

Conductive Polymer Aluminum Solid Capacitor –SMD Type

PECS Series

MERITEK

FEATURE

- Rated voltage: 2.0 ~ 2.5VDC
- Endurance 2000hours at 105°C
- Low ESR surface mount device
- Suitable for DC-DC converters, voltage regulators applications
- RoHS Compliant



PART NUMBERING SYSTEM

PECS 2R5 331 M 4R5
 (1) (2) (3) (4) (5)



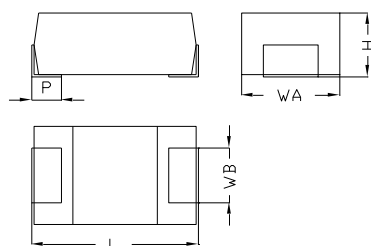
No	Item	Digit	Description	Series Reference
(1)	Meritek Series	PECS	Conductive Polymer Aluminum Solid Cap	Surface Mount Type
(2)	Rated Voltage	2R5	2R5: 2.5VDC	2R0: 2.0VDC
(3)	Capacitance	221	221: 220µF	331: 330µF
(4)	Tolerance	M	M: ±20%	Y: -35~+10%, K: ±10%
(5)	ESR Max.	4R5	4R5: 4.5mΩ	06: 6.0mΩ, 09: 9.0mΩ, 15: 15mΩ

ELECTRICAL SPECIFICATIONS

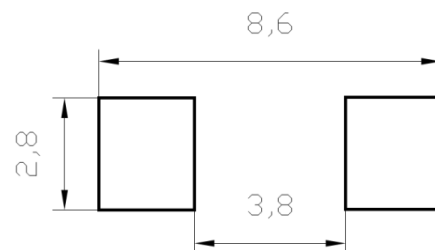
Item	Characteristics	
Operating Temperature Range	-55°C ~ +105°C	
Rated Working Voltage	2.0VDC ~ 2.5VDC	
Capacitance	220/330 µF	
Capacitance Tolerance	M: ±20%; Y: +10 ~ -35%; K: ±10 % at 120Hz 20°C	
Equivalent Series Resistance	4.5mΩ, 6.0mΩ, 9.0mΩ, 15mΩ	
Leakage Current	$I \leq 0.1CV$ (at 20°C after 2 minutes) *Whichever is less	I: DC Leakage Current (µA) C: Nominal Capacitance (µF) V: Rated Voltage (WV.DC)
Surge Voltage	Rated Voltage x 1.25	-55°C ~ +105°C
Dissipation Factor (tanδ)	≤ 0.06 (Max.)	at 20°C, 120Hz

DIMENSION

L	WA	WB	H	P
7.3±0.3	4.3±0.3	2.4±0.2	1.9±0.2	1.3±0.2



RECOMMENDED PAD LAYOUT



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ELECTRICAL CHARACTERISTICS

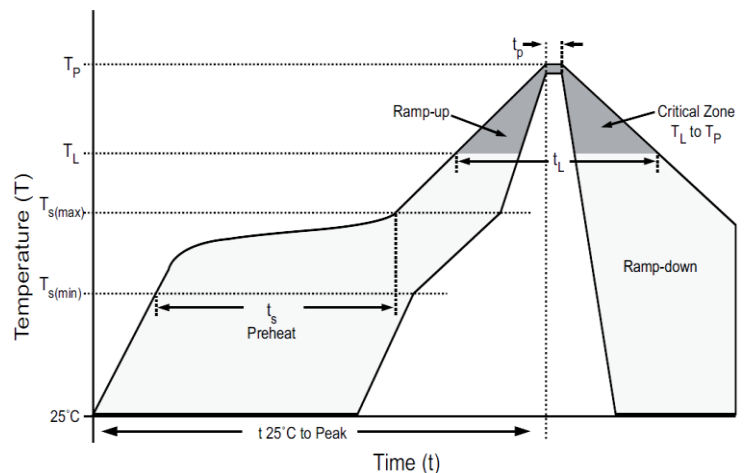
WV (VDC)	Part No.	Cap (μF)@120Hz	tanδ Max. @120Hz	Leakage Current Max. (μA)	ESR Max. (mΩ) @100kHz	Ripple Current (A r.m.s) @100kHz
2	PECS2R0221M15	220	0.06	44	15	5.1
	PECS2R0221K15	220	0.06	44	15	5.1
	PECS2R0221Y15	220	0.06	44	15	5.1
	PECS2R0221M06	220	0.06	44	6	7.5
	PECS2R0221M09	220	0.06	44	9	6.3
	PECS2R0221Y09	220	0.06	44	9	6.3
	PECS2R0331Y15	330	0.06	66	15	5.1
	PECS2R0331M09	330	0.06	66	9	6.3
	PECS2R0331M06	330	0.06	66	6	7.5
	PECS2R0331Y09	330	0.06	66	9	6.3
	PECS2R0331M4R5	330	0.06	66	4.5	8.5
2.5	PECS2R5221Y09	220	0.06	55.0	9	6.3
	PECS2R5221M15	220	0.06	55.0	15	5.1
	PECS2R5331M09	330	0.06	82.5	9	6.3
	PECS2R5331M06	330	0.06	82.5	6	7.5
	PECS2R5331Y09	330	0.06	82.5	9	6.3

