

INTEGRATED CIRCUITS FOR TV AND RADIO RECEIVERS

T-46-13-27

T-77-11

MDA2062 1024-Bit EEPROM (14-Pin Plastic Package TO-116)
NVM3060 4096-Bit EEPROM (8-Pin Plastic Package)

Electrically erasable programmable read only memories (EEPROM) in N-channel floating-gate technology with the following capacity:

MDA2062:128 words, 8 bits each
 NVM3060:512 words, 8 bits each.

These EEPROMs are intended for use as reprogrammable non-volatile memories in conjunction with the CCU2030/2050/2070 series Central Control Units of the DIGIT2000 Digital TV System, or the SAA1293A Remote-Control and Tuning IC. They serve for storing the tuning information, as well as several analog settings, furthermore, alignment information given in the factory when producing the TV set. The stored information remains stored even with the supply voltages switched off. Reading and programming operations are executed via the IM bus.

Input and output signals are TTL level. An address option input provides the possibility to operate two memories in parallel, to obtain a total storage capacity of 2048 bits (two MDA2062) or 8192 bits (two NVM3060).

The programming matrix contains a protectable portion. This part of the memory can only be programmed if the Safe Input \bar{S} is at a high potential. In that way, this portion of the memory is protected against inadvertent reprogramming even if such false informations were received via the IM bus.

In contrary to the MDA2062 the NVM3060 needs only one supply voltage of 5 V because this device contains a charge pump for high programming voltage generation. Additionally a clock oscillator is on-chip.

SAA1250 Infrared Remote-Control Transmitter IC (24-Pin Plastic Package)

This integrated CMOS circuit has been developed for infrared remote control of color TV receivers, but can also be used for other applications with advantage. It consumes a minimal current and, due to its large instruction repertoire, is highly flexible in application. Up to 1024 commands can be transmitted by one SAA1250. As receivers either the CCU2030/CCU2050/CCU2070/CCU3000 series Central Control Units for the DIGIT2000 Digital TV System or the SAA1293A Remote-Control and Tuning IC for TV receivers are intended.

Pulsecode-modulated infrared light serves for the transmission of remote-control commands. The information is defined by the varying time intervals between a sequence of very short infrared pulses. This enables the emitter diode to be driven with a high current (1 A or more),

thus achieving a large transmission distance and high interference immunity. At the receiver end, a photo-diode converts the IR-transmissions into electrical signals which are amplified in the TBA2800 Infrared Preamplifier IC and fed to the receiver IC, where the signals are converted into the respective commands, e.g. for switching on/off, station selection, for the setting of analog values such as volume, brightness etc., for the control of Teletext, and more.

Each remote-control word contains ten information bits. The transmitter IC SAA1250, therefore, is capable of delivering 1024 different signals. The word is usually structured into four bits and six bits offering 16 addresses and 64 commands.

SAA1293A Remote-Control and Tuning Microcomputer for TV Receivers (40-Pin Plastic Package or 44-Pin PLCC Package)

The SAA1293A is a microcomputer in N-channel MOS technology. On one silicon chip, it contains all the operating and tuning functions of a modern TV receiver. Thus, along with the MDA2062 or NVM3060 non-volatile memories, the SAA1250, IRT1250 or IRT1260 remote-control transmitter and the TBA2800 preamplifier this offers a very economic solution for TV receivers with a low or average degree of operating comfort in which station selection is by voltage synthesis. Features of the SAA1293A are:

- tuning voltage generation with rate multiplier allows the use of low-cost tuner and avoids problems with different channel tables
- four analog outputs for volume, brightness etc.
- storage of up to 55 stations
- flexible processing due to options set by the equipment manufacturer. Thus a large product range of TV receivers can have the same SAA1293A control microcomputer
- direct interfacing with ITT multipage Teletext system (or SAA5000 family for Teletext) without extra controller for Teletext

- remote control of all functions, including tuning and Teletext
- full two-digit station display
- keyboard with up to 32 keys for direct operation
- various intelligent tuning methods allow free selection of the station location during tuning
- standby mode with automatic mains-on when a station is selected
- multi-standard switch
- output switches for special audio-video modes
- flexible logic for fading in and out of sound and picture while a station is being changed
- bandswitch outputs for four bands
- band indication on the display, no separate indication needed
- fine or normal tuning at four speeds using the remote control
- "service" mode for easy setting up and servicing