

Surface Mount Type **SP-Cap**

Series: **HX** (Guaranteed at 125 °C)



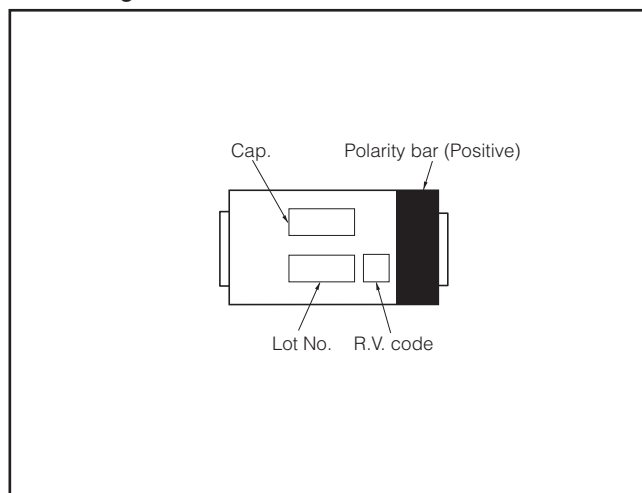
■ Features

- Endurance 125 °C 1000 h
- High voltage & Large capacitance
(2 V 560 μF to 25 V 33 μF)
- Low ESR (4.5 mΩ to 40 mΩ)
- RoHS directive compliant

■ Specifications

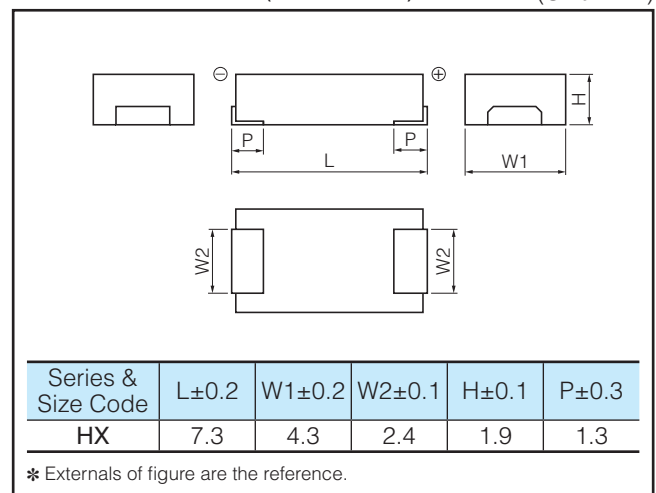
Series & Size Code	HX		
Category Temp. Range	-55 °C to +125 °C		
Rated Voltage Range	2 V.DC to 2.5 V.DC, 10 V.DC to 25 V.DC		
Nominal Cap.Range	15 μF to 560 μF		
Capacitance Tolerance	±20 % (120 Hz/+20 °C)		
DC Leakage Current	2 V.DC to 2.5 V.DC : I ≤ 0.1 CV (μA) 2 minutes, 10 V.DC to 25 V.DC : I ≤ 0.3 CV (μA) 2 minutes		
tan δ	≤ 0.1 (120 Hz/+20 °C)		
Surge Voltage	Rated Voltage × 1.25 [2 V.DC to 16 V.DC], × 1.15 [20 V.DC to 25 V.DC](15 °C to 35 °C)		
Endurance	After applying Category voltage for 1000 hours at 125 °C±2 °C, and then being stabilized at +20 °C, capacitor shall meet the following limits.		
	Capacitance change	±20% of initial measured value	
	tan δ	≤ 200 % of initial specified value	
	DC leakage current	≤ Initial specified value	
Moisture resistance	After storing for 500 hours at 60 °C, 90 %		
	Capacitance change of initial measured value	2 V.DC to 2.5 V.DC	10 V.DC to 25V DC
		+70, -20 %	+60, -20 %
	tan δ	≤ 200 % of initial specified value	
	DC leakage current	2 V.DC to 2.5 V.DC : ≤ Initial specified value	
10 V.DC to 25V DC : ≤ 300 % of initial specified value			

