The X-ray transient XTE J1908+094 was serendipitously discovered during RXTE ToO observations of SGR 1900+14 in February 2002. Following the discovery, RXTE routinely monitored the region. At the onset, the source was found in a spectrally low/hard state lasting for ~40 days, followed by a quick transition to the high/soft state. At the highest X-ray intensity level (seen on 2002 April 6), the source flux (2-10 keV) reached ~105 mCrab, then decayed rapidly. Overall outburst characteristics resemble the transient behavior of galactic black hole candidates. Here, we present the long term light curves, and detailed spectral and timing investigations of XTE J1098+094 using the RXTE/PCA data. We also report the results of Chandra ACIS observations which were performed during the decay phase.