (0.195)	4.00 (0.158)	0.80 (0.032)	12.0 (0.472)	8.00 (0.315)	4.10 (0.161)	330 (12.99)	12.4 (0.488)	18.4 (0.724)	1500	2300	BC
0.082	CB042G0823+ --	5.80 (0.228)	5.00 (0.195)	4.00 (0.158)	0.80 (0.032)	12.0 (0.472)	8.00 (0.315)	4.10 (0.161)	330 (12.99)	12.4 (0.488)	18.4 (0.724)	1500	2300	BC
0.1µF	CB042G0104+ --	5.80 (0.228)	5.00 (0.195)	4.00 (0.158)	0.80 (0.032)	12.0 (0.472)	8.00 (0.315)	4.10 (0.161)	330 (12.99)	12.4 (0.448)	18.4 (0.724)	1500	2300	BC
0.120	CB052G0124+ --	7.20 (0.283)	6.10 (0.240)	4.30 (0.169)	0.80 (0.032)	16.0 (0.629)	12.0 (0.472)	4.80 (0.189)	330 (12.99)	16.4 (0.645)	22.4 (0.881)	1000	1800	BC
0.150	CB052G0154+ --	7.20 (0.283)	6.10 (0.240)	4.30 (0.169)	0.80 (0.032)	16.0 (0.629)	12.0 (0.472)	4.80 (0.189)	330 (12.99)	16.4 (0.645)	22.4 (0.881)	1000	1800	BC
0.180	CB052G0184+ --	7.20 (0.283)	6.10 (0.240)	5.10 (0.200)	0.80 (0.032)	16.0 (0.629)	12.0 (0.472)	5.23 (0.206)	330 (12.99)	16.4 (0.645)	22.4 (0.881)	1000	1100	BC
0.220	CB052G0224+ --	7.20 (0.283)	6.10 (0.240)	4.90 (0.193)	0.80 (0.032)	16.0 (0.629)	12.0 (0.472)	5.23 (0.206)	330 (12.99)	16.4 (0.645)	22.4 (0.881)	1000	1100	BC
0.270	CB162G0274+ --	10.5 (0.413)	7.60 (0.299)	4.80 (0.189)	0.80 (0.032)	24.0 (0.944)	12.0 (0.472)	6.19 (0.244)	330 (12.99)	24.4 (0.961)	30.4 (1.196)	500	1100	BC
0.330	CB162G0334+ --	10.5 (0.413)	7.60 (0.299)	5.60 (0.220)	0.80 (0.032)	24.0 (0.944)	12.0 (0.472)	6.19 (0.244)	330 (12.99)	24.4 (0.961)	30.4 (1.196)	500	900	BC
0.390	CB162G0394+ --	10.5 (0.413)	7.60 (0.299)	5.40 (0.213)	0.80 (0.032)	24.0 (0.944)	12.0 (0.472)	6.19 (0.244)	330 (12.99)	24.4 (0.961)	30.4 (1.196)	500	900	BC
0.470	CB162G0474+ --	10.5 (0.413)	7.6 (0.299)	6.15 (0.241)	0.80 (0.032)	24.0 (0.944)	12.0 (0.472)	6.19 (0.244)	330 (12.99)	24.4 (0.961)	30.4 (1.196)	500	900	BC
0.560	CB172G0564+ --	12.8 (0.503)	10.2 (0.402)	5.60 (0.220)	0.80 (0.032)	24.0 (0.944)	16.0 (0.629)	5.70 (0.225)	330 (12.99)	24.4 (0.961)	30.4 (1.196)	300	700	BC
0.680	CB172G0684+ --	12.8 (0.503)	10.2 (0.402)	6.50 (0.255)	0.80 (0.032)	24.0 (0.944)	16.0 (0.629)	7.00 (0.275)	330 (12.99)	24.4 (0.961)	30.4 (1.196)	300	600	BC
0.820	CB182G0824+ --	15.3 (0.601)	13.7 (0.539)	5.10 (0.201)	0.80 (0.032)	24.0 (0.944)	24.0 (0.944)	5.50 (0.217)	330 (12.99)	24.4 (0.961)	30.4 (1.196)	300	500	BC
1µF	CB182G0105+ --	15.3 (0.601)	13.7 (0.539)	6.00 (0.236)	0.80 (0.032)	24.0 (0.944)	24.0 (0.944)	6.30 (0.248)	330 (12.99)	24.4 (0.961)	30.4 (1.196)	300	400	BC
1.5	CB182G0155+ --	15.3 (0.601)	13.7 (0.539)	7.00 (0.276)	0.80 (0.0315)	24.0 (0.944)	24.0 (0.944)	7.60 (0.299)	330 (12.99)	24.4 (0.961)	30.4 (1.196)	300	300	BC

