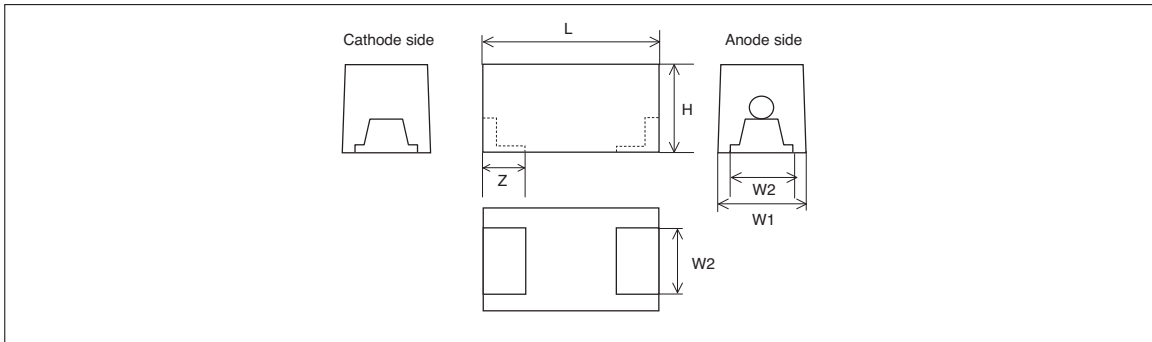


FEATURE

- Lead-free type. RoHS Compliant.
- Face down terminal.
- The low-profile of height 1.0 mm Max, large capacitance and ultra-low ESR.
- Enable fillet bonding.
- Halogen free, Antimony free and Red Phosphorous free resin is applied to the exterior mold resin.

DIMENSIONS



(Unit: mm)

Case Code	L	W ₁	W ₂	H	Z
A3	3.2 ± 0.2	1.6 ± 0.2	1.2 ± 0.1	0.9 ± 0.1	0.8 ± 0.2

STANDARD C-V VALUE REFERENCE BY CASE CODE

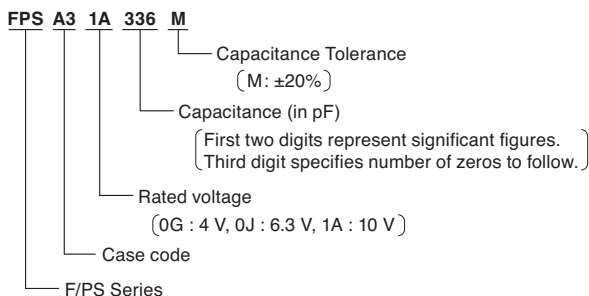
		U _R : Rated Voltage		
		4.0 0G	6.3 0J	10 1A
10	106			
15	156			
22	226			A3 200
33	336			A3 200
47	476		A3 200	A3 200
68	686			
100	107	A3 200		

*Numeral: ESR(mΩ)

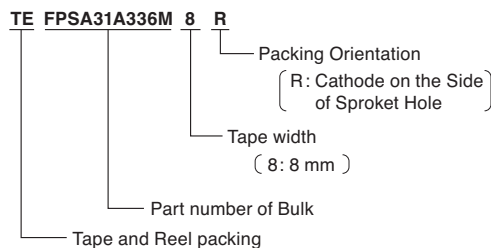


■ PART NUMBER SYSTEM

[Bulk]

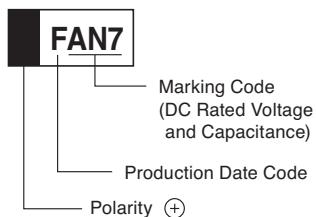


[Tape and Reel]



■ MARKINGS

[A3, cases] (ex. 33 μ F / 10 V)



[A3 case Marking Code]

Ur : Rated Voltage

μ F \ Ur		4V	6.3V	10V
		g	j	A
22	J7			AJ7
33	N7			AN7
47	S7		jS7	AS7
68	W7			
100	A8	gA8		

[A3 cases production date code]

y \ M	Jan.	Feb.	Mar.	Apr.	May.	Jun.	Jul.	Aug.	Sep.	Oct.	Nov.	Dec.
2011	a	b	c	d	e	f	g	h	j	k	l	m
2012	n	p	q	r	s	t	u	v	w	x	y	z
2013	A	B	C	D	E	F	G	H	J	K	L	M
2014	N	P	Q	R	S	T	U	V	W	X	Y	Z

NOTE: Production date code will resume beginning in 2015.



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■ PERFORMANCE CHARACTERISTICS

