

MC1377

ELECTRICAL CHARACTERISTICS ($V_{CC} = 12 \text{ Vdc}$, $T_A = 25^\circ\text{C}$, circuit of Figure 7, unless otherwise noted.)

Characteristics	Pins	Symbol	Min	Typ	Max	Unit
VIDEO INPUT						
R, G, B Input DC Levels	3, 4, 5	RGB	2.8	3.3	3.8	V _{dc}
R, G, B Input for 100% Color Saturation			—	1.0	—	V _{pp}
R, G, B Input: Resistance Capacitance		R _{RGB}	8.0	10	17	k Ω
		C _{RGB}	—	2.0	—	pF
Sync Input Resistance (1.7 V < Input < 8.2)	2	Sync	—	10	—	k Ω
COMPOSITE VIDEO OUTPUT						
Composite Output, 100% Saturation (see Figure 8d)	9	CV _{out}	—	0.6	—	V _{pp}
			—	1.4	—	
			—	1.7	—	
			—	0.6	—	
Output Impedance (Note 1)		R _{video}	—	50	—	Ω
Subcarrier Leakage in Output (Note 2)		V _{lk}	—	20	—	mV _{pp}

NOTES: 1. Output impedance can be reduced to less than 10 Ω by using a 150 Ω output load from Pin 9 to ground. Power supply current will increase to about 60 mA.

2. Subcarrier leakage can be reduced to less than 10 mV with optional circuitry (see Figure 12).

PIN FUNCTION DESCRIPTIONS

Symbol	Pin	Description
t _r	1	External components at this pin set the rise time of the internal ramp function generator (see Figure 10).
Sync	2	Composite sync input. Presents 10 k Ω resistance to input.
R	3	Red signal input. Presents 10 k Ω impedance to input. 1.0 V _{pp} required for 100% saturation.
G	4	Green signal input. Presents 10 k Ω impedance to input. 1.0 V _{pp} required for 100% saturation.
B	5	Blue signal input. Presents 10 k Ω impedance to input. 1.0 V _{pp} required for 100% saturation.
-Y _{out}	6	Luma (-Y) output. Allows external setting of luma delay time.
V _{clamp}	7	Video Clamp pin. Typical connection is a 0.01 μF capacitor to ground.
-Y _{in}	8	Luma (-Y) input. Presents 10 k Ω input impedance.
CV _{out}	9	Composite Video output. 50 Ω output impedance.
Chroma _{in}	10	Chroma input. Presents 10 k Ω input impedance.
B-Y _{clamp}	11	B-Y clamp. Clamps B-Y during blanking with a 0.1 μF capacitor to ground. Also used with R-Y clamp to null residual color subcarrier in output.
R-Y _{clamp}	12	R-Y clamp. Clamps R-Y during blanking with a 0.1 μF capacitor to ground. Also used with B-Y clamp to null residual color subcarrier in output.
Chroma _{out}	13	Chroma output. 50 Ω output impedance.
V _{CC}	14	Power supply pin for the IC; +12, $\pm 2.0 \text{ V}$, required at 35 mA (typical).
Gnd	15	Ground pin.
V _B	16	8.2 V reference from an internal regulator capable of delivering 10 mA to external circuitry.
Osc _{in}	17	Oscillator input. A transistor base presents 5.0 k Ω to an external subcarrier input, or is available for constructing a Colpitts oscillator (see Figure 4).
Osc _{out}	18	Oscillator output. The emitter of the transistor, with base access at Pin 17, is accessible for completing the Colpitts oscillator. See Figure 4.
ϕ_m	19	Quad decoupler. With external circuitry, R-Y to B-Y relative angle errors can be corrected. Typically, requires a 0.01 μF capacitor to ground.
NTSC/PAL Select	20	NTSC/PAL switch. When grounded, the MC1377 is in the NTSC mode; if unconnected, in the PAL mode.