COLOUR DEMODULATOR COMBINATION

The TDA2520 is an integrated synchronous demodulator combination for colour television receivers incorporating the following functions:

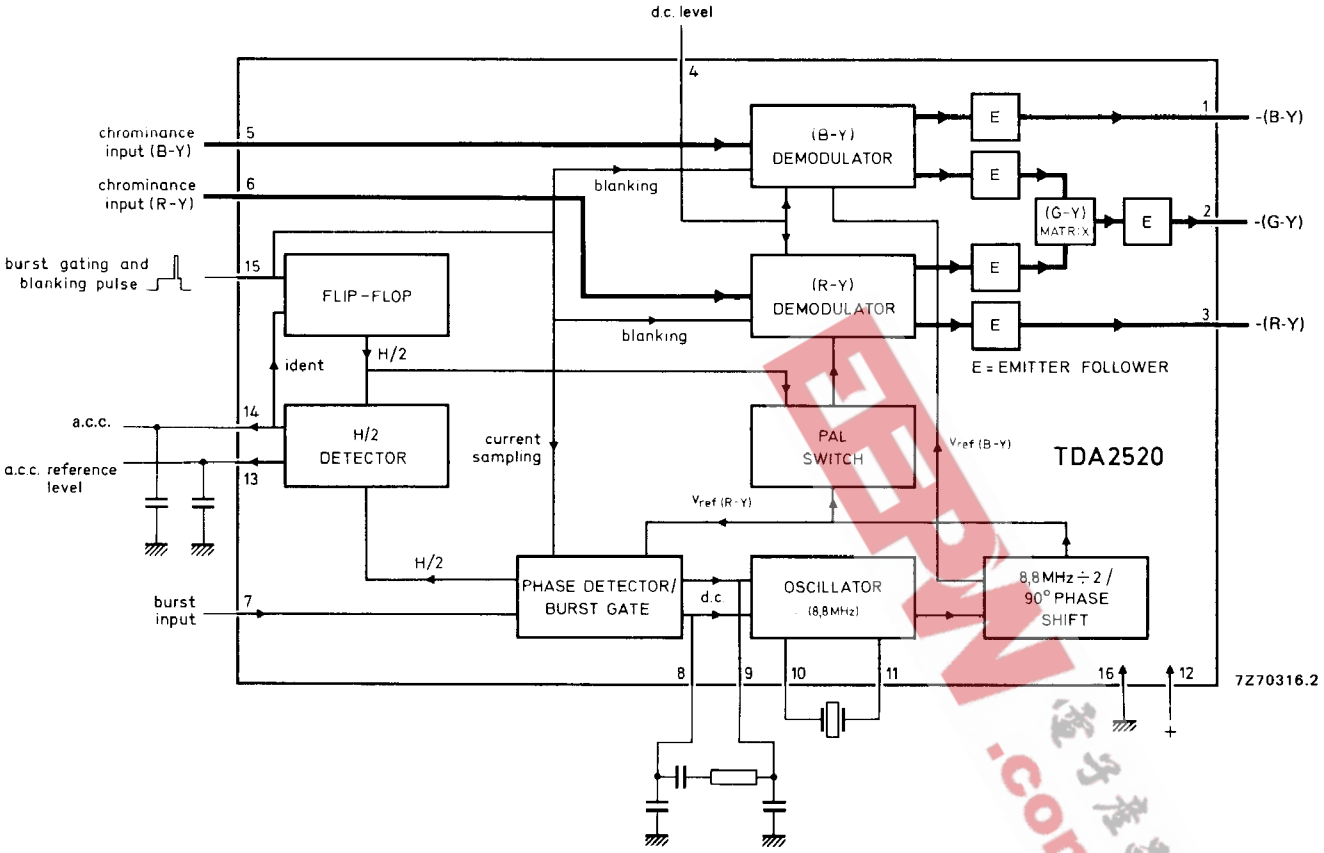
- 8,8 MHz oscillator followed by a divider giving two 4,4 MHz signals used as reference signals
- keyed burst phase detector for optimum noise behaviour
- a stage to obtain chrominance signal control (a.c.c.) and an a.c.c. reference level
- a colour killer and identification signal detector
- two synchronous demodulators for the (B-Y) and (R-Y) signals
- temperature compensated emitter follower outputs
- PAL switch
- PAL flip-flop
- integrated capacitors in the symmetrical demodulators reduce unwanted carrier-signals at the outputs.

