

# G/PS Low Profile Ultra High Capacitance Polymer Capacitor

## Overview

NeoCapacitor® provides excellent performance for various applications due to high conductivity of the conductive polymer.

TOKIN's devices are classified into the following three quality grades, in accordance with their application: Standard, Special, and Specific. The quality grade of all devices in this document is "standard" and cannot be used for "special" or "specific" quality grade applications. Customers who intend to use the products in this document for applications other than "standard" quality grade must contact KEMET sales representative in advance.

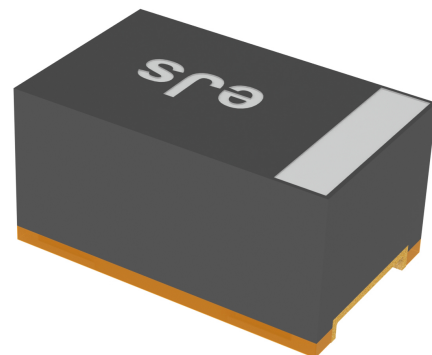
**Standard:** This quality grade is intended for applications in which failure or malfunction of the device is highly unlikely to cause harm to persons or damage to property, or be the source of any negative effects or problems in the wider community.

**Special:** This quality grade is intended for special applications that have common requirements, such as specific industrial fields. Devices with a "special" quality grade are designed, manufactured, and tested using more a stringent quality assurance program than what is used for "standard" grade devices. There is a high possibility that failure or malfunction of the device when being used for applications in this category will cause harm to persons or damage to property, or bring negative effects or problems in the wider community.

**Specific:** Devices in this quality grade are designed, manufactured, and tested using a quality assurance program that is designated by the customer or that is created in accordance with the customer's specifications. There is an extremely high possibility that failure or malfunction of the device when being used for applications in this category will cause harm to persons or damage to property, or bring serious problems in the wider community. Customers who use KEMET's products for these "specific" applications must conclude an individual quality agreement and/or development agreement with KEMET. A quality assurance program designated by the customer must also be determined in advance.

## Benefits

- Excellent noise absorption performance
- Higher ripple current
- Miniaturized, thinner, higher capacitance and lower ESR
- Lead free (JEITA PHASE3), RoHS2 directive (2011/65/EU + 2015/863/EU) and halogen-free.
- Antimony-free and Red phosphorous-free materials for mold resin.



## Applications

Typical applications include voltage smoothing, noise absorption in high speed operation circuit, multi media instruments, PC (voltage smoothing and noise absorption of CPU, memory and various LSI), Smartphone, mobile phone (stabilization of battery voltage, stabilization for display), LCD TV (stabilization of LCD driver and timing controller) and others (tablet, PC, portable audio player, DSC, DVC, HDD, SSD, communication card)

## K-SIM

For a detailed analysis of specific part numbers, please visit [ksim.kemet.com](http://ksim.kemet.com) to access KEMET's K-SIM software. KEMET K-SIM is designed to simulate behavior of components with respect to frequency, ambient temperature, and DC bias levels.

## Ordering Information

TE	GPS	P2	0J	476	M	(150)	8R
Tape & Reel	Series	Case Code	DC Rated Voltage in Volts	Capacitance (pF)	Capacitance tolerance	ESR Spec	Packaging
TE = φ 180 mm reel	Substrate terminal structure	P2 (2012-10)	0J = 6.3 V 1A = 10 V 1C = 16 V 1E = 25 V	First two digits represents the cap code. Third digit specifies number of zeros to follow	M = ±20%	(150) shows 150 mΩ Blank = Refer to PN in Table 1 for specification	8 = Tape width (8 mm) R = Packaging orientation (cathode on sprocket hole)

## Performance Characteristics

Item	Performance Characteristics								
Operating Temperature	-55°C to +105°C								
Rated Voltage Range (V)	6.3 – 25								
Surge Voltage (V)	<table border="1"> <tr> <td>Rated Voltage</td> <td>10 V</td> <td>16 V</td> <td>25 V</td> </tr> <tr> <td>Surge Voltage</td> <td>13 V</td> <td>20 V</td> <td>29 V</td> </tr> </table>	Rated Voltage	10 V	16 V	25 V	Surge Voltage	13 V	20 V	29 V
Rated Voltage	10 V	16 V	25 V						
Surge Voltage	13 V	20 V	29 V						
Nominal Capacitance (120 Hz)	4.7 μF ~ 47 μF*								
Dissipation Factor (tan δ, 120 Hz)	Refer to Standard Ratings*								
Leakage Current (LC, V <sub>r</sub> , 5 minutes)	Refer to Standard Ratings								
Equivalent Series Resistance (ESR, 100 kHz)	Refer to Standard Ratings								
Permissible Ripple Current (100 kHz)	Refer to Standard Ratings								

