CARRIER AMPLITUDE MODULATOR MD2/504

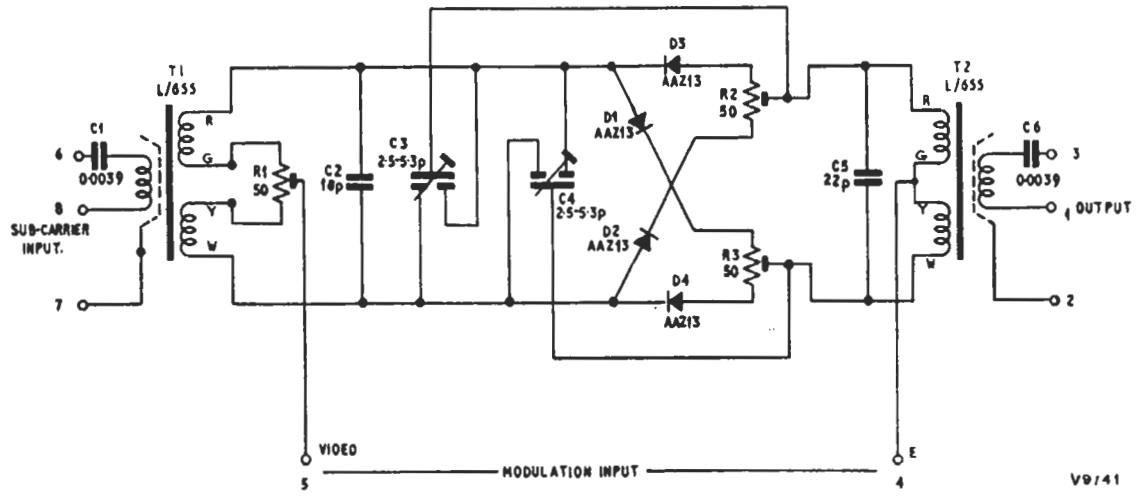

Fig. 1 Circuit of the MD2/504

Introduction

The MD2/504 can be used either as a colour sub-carrier amplitude modulator or as a synchronous detector.

When used as a modulator the unit requires feeds of sub-carrier and video and produces a modulated sub-carrier output. When used as a detector it requires a feed of modulated sub-carrier and a sub-carrier reference signal and produces, after suitable filtering, a video output.

The unit is contained in a copper screening can and can be mounted on a printed circuit board by means of connecting pins which protrude through the base plate.

General Specification

Inputs

Subcarrier (3·58 or 4·43 MHz)	+6 to +10 dB relative to 1 volt p-p fed from a 75-ohm source
Video	at least 16-dB p-p below the level of the sub-carrier input
Modulated Sub-carrier Output	p-p amplitude E = $e_v + e_{dc}$ (volts) where e_v = p-p video input and e_{dc} = added d.c. component
Modulation Factor	$m = \frac{2e_v}{e_v + e_{dc}}$ For suppressed carrier operation $e_{dc} = 0$, $E = e_v$ and $m = 2$
Output Phase	input and output sub-carrier are in phase when pins 1, 4, 8 of the unit are connected together and a positive potential (with respect to pin 1) is applied to pin 5

Impedances

Sub-carrier input	40 ohms nominal
Video input	100 ohms nominal
Output	75 ohms nominal
Carrier Leak (at 4·43 MHz)	not less than 75 dB below the p-p voltage of the applied sub-carrier
Bandwidth	amplitude of sidebands of 3·58 or 4·43 MHz sub-carrier within ± 0·1 dB for video input frequencies up to 1·5 MHz
Size	2¼ by 1⅜ by ⅝ ins.

Circuit Description

A circuit diagram is shown in Fig. 1. For a detailed description of balanced modulators see Instruction L.1.

The forward resistances of D1 and D4 are equalised by means of R3; the forward resistances of D2 and D3 are equalised by means of R2. Circuit balance is adjusted by means of R1, C3 and C4. All adjustments are made for minimum sub-carrier output without a video input.

TES 4/67