MC3370P

ORDERING INFORMATION

Device	Temperature Range	Package
MC3370P	−10°C to +75°C	Plastic DIP

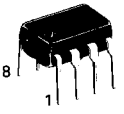
ZERO VOLTAGE SWITCH

. . . designed for use in ac power switching applications with output drive capable of triggering triacs. Other operational features include; (1) a built-in voltage regulator that allows direct ac line operation, (2) a differential input with dual sensor inputs capable of testing the condition of two external sensors and controlling the gate pulse to a triac accordingly; (hysteresis or proportional control to this section may be added if desired) (3) sensor input "open and short" protection; this insures that the triac will never be turned "on" if either of the inputs are shorted or opened (4) a zero crossing detector that synchronizes the triac gate pulses with the zero crossing of the ac line voltage. This eliminates radio frequency interference (RFI) when used with resistive loads.

- Heater Controls
- Photo Controls
- Threshold Detector
- Lamp Driver
- Valve Control
- On-Off Power Controls
- Relay Driver
- Flasher Control
- Formerly MFC8070 in Case 644A Package

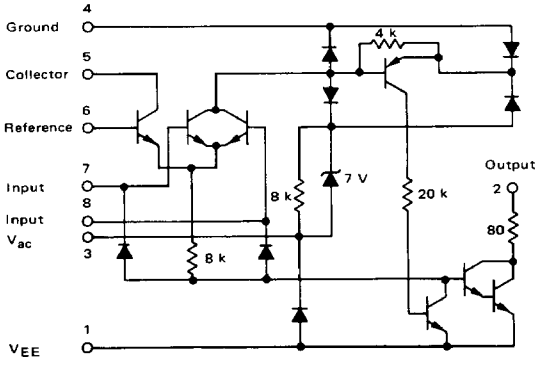
ZERO VOLTAGE SWITCH

SILICON MONOLITHIC FUNCTIONAL CIRCUIT



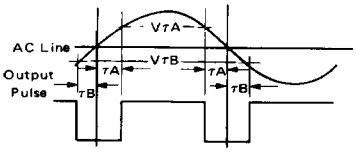
P SUFFIX
PLASTIC PACKAGE
CASE 626-04

FIGURE 1 – CIRCUIT SCHEMATIC



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FIGURE 2 – OUTPUT PULSE DEFINITION



MAXIMUM RATINGS (T_A = +25°C unless otherwise noted.)

Rating	Symbol	Value	Unit
DC Voltage	V_{5-8}	15	Vdc
DC Voltage	V_{4-8}	15	Vdc
DC Voltage	V_{7-8}	15	Vdc
Peak Supply Current	I_6	35	mA
Power Dissipation Derate above T_A = +25°C	P_D $1/R_{\theta JA}$	1.2 10	Watts mW/°C
Operating Ambient Temperature Range	T_A	-10 to +75	°C
Storage Temperature Range	T_{stg}	-55 to +150	°C

ELECTRICAL CHARACTERISTICS (T_A = +25°C unless otherwise noted.)

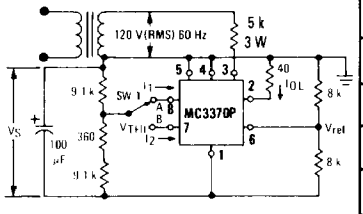
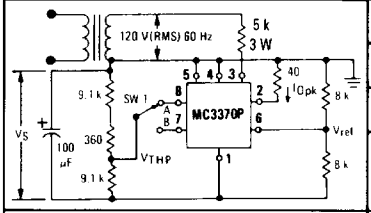
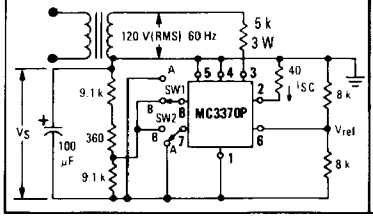
Characteristic Definitions	Characteristic	Symbol	Min	Typ	Max	Unit
	V_S with Inhibit Output (Sw 1: A or B)	V_{SIO}	-	9.0	11	Vdc
	Output Leakage Current (Sw 1: A or B)	I_{OL}	-	5.0	100	μA
	Input Current 1 (Sw 1: A)	I_1	-	5.0	15	μA
	Input Current 2 (Sw 1: B)	I_2	-	5.0	15	μA
	Inhibit Threshold Voltage (Sw 1: A or B)	V_{THI}	V_{ref} +100 mV	V_{ref} +10 mV	-	Vdc
	V_S with Pulse Output (Sw 1: A or B)	V_{SPO}	6.0	8.5		Vdc
	Peak Output Current (Sw 1: A or B)	I_{Opk}	50	80	-	mA
	Pulse Threshold Voltage (Sw 1: A or B)	V_{THP}		V_{ref} -10 mV	V_{ref} -100 mV	Vdc
	Output Pulse Width (Sw 1: A or B, See Figure 2)	τA, τB $V\tau A$, $V\tau B$	-	70 ±4.5	- -	μs V
	Output Current With Input Short (Sw 1: B; Sw 2: A) (Sw 1: A; Sw 2: B)	I_{SC}	- -	5.0 5.0	100 100	μA