\* For these measurements apply 1.5 VDC

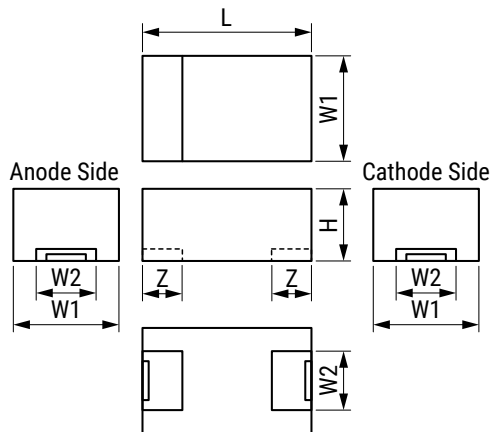
## Qualification

Test	Condition	Characteristics			
Surge Voltage	Temperature: 85°C, Surge Voltage apply, 1,000 Ω series resistance, 1,000 cycles	Δ C/C	Within -20%/+20% of the initial value		
		tan δ	Within IL		
		LC	Within IL		
Temperature Stability	Temperature exposure at +25°C, -55°C, +105°C		+25°C	-55°C	+105°C
		Δ C/C	-	0% ~ -20% compare with +25°C	+50% ~ 0% compare with +25°C
		tan δ	Within IL	Within IL	Within 1.5 × IL
		LC	Within IL	-	Within 10 × IL
Endurance	Temperature: 105°C, Rated voltage apply, 1,000 hours	Δ C/C	Within -20%/+20% of the initial value		
		tan δ	Within 1.5 × IL		
		LC	Within IL		
Humidity	Temperature: 60°C, Humidity: 90 ~ 95% R.H., 500 hours	Δ C/C	+30% ~ -20% of the initial value		
		tan δ	Within 1.5 × IL		
		LC	Within IL		

IL = Initial limit

## Dimensions – Millimeters (Inches)

Metric will govern

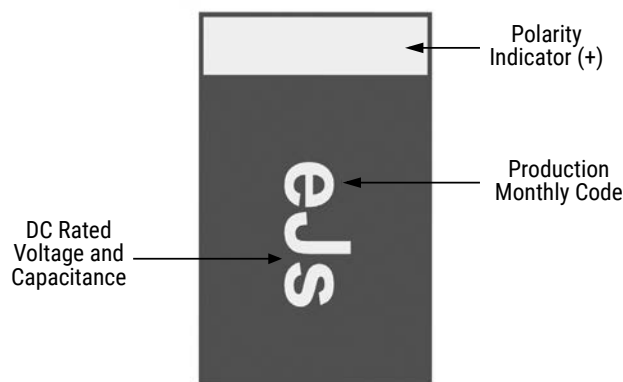


Case Size		Component Dimensions				
KEMET	EIA	$L \pm 0.1$	$W1 \pm 0.1$	$W2 \pm 0.1$	$H \pm 0.1$	$Z \pm 0.1$
P2	2012-10	2.0	1.25	0.9	0.9	0.55

**Table 1 – Ratings & Part Number Reference**

Rated Voltage	Rated Capacitance	Case Code/ Case Size	KEMET Part Number	Leakage Current	tan $\delta$	ESR	Permissible Ripple Current	Rated and Maximum Operating Temperature
V	$\mu$ F	KEMET/EIA		$\mu$ A at +25°C Maximum	% at 25°C 120 Hz Maximum	m $\Omega$ at 25°C 100 kHz Maximum	mA at +25°C 100 kHz Maximum	°C
6.3	10	P2/2012-10	TEGPSP20J106M8R	18.9	6	200	354	105
6.3	22	P2/2012-10	TEGPSP20J226M(150)8R	22	6	150	408	105
6.3	47	P2/2012-10	TEGPSP20J476M8R	29.6	6	150	408	105
10	10	P2/2012-10	TEGPSP21A106M8R	30	6	200	354	105
10	22	P2/2012-10	TEGPSP21A226M8R	66	6	200	354	105
10	22	P2/2012-10	TEGPSP21A226M(150)8R	66	6	150	408	105
16	10	P2/2012-10	TEGPSP21C106M8R	80	6	150	408	105
25	4.7	P2/2012-10	TEGPSP21E475M8R	35.3	10	300	288	105

## Capacitor Marking



### DC Rated Voltage and Capacitance Code

Capacitance ( $\mu$ F)	Voltage			
	6.3 J	10 A	16 C	25 E
4.7				ES
10	Ja	Aa	Ca	
22	Jj	Aj		
47	Js			

### Production Monthly Code

Year	Month											
	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
2017	A	B	C	D	E	F	G	H	J	K	L	M
2018	N	P	Q	R	S	T	U	V	W	X	Y	Z
2019	a	b	c	d	e	f	g	h	j	k	l	m
2020	n	p	q	r	s	t	u	v	w	x	y	z

Production monthly code will resume beginning in 2021.

## KEMET Electronics Corporation Sales Offices

For a complete list of our global sales offices, please visit [www.kemet.com/sales](http://www.kemet.com/sales).

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Although KEMET designs and manufactures its products to the most stringent quality and safety standards, given the current state of the art, isolated component failures may still occur. Accordingly, customer applications which require a high degree of reliability or safety should employ suitable designs or other safeguards (such as installation of protective circuitry or redundancies) in order to ensure that the failure of an electrical component does not result in a risk of personal injury or property damage.

Although all product-related warnings, cautions and notes must be observed, the customer should not assume that all safety measures are indicated or that other measures may not be required.

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