Polymer Chip Capacitors

TOPcap - Basic

Ordering code: **B76010V107*M080**
Substitute for: B45294R2107M40*
Date: July 2006

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Features

- High volumetric efficiency
- Ultra-low ESR
- High permissible ripple current
- Only 20% derating recommended
- Stable temperature and frequency characteristics
- Operating temperature −55 … +105 °C
- No ignition failure mode
- Lead-free and material content compatible with RoHS
- Suitable for lead-free soldering
- Taped and reeled to IEC 60286-3

Technical data and ordering code

Ordering code	(tinned terminals)		B76010V107*M080	
Rated capacitance	(20 °C, 120 Hz)	C_R	100	µF
Rated voltage	(up to 85 °C) (up to 105 °C)	V_R	10 8.0	VDC
Capacitance tolerance		ΔC_R	±20	%
Operating temperature range		T_{op}	−55 ... +105	°C
Maximum leakage current	(20 °C, V_R, 5 min)	$I_{leak,max}$	100	µA
Maximum dissipation factor	(20 °C, 120 Hz)	DF_{max}	10	%
Maximum equivalent series resistance	(20 °C, 100 kHz)	ESR_{max}	80	mΩ
Maximum ripple current	(20 °C, 100 kHz) (85 °C, 100 kHz) (105 °C, 100 kHz)	$I_{AC,max}$	1.3 1.1 0.5	A
Case size			V	
EIA/IECQ			7343-20	
Dimensions	(L x W x H)		7.3 ±0.3 x 4.3 ±0.3 x 1.9 ±0.1 (0.287 ±0.012 x 0.169 ±0.012 x 0.075 ±0.004)	mm (inch)
Failure rate (1 fit = $1 \cdot 10^{-9}$ failures/h)	(at 40 °C; ≤ V_R, R_S ≤ 0.1 Ω/V)		≤264	fit
Service life			>150000	h
Moisture sensitivity level (MSL)			3	

* = Code number for reel diameter
6 = 330-mm reel
9 = 180-mm reel

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Ordering code structure

B76	0	02	D	337	9	M	025

TOPcap family

Series
0 = Basic

Rated voltage
02 = 2.5 V, 04 = 4 V, 06 = 6.3 V,
10 = 10 V, 16 = 16 V

Case size
B, D, V

Rated capacitance + exponent
C [pF] · 10^x
686 = 68 pF · 10^6 = 68 µF, 157 = 15 pF · 10^7 = 150 µF,
108 = 10 pF · 10^8 = 1000 µF

Reel diameter
9 = 180 mm, 6 = 330 mm

Capacitance tolerance
M = ±20%

ESR value
E.g.: 009 = 9 mΩ, 018 = 18 mΩ, 045 = 45 mΩ

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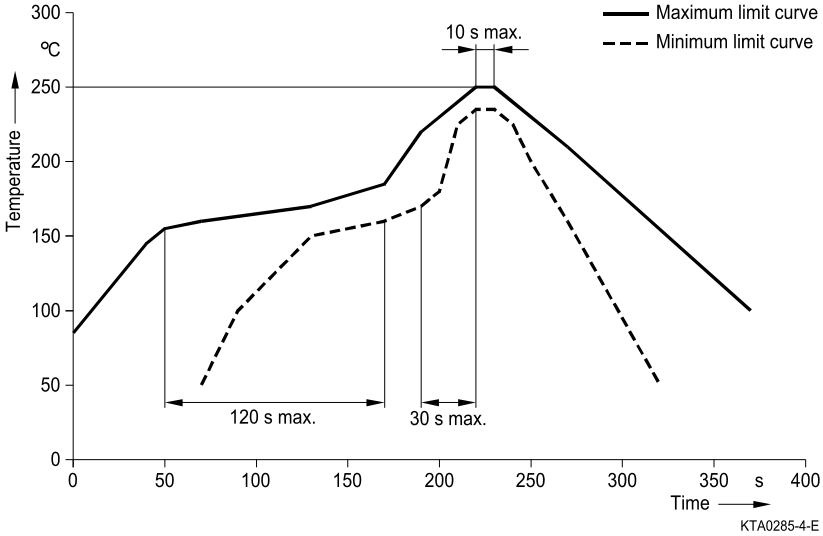
Infrared reflow soldering, hot air reflow soldering (lead-free solders alloys)

Temperature curve at component terminal in infrared and hot air soldering



Other profiles and peak temperatures upon request.