RIPPLE CURRENT

Temperature Compensation Multipliers for Ripple Current		
$\leq 45^{\circ}\text{C}$	$45^{\circ}\text{C} < T \leq 85^{\circ}\text{C}$	$85^{\circ}\text{C} < T \leq 105^{\circ}\text{C}$
1.0	0.7	0.25

RECOMMENDED SOLDERING PROFILES

Reflow Condition		
Average Ramp-up Rate T_L to T_P		3°C/second max.
Pre Heat	Temp. Min $T_{s(\text{min})}$	140°C
	Tempe. Max $T_{s(\text{max})}$	160°C
	Time (min. to max.) (t_s)	60-120 seconds
Ramp-up Rate $T_{s(\text{max})}$ to T_L		3°C/second max.
Reflow	Temp. (T_L)	217°C
	Time (t_L)	90 seconds
Peak Temperature (T_P)		260 ^{-0/+5} °C
Time within 5°C of actual peak Temperature (t_p)		10 seconds
Ramp-down Rate		1~4°C/second



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RELIABILITY

Item	Characteristics		
Endurance	Appearance	No significant damage	105°C, rated voltage applied, 2000 hours
	Capacitance Change	±20% of the initial value	
	Dissipation Factor	≤ 200% of the initial specified value	
	Leakage Current	≤ 300% of the initial specified value	
Damp Heat, Steady State	Appearance	No significant damage	60°C, 90 to 95%RH, 500 hours
	Capacitance Change	(2V.DC, 2.5V.DC) +70%, -20% of the initial value	
	Dissipation Factor	≤ 200% of the initial specified value	
	Leakage Current	within the initial specified value	
Damp Heat, Steady State, Applied Voltage	Appearance	No significant damage	60°C, 90 to 95%RH, rated voltage, 500 hrs
	Capacitance Change	(2V.DC, 2.5V.DC) +70%, -20% of the initial value	
	Dissipation Factor	≤ 200% of the initial specified value	
	Leakage Current	within the initial specified value	
Surge Voltage	Appearance	No significant damage	The capacitors shall be subjected to 1000 cycles each consisting of charge with the surge voltages, 125% rated voltage, at 15°C to 3°C for 30 seconds through a protective resistor(R=1KΩ) and discharge for 5min 30 seconds.
	Capacitance Change	±10% of the initial value	
	Dissipation Factor	within the initial specified value	
	Leakage Current	within the initial specified value	
Solderability	More than 75% of outer terminal surface to be covered		Pb-free solder Around 25% rosin melted ethanol or isopropylalcohol Temperature: 230 ± 5°C Immersing time : 2 ± 0.5 s
Resistance to Solvents	Solvent : isopropylalcohol Immersing time : 30 ± 5 s Room temperature		No significant damage and marking readable
Resistance to Soldering Heat	Appearance	No significant damage	Heating temperature: 235±5°C Holding time: 200±10 s Measure the performance after test and cools to room temperature
	Capacitance Change	±10% of the initial value	
	Dissipation Factor	within the initial specified value	
	Leakage Current	within the initial specified value	
Vibration	Appearance	No significant damage	Test for 2 hours each in the directions of X-Y-Z at the frequency of 10 to 2000 Hz and amplitude of 1.5mm (10-2000-10).
	Capacitance Change	±10% of the initial value	
	Dissipation Factor	within the initial specified value	
	Leakage Current	within the initial specified value	
Shear Force	Side push direction Force: 5N Holding time: 10±0.5s		No significant damage in appearance

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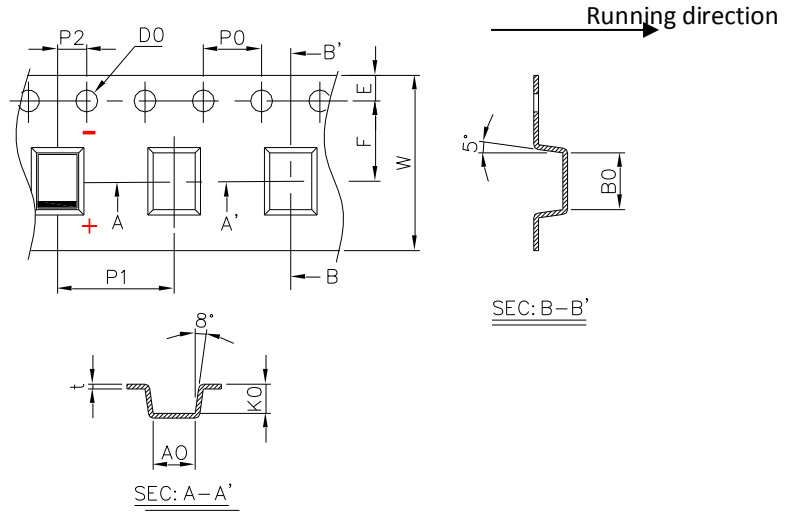
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PACKAGING SPECIFICATIONS

unit : mm

Item	Dimensions
W	12.00±0.10
P1	8.00±0.10
E	1.75±0.10
F	5.50±0.10
D0	1.50+0.10,-0.00
P0	4.00±0.10
P2	2.00±0.10
A0	5.00±0.10
B0	7.60±0.10
K0	2.30±0.10
t	0.24±0.10



Reel Dimension (mm)		
A	B	C
13.2±0.3	330±1.0	13.5±0.5

