$$k = (E, 0, 0, E), \ k' = E(1, \sin\theta, 0, \cos\theta), \ k_1 = E_1(1, \sin\theta_1\cos\phi, \sin\theta_1\sin\phi, \cos\theta_1)$$

$$Q^2 = -(k - k')^2, \ Q_1^2 = -(k - k_1)^2, \ Q_2^2 = -(k' - k_1)^2$$

$$Q^2 = 2E^2(1 - \cos\theta)$$

$$Q_1^2 = 2EE_1(1 - \cos\theta_1)$$

$$Q_2^2 = 2EE_1(1 - \sin\theta_1\cos\theta\cos\phi - \cos\theta_1\cos\theta)$$

$$d\cos\theta_1 d\phi \to dQ_1^2 dQ_2^2$$