Replace the + by the tolerance code: J = 5% or K = 10%
Replace the -- by the packaging suffix: -- = bulk
BC = tape & reel

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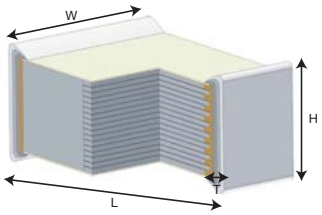
CAPACITANCE VALUES (CR) AND NOMINAL VOLTAGES (VR)



millimeters (inches)

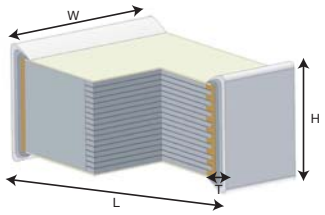
Capacitance Range (CR)	Ordering Code	VOLTAGE Vdc: 400V Vac: 200V												
		Chip Dimensions *Tolerances (page 6)				Tape Dimensions			Reel Dimensions			Packaging Unit		Reel Pkg Code
		L	W	H max	T	W	P1	K0	A	W1	W2 max	Bulk	Reel	
0.010µF	CB042I0103+ --	5.80 (0.228)	5.00 (0.195)	3.00 (0.017)	0.80 (0.032)	12.0 (0.472)	8.00 (0.315)	3.10 (0.122)	330 (12.99)	12.4 (0.488)	18.4 (0.724)	1500	3000	BC
0.012	CB042I0123+ --	5.80 (0.228)	5.00 (0.195)	2.40 (0.095)	0.80 (0.032)	12.0 (0.472)	8.00 (0.315)	2.43 (0.096)	330 (12.99)	12.4 (0.488)	18.4 (0.724)	1500	3500	BC
0.015	CB042I0153+ --	5.80 (0.228)	5.00 (0.195)	4.00 (0.158)	0.80 (0.032)	12.0 (0.472)	8.00 (0.315)	4.10 (0.161)	330 (12.99)	12.4 (0.488)	18.4 (0.724)	1500	2300	BC
0.018	CB052I0183+ --	7.2 (0.283)	6.1 (0.240)	2.8 (0.110)	0.8 (0.032)	16.0 (0.629)	12 (0.472)	3.8 (0.150)	330 (12.99)	16.4 (0.645)	22.4 (0.881)	1000	2250	BC
0.022	CB052I0223+ --	7.2 (0.283)	6.1 (0.240)	3.5 (0.138)	0.8 (0.032)	16.0 (0.629)	12 (0.472)	3.8 (0.150)	330 (12.99)	16.4 (0.645)	22.4 (0.881)	1000	2250	BC
0.027	CB052I0273+ --	7.2 (0.283)	6.1 (0.240)	2.8 (0.110)	0.8 (0.032)	16.0 (0.629)	12 (0.472)	3.8 (0.150)	330 (12.99)	16.4 (0.645)	22.4 (0.881)	1000	2250	BC
0.033	CB052I0333+ --	7.2 (0.283)	6.1 (0.240)	3.3 (0.130)	0.8 (0.032)	16.0 (0.629)	12 (0.472)	3.8 (0.150)	330 (12.99)	16.4 (0.645)	22.4 (0.881)	1000	2250	BC
0.047	CB052I0473+ --	7.20 (0.283)	6.10 (0.240)	4.50 (0.177)	0.80 (0.032)	16.0 (0.629)	12.0 (0.472)	4.80 (0.189)	330 (12.99)	16.4 (0.645)	22.4 (0.881)	1000	1800	BC
0.056	CB162I0563+ --	10.5 (0.413)	7.60 (0.299)	3.10 (0.122)	0.80 (0.032)	24.0 (0.944)	12.0 (0.472)	3.93 (0.155)	330 (12.99)	24.4 (0.961)	30.4 (1.196)	500	1400	BC
0.068	CB162I0683+ --	10.5 (0.413)	7.60 (0.299)	3.60 (0.141)	0.80 (0.032)	24.0 (0.944)	12.0 (0.472)	3.93 (0.155)	330 (12.99)	24.4 (0.961)	30.4 (1.196)	500	1400	BC