QUICK REFERENCE DATA					
Supply voltage		V_{12-16}	typ.	12	V
Supply current		I_{12}	typ.	40	mA
Colour difference output signals peak-to-peak values	-(R-Y)	$V_{3-16(p-p)}$	>	2,4	V
	-(G-Y)	$V_{2-16(p-p)}$	>	1,35	V
	-(B-Y)	$V_{1-16(p-p)}$	>	3	V
Impedance of colour difference signal outputs			typ.	250	Ω

PACKAGE OUTLINES

TDA2520 : 16-lead DIL ; plastic (SOT-38).
TDA2520Q: 16-lead QIL ; plastic (SOT-58).

BLOCK DIAGRAM



RATINGS Limiting values in accordance with the Absolute Maximum System (IEC 134)

Voltage				
Supply voltage	V_{12-16}	max.	14	V
Power dissipation				
Total power dissipation	P_{tot}	max.	600	mW
Temperatures				
Storage temperature	T_{stg}		−20 to +125	°C
Operating ambient temperature	T_{amb}		−20 to +60	°C

CHARACTERISTICS at V_{12-16} = 12 V; T_{amb} = 25 °C

Demodulator part

Ratio of demodulated signals					
	B-Y/R-Y:	$\frac{V_{1-16}}{V_{3-16}}$	typ.	1,78	
	G-Y/R-Y:	$\frac{V_{2-16}}{V_{3-16}}$	typ.	0,85	1)
	G-Y/R-Y:	$\frac{V_{2-16}}{V_{3-16}}$	typ.	0,17	2)
Colour difference output signals 3)					
peak-to-peak values	−(R-Y)	$V_{3-16(p-p)}$	>	2,4	V
	−(G-Y)	$V_{2-16(p-p)}$	>	1,35	V
	−(B-Y)	$V_{1-16(p-p)}$	>	3	V
Impedance of colour difference signal outputs		$\lvert Z_{3-16}\rvert$	typ.	250	Ω
		$\lvert Z_{2-16}\rvert$	typ.	250	Ω
		$\lvert Z_{1-16}\rvert$	typ.	250	Ω
H/2 ripple at R-Y output (peak-to-peak value)			<	10	mV
Blanking and keying pulse					
burst keying: active for		V_{15-16}	>	7,5	V
inactive for		V_{15-16}	<	6,5	V
blanking: active for		V_{15-16}	>	2	V
inactive for		V_{15-16}	<	1	V

1) The demodulators are driven by a chrominance signal of equal amplitude for the (R-Y) and the (B-Y) components. The phase of the (R-Y) chrominance signal equals the phase of the (R-Y) reference signal.
The same holds for the (B-Y) signals.

2) As under note 1, but the phase of the (R-Y) reference signal reversed.

3) The d.c. level of the colour difference outputs can be adjusted from 6 to 10 V at pin 4.

CHARACTERISTICS (continued)

Reference part

Colour burst (peak-to-peak value)	$V_{7-16(p-p)}$	typ.	0,5 V
Phase difference between reference and burst signals for ±400 Hz deviation of crystal frequency		<	±5°
Overall holding range with typical crystal	Δf	typ.	±500 Hz
A.C.C. reference output voltage	V_{13-16}	typ.	7 V
A.C.C. voltage at 0,5 V peak-to-peak burst			
at correct phase	V_{14-16}	typ.	5,5 V
with zero burst	V_{14-16}	typ.	7,0 V
Oscillator input resistance	R_{11-16}	typ.	270 Ω
Oscillator input capacitance	C_{11-16}	see note	
Oscillator output resistance	R_{10-16}	typ.	200 Ω

Note : to be established.