

# MC1327

## Advance Information

### DUAL DOUBLY BALANCED CHROMA DEMODULATOR WITH RGB MATRIX, PAL SWITCH, AND CHROMA DRIVER STAGES

... a monolithic device designed for use in solid-state color television receivers.

- Good Chroma Sensitivity – 0.28 Vp-p Input Typical for 5.0 Vp-p Output
- Low Differential Output DC Offset Voltage – 0.6 V Maximum
- Differential DC Temperature Stability – 0.7 mV/°C
- High Blue Output Voltage Swing – 10 Vp-p Typical
- Blanking Input Provided
- Luminance Bandwidth Greater than 5.0 MHz

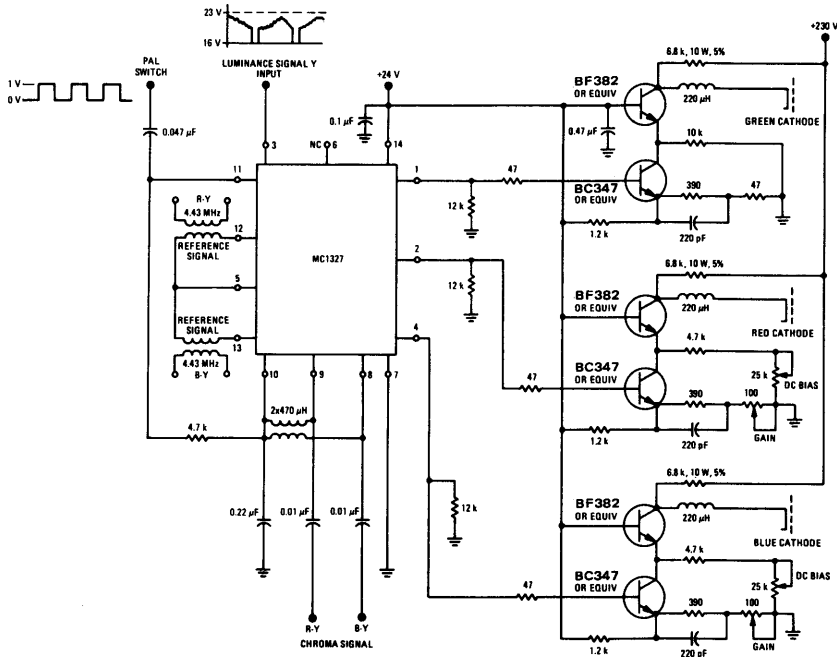
**DUAL DOUBLY BALANCED CHROMA DEMODULATOR with RGB OUTPUT MATRIX AND PAL SWITCH**  
**MONOLITHIC SILICON INTEGRATED CIRCUIT**

P SUFFIX  
 PLASTIC PACKAGE  
 CASE 646  
 TO-116



PQ SUFFIX  
 PLASTIC PACKAGE  
 CASE 647

FIGURE 1 – TYPICAL APPLICATION CIRCUIT



**MAXIMUM RATINGS** ( $T_A = +25^\circ\text{C}$  unless otherwise noted)

Rating	Value	Unit
Power Supply Voltage	30	Vdc
Chrome Signal Input Voltage	5.0	Vpk
Reference Signal Input Voltage	5.0	Vpk
Minimum Load Resistance	3.0	k ohms
Luminance Input Voltage	12	Vp-p
Blanking Input Voltage	7.0	Vp-p
Power Dissipation (Package Limitation) Plastic Packages Derate above $T_A = +25^\circ\text{C}$	625 5.0	mW mW/ $^\circ\text{C}$
Operating Temperature Range (Ambient)	-20 to +75	$^\circ\text{C}$
Storage Temperature Range	-65 to +150	$^\circ\text{C}$

**ELECTRICAL CHARACTERISTICS** ( $V_{CC} = 24$  Vdc,  $R_L = 3.3$  k ohms,  $T_A = +25^\circ\text{C}$  unless otherwise noted)

Characteristic	Pin No.	Min	Typ	Max	Unit
----------------	---------	-----	-----	-----	------

**STATIC CHARACTERISTICS**

Quiescent Output Voltage (See Figure 2)	1,2,4	13.2	14.5	15.8	Vdc
Quiescent Input Current from Supply (Figure 2) ( $R_L = \infty$ ) ( $R_L = 3.3$ k ohms)		-- 16	7.5 19	-- 26	mA
Reference Input DC Voltage (Figure 2)	5,12,13	--	6.2	--	Vdc
Chrome Reference Input DC Voltage (Figure 2)	8,9,10	--	3.4	--	Vdc
Differential Output Voltage (See Note 1 and Figure 2)	1,2,4	--	0.3	0.6	Vdc
Differential Output Voltage Temperature Coefficient (See Note 1 and Figure 2) ( $+25^\circ\text{C}$ to $+65^\circ\text{C}$ )	1,2,4	--	0.7	--	mV/ $^\circ\text{C}$
Output Voltage Temperature Coefficient (See Note 1 and Figure 2) ( $+25^\circ\text{C}$ to $+65^\circ\text{C}$ )	1,2,4	--	+0.5	$\pm 5.0$	mV/ $^\circ\text{C}$