Test Conditions : Conform to IEC 60384-1

ITEM		PERFORMANCE			TEST CONDITION
Operating temperature		-55°C to +105°C			Derated voltage at 85°C at more
Rated voltage (V.dc)		4V	6.3V	10V	at 85°C
Derated voltage (V.dc)		3.3V	5V	8V	at 105°C
Surge voltage (V.dc)		5.2V	8V	13V	at 85°C
Capacitance		22 μF to 100μF			at 120 Hz
Capacitance tolerance		±20%			
DC Leakage Current (L.C)		0.1C · V(μA) or 3μA, whichever is greater			Voltage: Rated voltage for 5min.
Dissipation Factor		Refer to Standard Ratings			at 120 Hz
Equivalent Series Resistance		Refer to Standard Ratings			at 100 kHz
		Capacitance change	DF(%)	L.C	
Surge voltage test		Refer to Standard Ratings	Lower than initial specification	Lower than initial specification	Temperature : 85±2°C Applied voltage : Surge voltage Series resistance : 33 ohm Duration of surge : 30±5 sec Time between surge : 5.5min. Number of cycle : 1000
Characteristic at high and low temperature	-55°C	from 0 to -20%	Lower than initial specification	-----	Step 1: 25±2°C Step 2: -55 ₋₃ °C Step 3: 25±2°C Step 4: 105 ₋₃ °C
	+105°C	from 0 to +50%	Lower than 1.5 times initial specification	Lower than 10 times initial specification	
Rapid change of temperature		Refer to Standard Ratings	Lower than initial specification	Lower than initial specification	Parts shall be temperature cycled over a temperature range of -55 to +105°C, five times continuously as follow. Step 1: -55 ₋₃ °C, 30±3min. Step 2: room temp. , 10 to 15min. Step 3: 105 ₋₃ °C, 30±3min. Step 4: room temp, 10 to 15min.
Resistance to Soldering heat		Refer to Standard Ratings	Lower than 1.3 times initial specification	Lower than initial specification	Reflow soldering method 240°C, 10 sec.Max. *1
Damp heat		from +30% to -20%	Lower than 1.5 times initial specification	Lower than initial specification	at 40°C at 90 to 95% RH 500 hour
Endurance I		Refer to Standard Ratings	Lower than 1.5 times initial specification	Lower than initial specification	at 85°C at rated voltage 1000 hour
Endurance II		Refer to Standard Ratings	Lower than 3 times initial specification	Lower than initial specification	at 105°C at Derated voltage 1000 hour
Failure Rate		λ ₀ = 1% / 1000 hour			at 85°C: rated voltage at 105°C: derated voltage 1000 hour
Terminal Strength		Visual: There shall be no evidence of mechanical damage			Strength : 4.9N Time : 10±0.5sec. (two directions)
Permissible ripple current		Refer to Ratings Table			at 100 kHz
Others		Conform to IEC60384-1			Conform to IEC60384-1

*1: Refer to the page 52 "NOTES ON USING NeoCapacitor/2. Mounting/(1) Reflow soldering/(b) Temperature and time"

Reference : Derated voltage (85 to 105°C)

$$[U_T] = [U_R] - \frac{[U_R] - [U_C]}{20} (T-85)$$

[U_T] : Derated voltage at operating temperature

[U_R] : Rated voltage

[U_C] : Derated voltage at 105°C

T : Operating temperature



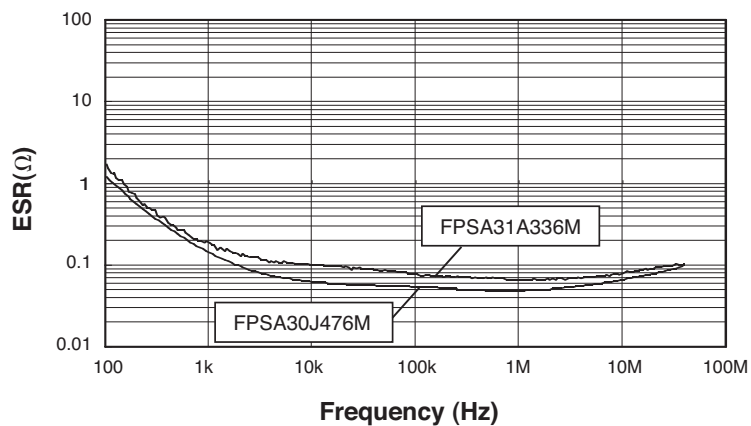
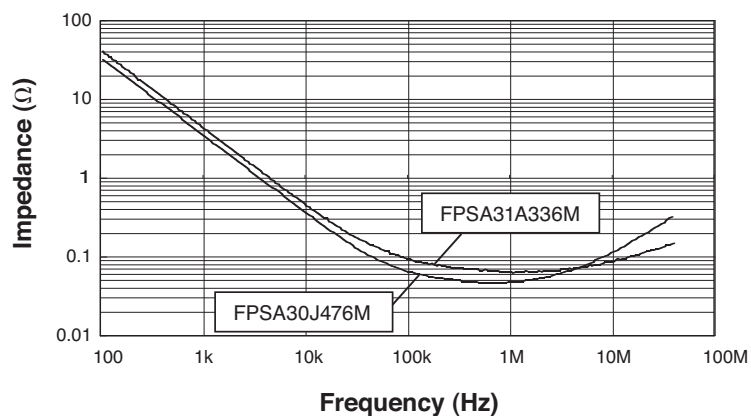
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■ STANDARD RATINGS

Rated Voltage (V)	Capacitance (μF)	Case Code	Part Number (Bulk)	Leakage Current (μA) Max	DF (%) Max	ESR (mΩ) Max	Permissible Ripple Current (mA rms.) Max	DF (%) Max		Capacitance Change	
								-5°C	+105°C	at Surge Voltage at Resistance to Soldering Heat	at Endurance
4	100	A3	FPSA30G107M	40	8	200	548	8	12	±20%	±20%
6.3	47	A3	FPSA30J476M	29.6	6	200	548	6	9	±20%	±20%
	22	A3	FPSA31A226M	22	8	200	548	8	12	±20%	±20%
10	33	A3	FPSA31A336M	33	6	200	548	6	9	±20%	±20%
	47	A3	FPSA31A476M	47	6	200	548	6	9	±20%	±20%

Conductive Polymer type

■ FREQUENCY CHARACTERISTICS (reference)



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