0.082	CB162I0823+ --	10.5 (0.413)	7.60 (0.299)	4.20 (0.165)	0.80 (0.032)	24.0 (0.944)	12.0 (0.472)	6.19 (0.244)	330 (12.99)	24.4 (0.961)	30.4 (1.196)	500	900	BC
0.100µF	CB162I0104+ --	10.5 (0.413)	7.60 (0.299)	4.70 (0.185)	0.80 (0.032)	24.0 (0.944)	12.0 (0.472)	6.19 (0.244)	330 (12.99)	24.4 (0.961)	30.4 (1.196)	500	900	BC
0.120	CB172I0124+ --	12.8 (0.503)	10.2 (0.402)	3.90 (0.154)	0.80 (0.032)	24.0 (0.944)	16.0 (0.629)	4.00 (0.157)	330 (12.99)	24.4 (0.961)	30.4 (1.196)	300	1100	BC
0.150	CB172I0154+ --	12.8 (0.503)	10.2 (0.402)	4.60 (0.181)	0.80 (0.032)	24.0 (0.944)	16.0 (0.629)	4.70 (0.185)	330 (12.99)	24.4 (0.961)	30.4 (1.196)	300	900	BC
0.180	CB172I0184+ --	12.8 (0.503)	10.2 (0.402)	5.60 (0.220)	0.80 (0.032)	24.0 (0.944)	16.0 (0.629)	7.00 (0.274)	330 (12.99)	24.4 (0.961)	30.4 (1.196)	300	600	BC
0.220	CB172I0224+ --	12.8 (0.503)	10.2 (0.402)	6.80 (0.265)	0.80 (0.032)	24.0 (0.944)	16.0 (0.629)	7.00 (0.274)	330 (12.99)	24.4 (0.961)	30.4 (1.196)	300	600	BC
0.270	CB172I0274+ --	12.8 (0.503)	10.2 (0.402)	6.80 (0.265)	0.80 (0.032)	24.0 (0.944)	16.0 (0.629)	7.00 (0.274)	330 (12.99)	24.4 (0.961)	30.4 (1.196)	300	600	BC
0.330	CB182I0334+ --	15.3 (0.601)	13.7 (0.539)	5.60 (0.220)	0.80 (0.032)	24.0 (0.944)	24.0 (0.944)	6.30 (0.248)	330 (12.99)	24.4 (0.961)	30.4 (1.196)	300	400	BC
0.470µF	CB182I0474+ --	15.3 (0.601)	13.7 (0.539)	6.20 (0.244)	0.80 (0.032)	24.0 (0.944)	24.0 (0.944)	6.30 (0.248)	330 (12.99)	24.4 (0.961)	30.4 (1.196)	300	400	BC
		VOLTAGE Vdc: 630V Vac: 250V												
0.010µF	CB042K0103+ --	5.80 (0.228)	5.00 (0.195)	2.80 (0.110)	0.80 (0.032)	12.0 (0.472)	8.00 (0.315)	3.10 (0.122)	330 (12.99)	12.4 (0.488)	18.4 (0.724)	1500	3000	BC
0.012	CB042K0123+ --	5.80 (0.228)	5.00 (0.195)	3.30 (0.130)	0.80 (0.032)	12.0 (0.472)	8.00 (0.315)	3.10 (0.122)	330 (12.99)	12.4 (0.488)	18.4 (0.724)	1500	2800	BC
0.015	CB042K0153+ --	5.80 (0.228)	5.00 (0.195)	4.00 (0.158)	0.80 (0.032)	12.0 (0.472)	8.00 (0.315)	4.10 (0.161)	330 (12.99)	12.4 (0.488)	18.4 (0.724)	1500	2300	BC
0.018	CB052K0183+ --	5.80 (0.228)	6.10 (0.240)	2.80 (0.110)	0.80 (0.032)	24.0 (0.944)	12.0 (0.472)	3.80 (0.149)	330 (12.99)	24.4 (0.961)	30.4 (1.196)	1000	2250	BC

