CARRIER AMPLITUDE MODULATOR MD2/507

Introduction

The MD2/507 is designed for use as a colour burst on/off gate in a sync separator[1]. It accepts feeds of chrominance and switching pulses and provides a chrominance output gated by the switching waveform.

The modulator is accommodated in a copper screening can and connecting pins protrude through the base to permit direct mounting on a printed wiring board.

General Specification

Chrominance Input

Frequency	3·58 MHz or 4·43 MHz.
Level (75-ohm source)	+10 dB w.r.t. 1 volt p-p.

Switching Pulse Input

Maximum **On** Current	10 mA
Maximum **Off** Voltage	6 volts

Output Amplitude(p-p) $e_v + e_{dc}$ where e_v = p-p chrominance input and e_{dc} = added d.c. component

Bandwidth (3·58 or 4·43 MHz) for Switching Frequencies up to 1·5 MHz ± 1·5 MHz for sideband amplitudes equal to within ± 0·1 dB.

Phase of Output Signal in phase with the input when pins 1, 4 and 6 of the unit are joined and a negative potential w.r.t. pin 1 is applied to pin 5; i.e. the modulator is switched *On*

Impedances

Chrominance Input	40 ohms nominal
Switching Input: *On*	60 ohms nominal
Off	high impedance
Output	70 ohms nominal

Chrominance Leak at 4·43 MHz −60 dB w.r.t. p-p amplitude of chrominance input

Size 57 mm x 25 mm x 16 mm high

Circuit Description

The circuit diagram is given in Fig. 1. The design is that of a ring modulator[2] with two of the diodes replaced by capacitors. Thus the modulator lose the property of phase inversion of the chrominance input and becomes a high-isolation on/off switch.

Alignment

A Mullard non-magnetic screwdriver type DT2168 should be used to adjust R1, R2, R3, C3 and C4 for both minimum chrominance leak in the *Off* state and also minimum switching-pulse breakthrough to the output.

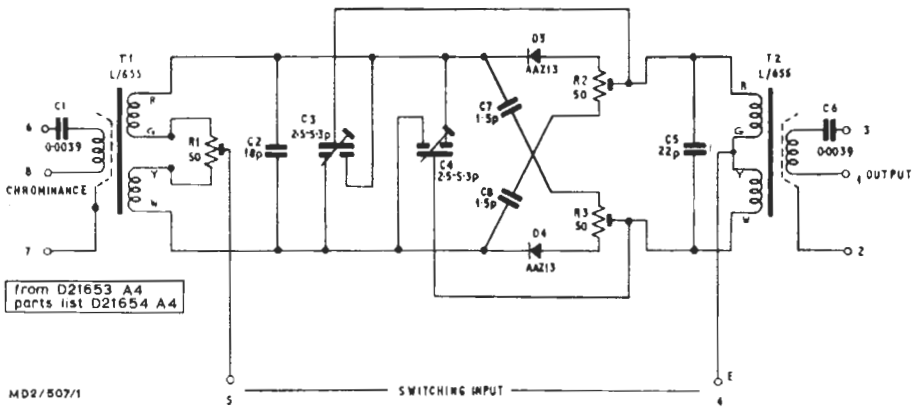

Fig. 1 Circuit of the MD2/507

In the *On* state pin 5 is made negative w.r.t. pin 4, diodes D3 and D4 are forward-biased and their on-resistances are compensated by R2 and R3 respectively. In the *Off* state pin 5 is made positive w.r.t. pin 4, D3 and D4 are reverse-biased and their off-capacitances are neutralised by C8 and C7 respectively.

References

1. Sync Separator Unit UN1/589.
2. Technical Instruction L.1.

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