■ Marking



■ Dimensions in mm(not to scale)

(Unit : mm)



Standard Products

Reflow *3 <Standard>

Series & Size Code	Rated Voltage [105 °C] (V.DC)	Category Voltage [125 °C] (V.DC)	Capacitance (±20 %) (μF)	Case Size			Specification		Part number	*4 Min. Packaging Q'ty (pcs)
				L (mm)	W (mm)	H (mm)	*1 Ripple current (Ar.m.s.)	*2 ESR (mΩ max.)		
HX	2	1.6	470	7.3	4.3	1.9	5.1	15	EEFHX0D471R	3500
				7.3	4.3	1.9	6.3	9	EEFHX0D471R9	3500
				7.3	4.3	1.9	7.5	6	EEFHX0D471R6	3500
				7.3	4.3	1.9	8.5	4.5	EEFHX0D471R4	3500
			560	7.3	4.3	1.9	5.1	15	EEFHX0D561R	3500
				7.3	4.3	1.9	8.5	4.5	EEFHX0D561R4	3500
	2.5	2	330	7.3	4.3	1.9	5.1	15	EEFHX0E331R	3500
				7.3	4.3	1.9	6.3	9	EEFHX0E331R9	3500
				7.3	4.3	1.9	7.5	6	EEFHX0E331R6	3500
				7.3	4.3	1.9	8.5	4.5	EEFHX0E331R4	3500
			470	7.3	4.3	1.9	5.1	15	EEFHX0E471R	3500
				7.3	4.3	1.9	6.3	9	EEFHX0E471R9	3500
				7.3	4.3	1.9	7.5	6	EEFHX0E471R6	3500
				7.3	4.3	1.9	8.5	4.5	EEFHX0E471R4	3500
	10	8	47	7.3	4.3	1.9	3.2	40	EEFHX1A470R	3500
			68	7.3	4.3	1.9	3.2	40	EEFHX1A680R	3500
			100	7.3	4.3	1.9	3.2	40	EEFHX1A101R	3500
	16	12.8	15	7.3	4.3	1.9	3.2	40	EEFHX1C150R	3500
			22	7.3	4.3	1.9	3.2	40	EEFHX1C220R	3500
			33	7.3	4.3	1.9	3.2	40	EEFHX1C330R	3500
			47	7.3	4.3	1.9	3.2	40	EEFHX1C470R	3500
			68	7.3	4.3	1.9	3.2	40	EEFHX1C680R	3500
	20	16	22	7.3	4.3	1.9	3.2	40	EEFHX1D220R	3500
			33	7.3	4.3	1.9	3.2	40	EEFHX1D330R	3500
			47	7.3	4.3	1.9	3.2	40	EEFHX1D470R	3500
			56	7.3	4.3	1.9	3.2	40	EEFHX1D560R	3500
	25	20	15	7.3	4.3	1.9	3.2	40	EEFHX1E150R	3500
			22	7.3	4.3	1.9	3.2	40	EEFHX1E220R	3500
33			7.3	4.3	1.9	3.2	40	EEFHX1E330R	3500	

*1: Ripple current (100 kHz/ +45 °C), *2: ESR (100 kHz/+20 °C)

*3: Please refer to the page of "Mounting Specifications".

*4: Please contact us when 500 pcs packing is necessary.

Temperature Compensation Multipliers for Ripple Current				
	T ≤ 45 °C	45 °C < T ≤ 85 °C	85 °C < T ≤ 105 °C	105 °C < T
2 V.DC to 2.5 V.DC	1.0	0.7	0.25	0.25
10 V.DC to 25 V.DC	1.0	0.8	0.5	0.25

Ripple current should be controlled so that surface temperature of capacitor does not exceed the category temperature.