Replace the + by the tolerance code: J = 5% or K = 10%
Replace the -- by the packaging suffix: -- = bulk
BC = tape & reel

Film Chip Capacitors

PET-HT DIELECTRIC – CB Series

CAPACITANCE VALUES (CR) AND NOMINAL VOLTAGES (VR)



millimeters (inches)

Capacitance Range (CR)	Ordering Code	VOLTAGE Vdc: 630V Vac: 250V												
		Chip Dimensions *Tolerances (page 6)				Tape Dimensions			Reel Dimensions			Packaging Unit		Reel Pkg Code
		L	W	H max	T	W	P1	K0	A	W1	W2 max	Bulk	Reel	
0.022	CB052K0223+ --	7.20 (0.283)	6.10 (0.240)	3.50 (0.138)	0.80 (0.032)	24.0 (0.944)	12.0 (0.472)	3.80 (0.149)	330 (12.99)	24.4 (0.961)	30.4 (1.196)	1000	2250	BC
0.027	CB052K0273+ --	7.20 (0.283)	6.10 (0.240)	4.10 (0.161)	0.80 (0.032)	16.0 (0.629)	12.0 (0.472)	4.80 (0.189)	330 (12.99)	16.4 (0.645)	22.4 (0.881)	1000	1800	BC
0.033	CB052K0333+ --	7.20 (0.283)	6.10 (0.240)	5.00 (0.197)	0.80 (0.032)	16.0 (0.629)	12.0 (0.472)	4.80 (0.189)	330 (12.99)	16.4 (0.645)	22.4 (0.881)	1000	1100	BC
0.047	CB162K0473+ --	10.5 (0.413)	7.60 (0.299)	3.60 (0.141)	0.80 (0.032)	24.0 (0.944)	12.0 (0.472)	3.93 (0.155)	330 (12.99)	24.4 (0.961)	30.4 (1.196)	500	1400	BC
0.056	CB162K0563+ --	10.5 (0.413)	7.60 (0.299)	4.30 (0.169)	0.80 (0.032)	24.0 (0.944)	12.0 (0.472)	6.19 (0.244)	330 (12.99)	24.4 (0.961)	30.4 (1.196)	500	900	BC
0.068	CB162K0683+ --	10.5 (0.413)	7.60 (0.299)	5.20 (0.205)	0.80 (0.032)	24.0 (0.944)	12.0 (0.472)	6.19 (0.244)	330 (12.99)	24.4 (0.961)	30.4 (1.196)	500	900	BC
0.082	CB172K0823+ --	12.8 (0.503)	10.2 (0.402)	4.30 (0.169)	0.80 (0.032)	24.0 (0.944)	16.0 (0.629)	4.70 (0.185)	330 (12.99)	24.4 (0.961)	30.4 (1.196)	300	900	BC
0.100µF	CB172K0104+ --	12.8 (0.503)	10.2 (0.402)	5.00 (0.197)	0.80 (0.032)	24.0 (0.944)	16.0 (0.629)	5.70 (0.225)	330 (12.99)	24.4 (0.961)	30.4 (1.196)	300	700	BC
0.120	CB172K0124+ --	12.8 (0.503)	10.2 (0.402)	5.60 (0.220)	0.80 (0.032)	24.0 (0.944)	16.0 (0.629)	5.70 (0.225)	330 (12.99)	24.4 (0.961)	30.4 (1.196)	300	700	BC
0.150	CB172K0154+ --	12.8 (0.503)	10.2 (0.402)	6.90 (0.271)	0.80 (0.032)	24.0 (0.944)	16.0 (0.629)	7.00 (0.275)	330 (12.99)	24.4 (0.961)	30.4 (1.196)	300	600	BC
0.180	CB182K0184+ --	15.3 (0.601)	13.7 (0.539)	5.00 (0.197)	0.80 (0.032)	24.0 (0.944)	24.0 (0.944)	5.50 (0.217)	330 (12.99)	24.4 (0.961)	30.4 (1.196)	300	500	BC
0.220	CB182K0224+ --	15.3 (0.601)	13.7 (0.539)	5.80 (0.229)	0.80 (0.032)	24.0 (0.944)	24.0 (0.944)	6.30 (0.248)	330 (12.99)	24.4 (0.961)	30.4 (1.196)	300	400	BC
0.270µF	CB182K0274+ --	15.3 (0.601)	13.7 (0.539)	7.20 (0.284)	0.80 (0.032)	24.0 (0.944)	24.0 (0.944)	7.60 (0.299)	330 (12.99)	24.4 (0.961)	30.4 (1.196)	300	300	BC

Replace the + by the tolerance code: J = 5% or K = 10%
Replace the -- by the packaging suffix: -- = bulk
BC = tape & reel

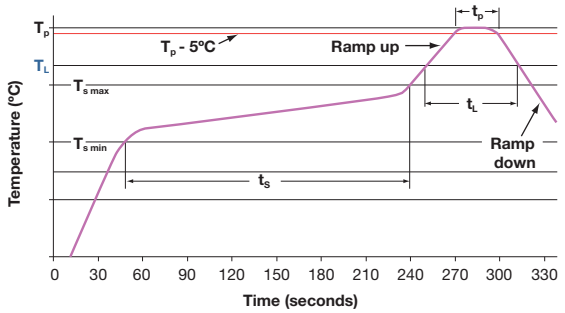
MOUNTING AND SOLDERING RECOMMENDATIONS

SOLDERING PROFILE

The capacitors can be mounted using infrared and vapor phase soldering following recommended below. They are NOT suitable for wave soldering.

All temperature refer to topside of the package, measured on the package body surface.

Profile Feature	2220 to 2824	4030 to 6054
Ramp-Up (T_S max to T_p)	3°C / second max	3°C / second max
Preheat - Temperature Min (T_S min) - Temperature Min (T_S max) - Time (t_S min to t_S max)	 150°C 200°C 180 sec. max	 150°C 200°C 180 sec. max
Time maintained above - Temperature (T_L) - Time (t_L)	 217°C 60 sec. max	 217°C 75 sec. max
Peak temperature (T_p)	240°C	245°C
Time within 5°C of peak temperature (t_p)	10 sec.	10 sec.
Ramp-Down	6°C / sec.	6°C / sec.

