$$\mathcal{G}_{\dot{\mathbf{P}}\dot{\mathbf{P}}}(\mathbf{k}, i\omega_{l}) = \begin{cases} \mathbf{k}, i\omega_{n} \\ \mathbf{k}, i\omega_{n} \\ \mathbf{k} \\ \mathbf{k} \\ \mathbf{k}, i\omega_{n} \\ \mathbf{k},$$