



SMD Aluminum Solid Electrolytic Capacitor - ESEA0645 series

■ Introduction

- Standard SMD type
- Rated voltage: 2.5Vdc , 6.3Vdc
- Endurance: 2,000 hours at 105°C
- Suitable for DC-DC converters, voltage regulators and decoupling applications.
- RoHS Compliant

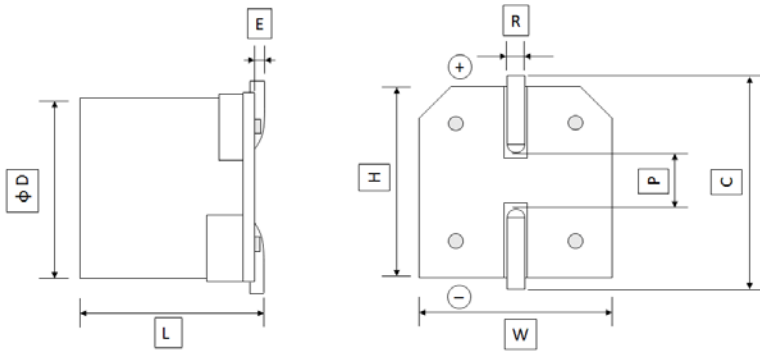


■ Specifications

ITEMS	CONDITIONS	CHARACTERISTICS	
Category Temperature Range		-55 to +105°C	
Rated Voltage Range		2.5Vdc, 6.3 Vdc	
Capacitance Tolerance	20°C, 120Hz	±20% (M)	
Surge Voltage	15°C to 35°C	Rated voltage x 1.15V	
Leakage Current	20°C after 2 minutes	Please see the Electrical Characteristics page	
Dissipation Factor (tan δ)	20°C, 120Hz	0.12 max.	
Characteristics of Impedance at Low, High Temperature	-55°C, 100KHz	$Z(-55^{\circ}\text{C}) / Z(+20^{\circ}\text{C}) \leq 1.25$	
	105°C 100KHz	$Z(-105^{\circ}\text{C}) / Z(+20^{\circ}\text{C}) \leq 1.25$	
Endurance	The specifications shall be satisfied when the capacitors are restored to 20°C after the rated voltage is applied for 2,000 hours at 105°C.	Appearance	No significant damage
		Capacitance Change	$\leq \pm 20\%$ of the initial value
		DF (tan δ)	$\leq 150\%$ of the initial specified value
		ESR	$\leq 150\%$ of the initial specified value
		Leakage current	\leq The initial specified value
Damp Heat, Steady State	The specifications shall be satisfied when the capacitors are restored to 20°C after subjecting them to store at 60°C , 90 to 95% RH for 1,000 hours, without DC applied.	Appearance	No significant damage
		Capacitance Change	$\leq \pm 20\%$ of the initial value
		DF (tan δ)	$\leq 150\%$ of the initial specified value
		ESR	$\leq 150\%$ of the initial specified value
		Leakage current	\leq The initial specified value
Surge Voltage	The Capacitors shall be subjected to 1,000 cycles each consisting of charge with the surge voltage specified at 105°C for 30 seconds through a protective resistor (R=1kΩ) and discharge for 5 minutes 30 seconds.	Appearance	No significant damage
		Capacitance Change	$\leq \pm 20\%$ of the initial value
		DF (tan δ)	$\leq 150\%$ of the initial specified value
		ESR	$\leq 150\%$ of the initial specified value
		Leakage current	\leq The initial specified value

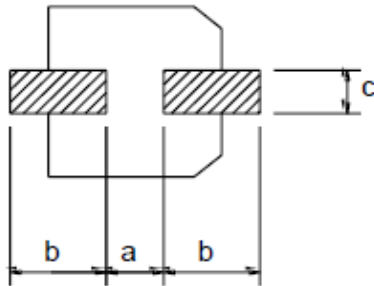


■ Shape and Dimensions (Unit: mm)



Size code	φ D ± 0.5	L ± 0.2	E	W ± 0.2	H ± 0.2	C ± 0.2	R	P ± 0.2
0645	6.3	4.3	0~0.2	6.6	6.6	7.3	0.5~0.8	2.1

■ Recommended soldering pad dimensions (Unit: mm)



Size code	0645
a	2.1
b	3.5
c	1.6

■ Electrical Characteristics

Part No.	Size Code	Cap (μF)	WV/Vdc (SV)	Note(1) Leakage Current (μA)	tan δ	ESR (mΩmax/20°C, 100k to 300kHz)	Rated Ripple Current (mArms/105°C/100kHz)
ESEA0645-331M-2R5	0645	330	2.5 (2.9)	700	0.12	17	2,300
ESEA0645-221M-6R3	0645	220	6.3 (7.2)	700	0.12	17	2,300

Note(1). Leakage Current : DC rated voltage shall be applied between anode and cathode lead wire terminations of a capacitor through 1k protective resistance, and the leakage current shall be less than or equal to the value listed in above table after 2 minutes with the voltage reaching the rated value at 20±2°C.

If the value is doubtful, measure the leakage current after performing voltage treatment which shall contain the following steps:
Voltage treatment: (1) DC rated voltage is applied to the capacitors for 60 minutes at 105°C. (2) Cooled down to room temperature with applying voltage. (3) Discharged through a resistor of approximately 1Ω/V

■ Ordering Information

ES EA 0645 331 M 2R5
1 2 3 4 5 6

- 1. SMD Type
- 2. Series Name
- 3. Dimensions Code
- 4. Capacitance : **331**=330 μF.
- 5. Capacitance tolerance : **M**= ± 20%.
- 6. Working Voltage(WV) : **2R5** = 2.5 VDC ; **6R3** = 6.3 VDC.