```mathematica
Unprotect[Integrate];

∫ ω_ . 𝔼[L_] ⅆ(vs_List) :=

  Module[{n, L0, Q, Δ, G, Z0, Z, λ, DZ, DDZ, FZ,
      a, b},
    n = Length@vs; L0 = L /. ϵ → 0;
    Q = Table[(-∂vs〚a〛,vs〚b〛 L0) /. Thread[vs → 0] /.
        (p | x)__ → 0, {a, n}, {b, n}];
    If[(Δ = Det[Q]) == 0, Return@"Degenerate Q!"];
    Z = Z0 = CF@$π[L + vs.Q.vs / 2]; G = Inverse[Q];
    FixedPoint[(DZ = Table[∂v Z, {v, vs}];
        DDZ = Table[∂u DZ, {u, vs}];
        FZ = Sum[G〚a, b〛 (DDZ〚a, b〛 + DZ〚a〛 × DZ〚b〛),
          {a, n}, {b, n}] / 2;
        Z = CF[Z0 + ∫0λ $π[FZ] ⅆλ]) &, Z];
    PowerExpand@Factor[ω Δ^(-1/2)] ×
      𝔼[CF[Z /. λ → 1 /. Thread[vs → 0]]]];

Protect[Integrate];
```