



\*162162\*



\*G00002\*

# ABSTRACT

Liquid crystal display devices suffer from low contrast at low temperature because the frequency characteristics of the liquid crystal dielectric constant are degraded.

An active matrix liquid crystal display device performs pre-charging in which a pre-charge signal  $P_{sig}$  is written with a pre-charge switch (19) before display signals are written to data lines (12-1 to 12-6) of a display area (14) with a data driver (17). The pre-charge signal  $P_{sig}$  is the gray-scale level as obtained when no voltage is applied to liquid crystal, such as a common voltage  $V_{COM}$ , thus increasing the contrast at low temperature.