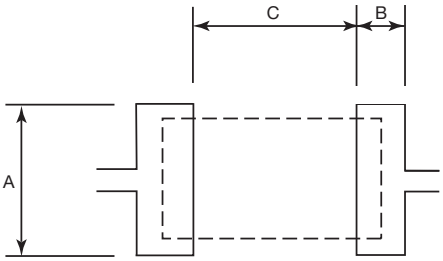


*Reflow soldering referring to JEDEC Standard with some limitations
*JEDEC J-Std 020C

RECOMMENDED SOLDER PASTE THICKNESS

For optimum solderability, the recommended soldering paste thickness: 2220 to 2824 :150 to 200µm
4030 to 6054 :200 to 300µm

In case of hand soldering, the temperature of the soldering iron should not be above 250°C. Special care must be taken to avoid touching the capacitor body with the iron tip.



PAD DIMENSIONS: millimeters (inches)

Size Code	Case Size	A	B	C
04	2220	5.00 (0.195)	1.90 (0.075)	4.50 (0.178)
05	2824	6.00 (0.234)	2.50 (0.098)	5.70 (0.224)
16	4030	7.50 (0.295)	3.00 (0.118)	8.00 (0.315)
17	5040	11.2 (0.441)	3.50 (0.137)	10.3 (0.406)
18	6064	14.6 (0.575)	3.60 (0.147)	12.6 (0.496)

RECOMMENDED CLEANING

To clean flux from the PC board assembly, the recommended products are: ethanol, isopropyl alcohol, and deionized water wash. The cleaning products to avoid are: Toluene, Xylene, Trichloroethylene, Terpene Cleaner EC-7, surface active agent. In case of using another solvent, please contact us.

OTHER CAUTIONS

Flame retardancy: the dielectric film is not a flame retardant material.

Environment: contact us when chips are used in humid or gas atmosphere and /or when using resin.

Recommended handling: do not use edged tools, so not to damage the capacitors.

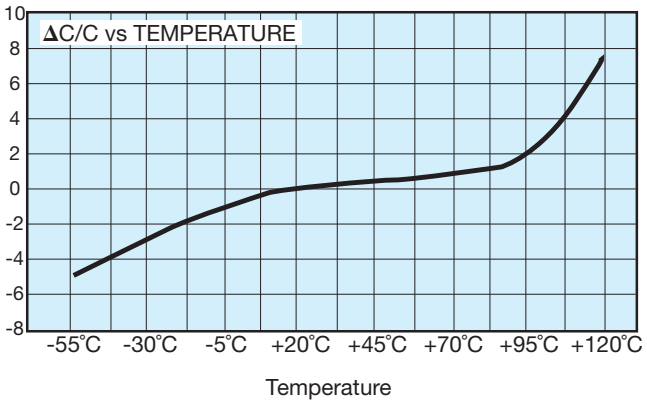
TIN WHISKERS TESTS : JEDEC STANDARD NO 22A121

Stress Type	Ref. Spec.	Test Conditions	Analysis	Results
Temperature cycling	JESD22-A104	-55°C +85(+10/-0)°C air 5 to 10 minutes soak 3 cycles/hour	SEM x 1000	Pass
Ambient Temperature / Humidity Storage		30+/-2°C - 60+/-3% RH -2000H	SEM x 1000	Pass
High Temperature / Humidity Storage		70+/-5°C - 93+3/-2% RH -1000H	SEM x 1000	Pass