FIGURE 3 — CIRCUIT WITH INCREASED PULSE WIDTH AND TRIAC DRIVER TO CONTROL HIGH-CURRENT SCR's

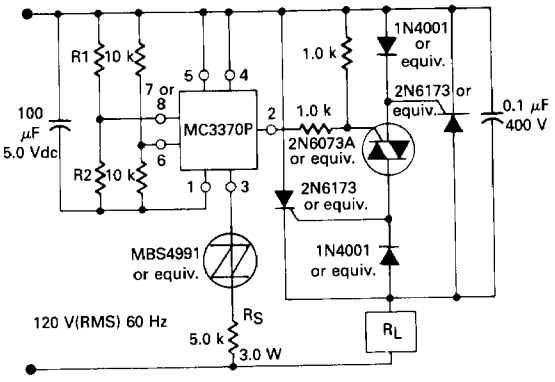


FIGURE 4 — OUTPUT PULSE WIDTH versus SOURCE RESISTANCE

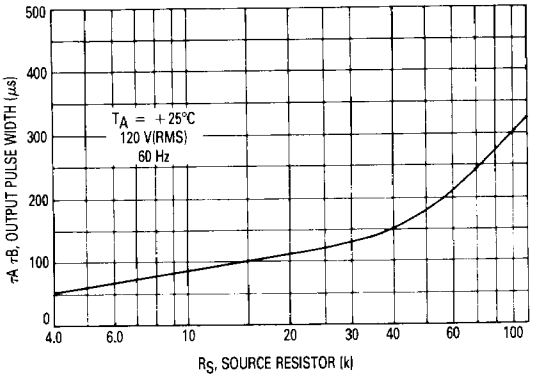
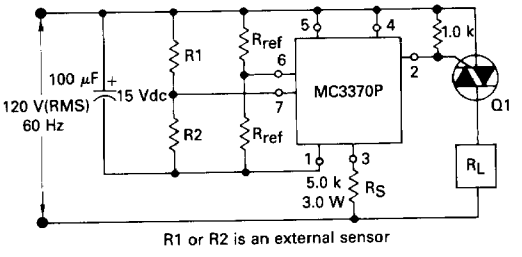
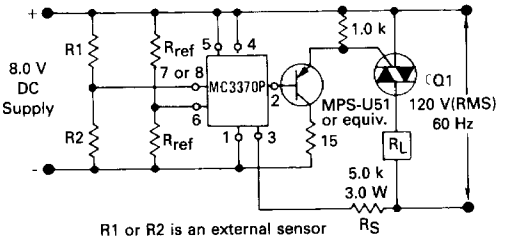


FIGURE 5 — TRIAC CONTROL CIRCUIT FOR GATE CURRENT 50 mA



R1 or R2 is an external sensor

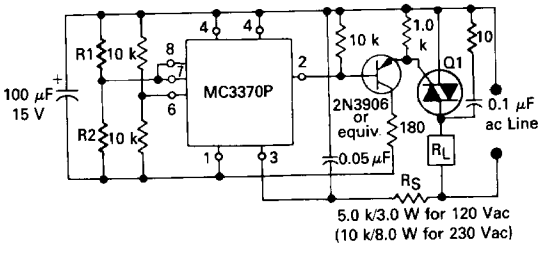
FIGURE 6 — TRIAC CONTROL CIRCUIT WITH CURRENT BOOST UTILIZING DC SUPPLY GATE CURRENT 0.5 A



R1 or R2 is an external sensor

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FIGURE 7 — TRIAC CONTROL CIRCUIT GATE CURRENT 0.1 A



5.0 k/3.0 W for 120 Vac
(10 k/8.0 W for 230 Vac)

Recommended Motorola traics (Q1)

Maximum Continuous Current (A [RMS])	Triac Family	Case No.
12	2N6346A Series	Case 221 (TO-220AB)
25	MAC223 Series	Case 221 (TO-220AB)
40	2N5441 Series	Case 310 (TO-203)