**DYNAMIC CHARACTERISTICS** ( $V_{CC} = 24$  Vdc,  $R_L = 3.3$  k ohms, Reference Input Voltage = 1.0 Vp-p,  $T_A = +25^\circ\text{C}$  unless otherwise noted)

Blue Output Voltage Swing (See Note 2 and Figure 3)	4	8.0	10	--	Vp-p
Chrome Input Voltage (B Output = 5.0 Vp-p) (See Note 3 and Figure 3)	8	--	280	550	mVp-p
Luminance Input Resistance	3	100	--	--	k $\Omega$
Luminance Gain From Pin 3 to Outputs (@ dc) (@ 5.0 MHz, reference at 100 kHz)	1,2,4	--	0.95 -1.8	--	-- dB
Differential Luminance Gain, RGB Outputs (@ 5.0 MHz)		--	0.3	--	dB
Blanking Input Resistance (1.0 Vdc) (0 Vdc)	6	--	1.1 75	--	-- k $\Omega$
Detected Output Voltage (Adjust B Output to 5.0 Vp-p, Luminance Voltage = 23 V) (See Note 4)	4				Vp-p
		1	1.4	1.8	2.2
		2	2.5	2.9	3.3
PAL Switch Operating Voltage Range (7.8 kHz Square Wave)	11	0.3	--	3.0	Vp-p
R-Y Output dc Offset with PAL Switch Operation		--	--	100	mVdc
Demodulator Unbalance Voltage (no Chrome Input Voltage and normal Reference Signal Input Voltage)	1,2,4	--	200	300	mVp-p
Residual Carrier and Harmonics Output Voltage (with Input Signal Voltage, normal Reference Signal Voltage and B Output = 5.0 Vp-p)	1,2,4	--	0.6	1.0	Vp-p
Reference Input Resistance (Chrome Input = 0)	12,13	--	2.0	--	k $\Omega$
Reference Input Capacitance (Chrome Input = 0)	12,13	--	6.0	--	pF
Chrome Input Resistance	8,9,10	--	2.0	--	k $\Omega$
Chrome Input Capacitance	8,9,10	--	2.0	--	pF

**NOTES:**

1. Chrome Input Signal Voltage = 0 and normal Reference Input Signal Voltage = 1.0 Vp-p.
2. With normal Reference Input Signal Voltage, adjust Chrome Input Signal Voltage to 1.2 Vp-p.
3. With normal Reference Input Signal Voltage, adjust Chrome Input Signal Voltage until the Blue Output Voltage = 5.0 Vp-p.
4. With normal Reference Input Signal Voltage, adjust Chrome Input Signal Voltage until the Blue Output Voltage = 5.0 Vp-p. At this point, the Red and Green voltages will fall within the specified limits.

\*Symbols conform to JEDEC Engineering Bulletin No. 1 when applicable.



TEST CIRCUITS

( $V_{CC} = 24$  Vdc,  $R_L = 3.3$  kilohms,  $T_A = +25^\circ\text{C}$  unless otherwise noted)

FIGURE 2 – DC OUTPUT VOLTAGE TEST CIRCUIT WITH NORMAL REFERENCE INPUT VOLTAGE (B, R, AND G)

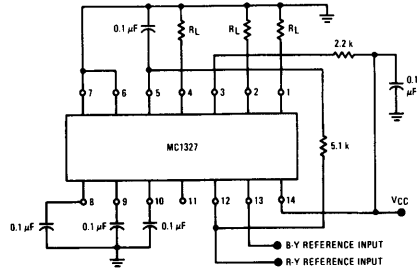
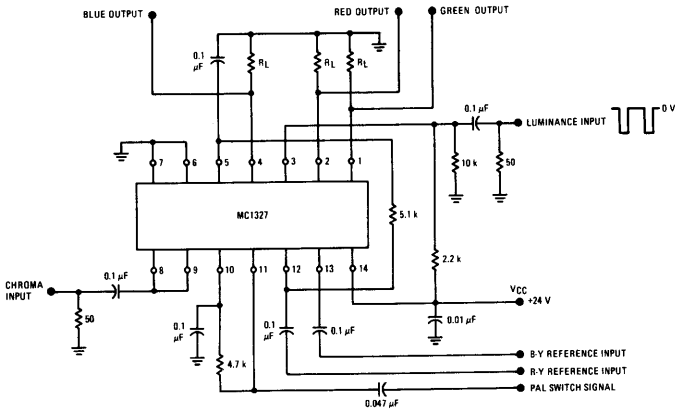


FIGURE 3 – DYNAMIC TEST CIRCUIT



OUTLINE DIMENSIONS