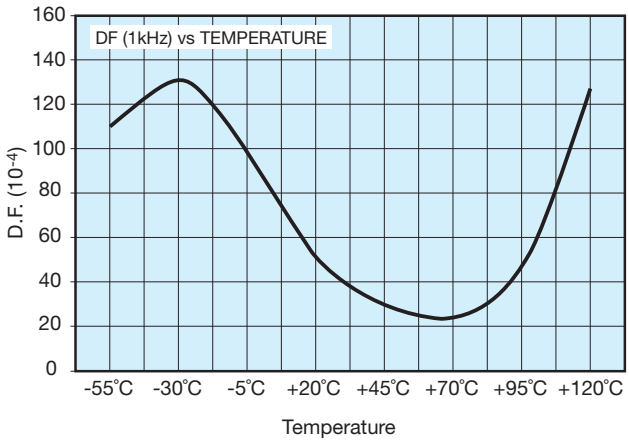
ELECTRICAL CHARACTERISTICS VERSUS TEMPERATURE AND FREQUENCY

ELECTRICAL CHARACTERISTICS

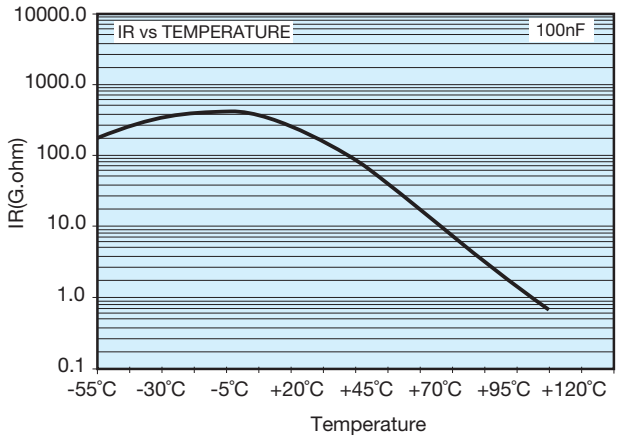
Capacitance



Dissipation Factor

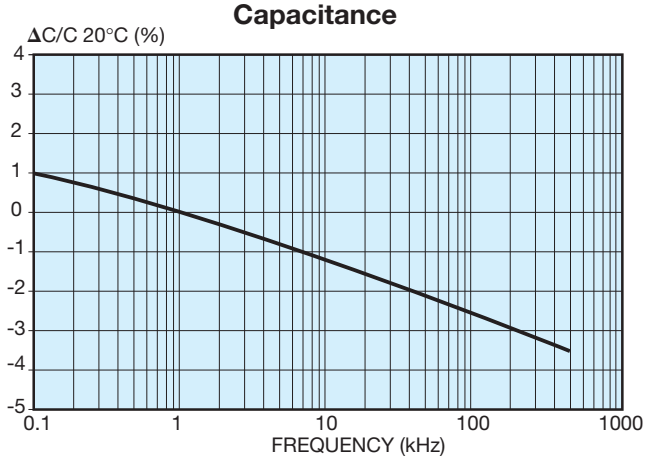


Insulation Resistance

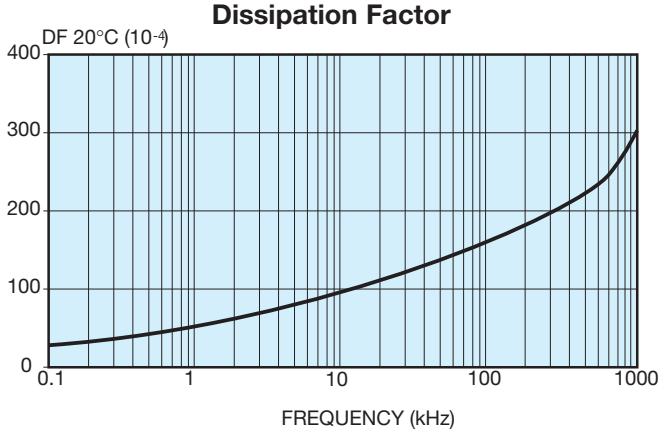


FREQUENCY CHARACTERISTICS

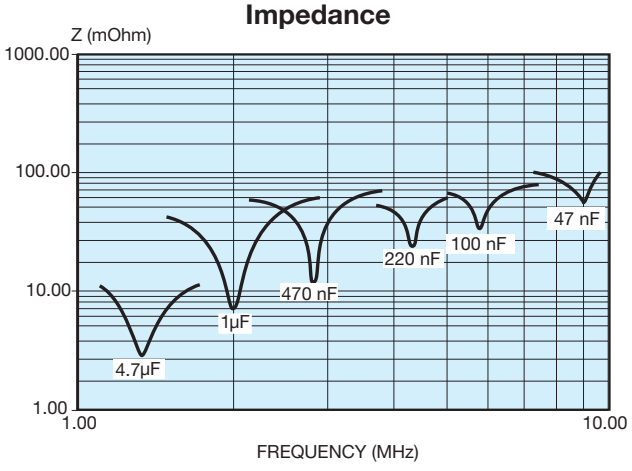
Capacitance



Dissipation Factor



Impedance

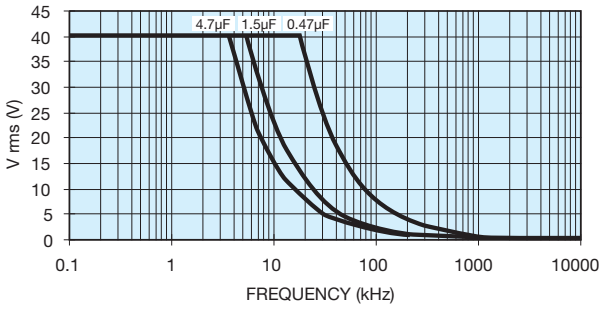


RMS VOLTAGE AND CURRENT VERSUS FREQUENCY

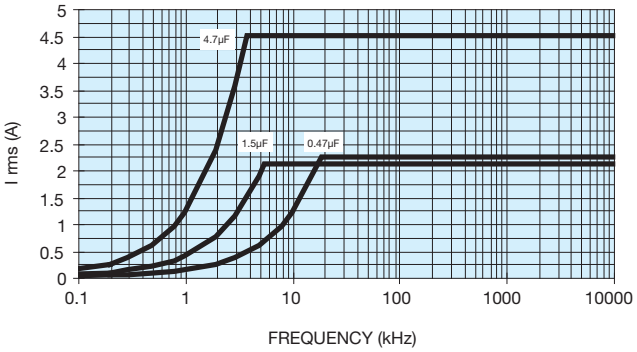
MAXIMUM VOLTAGE (VRMS) AND CURRENT (IRMS) VS FREQUENCY

Typical curves results from measurement carried out at ambient temperature (25ºC) and sinusoidal wave-forms (for size CB04 to CB18)