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Storage conditions

EPCOS polymer capacitors are shipped in moisture barrier bags together with a desiccant and a moisture indicator card.
All series (B760, B761, B763) are classified according JEDEC J-STD-020C as MSL 3 (Moisture Sensitivity Level 3). Parts should be mounted 168 hours (= 7 days) after opening the moisture barrier bags to prevent absorption of moisture and outgassing effects during soldering. Following rules should be adhered to:

- Parts must be stored in the reel and sealed moisture barrier bag until usage.
- Parts should not be stored at high temperature, high humidity, corrosive atmospheres and exposed to direct sun light. To enable the floor life of 168 hours according JEDEC J-STD-033A a maximum temperature of 30 °C at a humidity of maximum 60% R.H. is required.
- Temperature fluctuation should be minimized.

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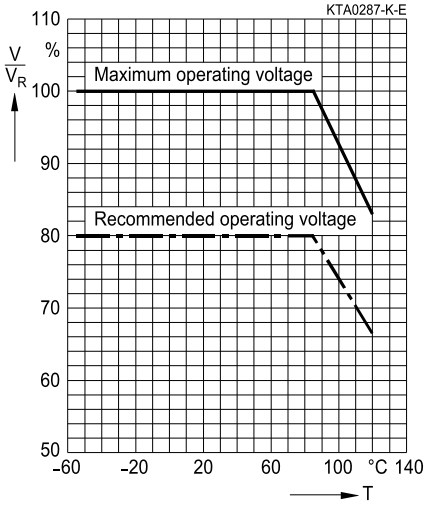
Derating Recommendations, maximum continuous voltage

The maximum continuous voltage V_{cont} is the maximum permissible voltage at which the capacitor can be continuously operated. It is a direct current voltage, or the sum of the basic DC voltage plus the peak value of the superimposed AC voltage (see www.epcos.com/tantalum_gti, section 7).

The maximum continuous voltage depends on the ambient temperature (see figure below). Within the temperature range of -55 °C to +85 °C, the rated voltage is equal to the maximum continuous voltage.

In the temperature range between +85 and 105 °C the maximum continuous voltage must be reduced linearily from the rated voltage to 4/5 of the rated voltage (Derating). Operation below the maximum continuous voltage has a positive effect on the capacitor´s reliability.



Max. permissible continuous voltage (operating voltage) versus temperature

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Environmental comments and warnings

As a manufacturer of passive components, we develop our products on the basis of the relevant standards and laws, and thus ensure that our products are free of those materials and substances prohibited by the relevant legislation.

To ensure a standardized procedure for EPCOS worldwide, a binding list of materials and substances is included in our environment management system to ISO 14001. Our planning and development guidelines include regulations and directives aiming to promote recognition of environmental aspects and to optimize products and processes in terms of material use and environmental compatibility, to design them with a sparing use of resources and to replace hazardous substances as far as possible.

The environmental officer provides support in assessing the environmental risks of a development project upon request. Consideration of environmental aspects is checked and recorded at the design reviews.

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The following applies to all products named in this publication:

1. Some parts of this publication contain **statements about the suitability of our products for certain areas of application**. These statements are based on our knowledge of typical requirements that are often placed on our products in the areas of application concerned. We nevertheless expressly point out **that such statements cannot be regarded as binding statements about the suitability of our products for a particular customer application**. As a rule, EPCOS is either unfamiliar with individual customer applications or less familiar with them than the customers themselves. For these reasons, it is always ultimately incumbent on the customer to check and decide whether an EPCOS product with the properties described in the product specification is suitable for use in a particular customer application.
2. We also point out that **in individual cases, a malfunction of passive electronic components or failure before the end of their usual service life cannot be completely ruled out in the current state of the art, even if they are operated as specified**. In customer applications requiring a very high level of operational safety and especially in customer applications in which the malfunction or failure of a passive electronic component could endanger human life or health (e.g. in accident prevention or life-saving systems), it must therefore be ensured by means of suitable design of the customer application or other action taken by the customer (e.g. installation of protective circuitry or redundancy) that no injury or damage is sustained by third parties in the event of malfunction or failure of a passive electronic component.
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