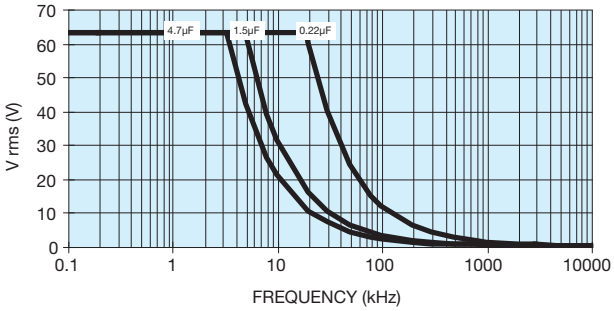
63V**dc** / 40 V**ac**



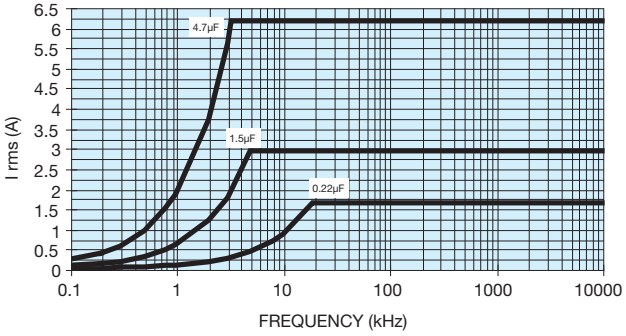
63V**dc** / 40 V**ac**



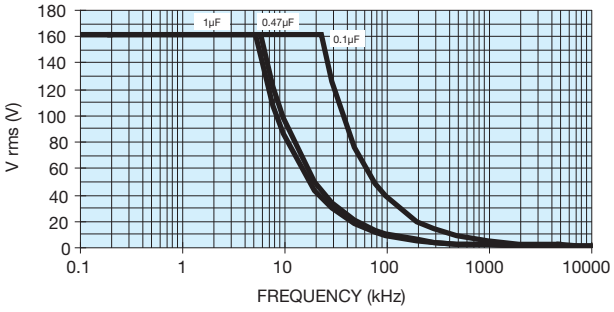
100 V**dc** / 63 V**ac**



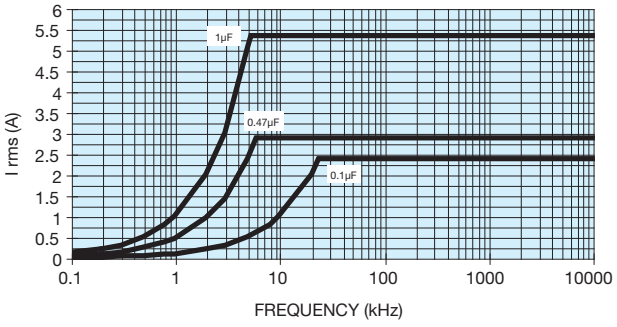
100 V**dc** / 63 V**ac**



250 V**dc** / 160 V**ac**



250 V**dc** / 160 V**ac**

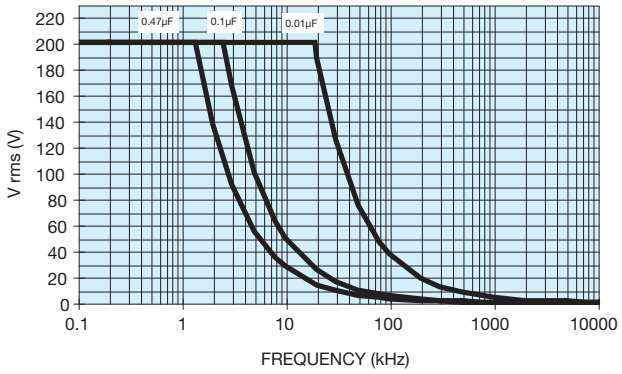


RMS VOLTAGE AND CURRENT VERSUS FREQUENCY

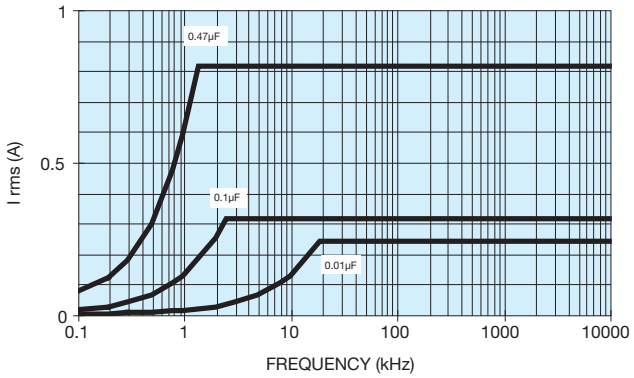
MAXIMUM VOLTAGE (VRMS) AND CURRENT (IRMS) VS FREQUENCY

Typical curves results from measurement carried out at ambient temperature (25ºC) and sinusoidal wave-forms (for size CB04 to CB18)

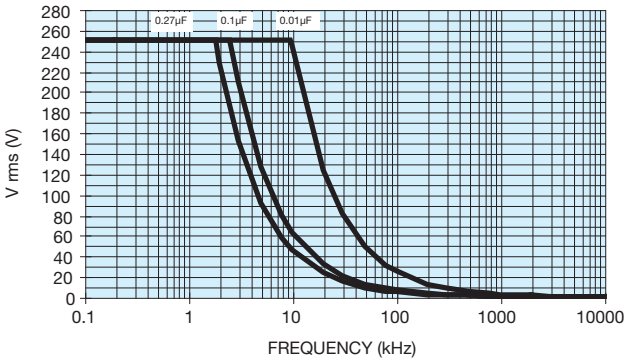
400 V**dc** / 200 V**ac**



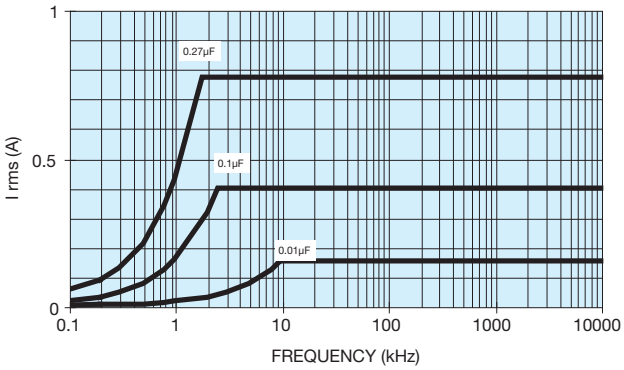
400 V**dc** / 200 V**ac**



630 V**dc** / 250 V**ac**



630 V**dc** / 250 V**ac**



MAXIMUM PULSE RISE TIME (**DV**/**DT**)

Voltage Range	63	100	250	400	630
Dv/dt max. (V/µsec)	40	50	150	200	250

Film Chip Capacitors

PET-HT DIELECTRIC – CB Series – RoHS

MATERIALS CONTROLLED BY ROHS (PPM BY WEIGHT):

Mass / unit (g)	Lead	Mercury	Cadmium	Hexavalent Chromium	PBB	PBDE
CB range	0	0	0	0	0	0
RoHS Limit (ppm)	1000	1000	100	1000	1000	1000
Pass/Fail	Pass	Pass	Pass	Pass	Pass	Pass

This product has been tested and found to be compliant with all requirements, provisions, and exemptions of EU Directive 2002/95/EC of the European Parliament and Council of January 27, 2003. On the Restriction of use of certain Hazardous Substances (RoHS) in electrical and electronic equipment and EU Directive 2000/53/EC regarding ELV or End of Life Vehicle.

ROHS / ELV STATUS

External Plating

100% Matte Sn as standard

LEAD-FREE STATUS / MOISTURE SENSITIVITY RANKING

Pb Free Reflow Solder compliant, MSL = 3.

Reflow soldering referring to Jedec Standard with some limitations. Additional JESD-97 data to be phased in MSL e3 termination.

PRODUCT LABELING:

(For informational purposes only to be phased in on reel and container.)

Pb Free:

RoHS Compliant:

PRODUCT TRACEABILITY:

Full internal material traceability by reference to unique lot number marked on reel and external package.

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.)

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