

**MC3423**  
**MC3523**

**OVERVOLTAGE "CROWBAR" SENSING CIRCUIT**

These overvoltage protection circuits (OVP) protect sensitive electronic circuitry from overvoltage transients or regulator failures when used in conjunction with an external "crowbar" SCR. They sense the overvoltage condition and quickly "crowbar" or short circuit the supply, forcing the supply into current limiting or opening the fuse or circuit breaker.

The protection voltage threshold is adjustable and the MC3423/3523 can be programmed for minimum duration of overvoltage condition before tripping, thus supplying noise immunity.

The MC3423/3523 is essentially a "two terminal" system, therefore it can be used with either positive or negative supplies.

**OVERVOLTAGE  
 SENSING CIRCUIT**

**SILICON MONOLITHIC  
 INTEGRATED CIRCUIT**



**P1 SUFFIX**  
 PLASTIC PACKAGE  
 CASE 626  
 (MC3423 only)



**U SUFFIX**  
 CERAMIC PACKAGE  
 CASE 693

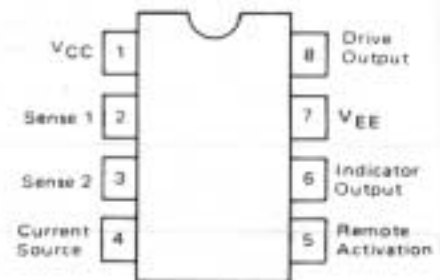


**D SUFFIX**  
 PLASTIC PACKAGE  
 CASE 751  
 (SOP-8)

**MAXIMUM RATINGS**

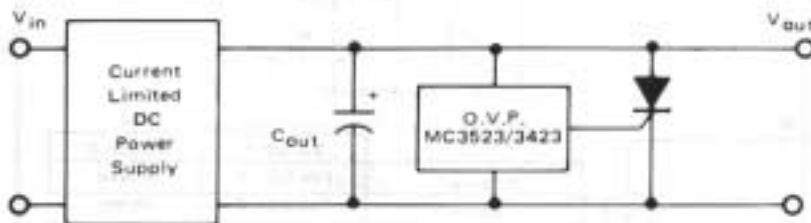
Rating	Symbol	Value	Unit
Differential Power Supply Voltage	$V_{CC-VEE}$	40	Vdc
Sense Voltage (1)	$V_{Sense 1}$	6.5	Vdc
Sense Voltage (2)	$V_{Sense 2}$	6.5	Vdc
Remote Activation Input Voltage	$V_{act}$	7.0	Vdc
Output Current	$I_O$	300	mA
Operating Ambient Temperature Range MC3423 MC3523	$T_A$	0 to +70 -55 to +125	$^{\circ}C$
Operating Junction Temperature Plastic Package Ceramic Package	$T_J$	125 150	$^{\circ}C$
Storage Temperature Range	$T_{stg}$	-65 to +150	$^{\circ}C$

**PIN CONNECTIONS**



(Top View)

**TYPICAL APPLICATION**



**ORDERING INFORMATION**

Device	Temperature Range	Package
MC3423D	0 to +70 $^{\circ}C$	SO-8
MC3423P1		Plastic DIP
MC3423U		Ceramic DIP
MC3523U	-55 to +125 $^{\circ}C$	Ceramic DIP

# MC3423, MC3523

## ELECTRICAL CHARACTERISTICS (5 V < V<sub>CC</sub> - V<sub>EE</sub> < 36 V, T<sub>low</sub> < T<sub>A</sub> < T<sub>high</sub> unless otherwise noted.)

Characteristic	Symbol	Min	Typ	Max	Unit
Supply Voltage Range	V <sub>CC</sub> -V <sub>EE</sub>	4.5	-	40	Vdc
Output Voltage (I <sub>O</sub> = 100 mA)	V <sub>O</sub>	V <sub>CC</sub> -2.2	V <sub>CC</sub> -1.8	-	Vdc
Indicator Output Voltage (I <sub>O</sub> (Ind) = 1.6 mA)	V <sub>OL</sub> (Ind)	-	0.1	0.4	Vdc
Sense Trip Voltage (T <sub>A</sub> = 25°C)	V <sub>Sense 1</sub> , V <sub>Sense 2</sub>	2.45	2.6	2.75	Vdc
Temperature Coefficient of V <sub>Sense 1</sub> (Figure 2)	TCV <sub>S1</sub>	-	0.06	-	%/°C
Remote Activation Input Current (V <sub>IH</sub> = 2.0 V, V <sub>CC</sub> -V <sub>EE</sub> = 5.0 V) (V <sub>IL</sub> = 0.8 V, V <sub>CC</sub> -V <sub>EE</sub> = 5.0 V)	I <sub>IH</sub> I <sub>IL</sub>	- -	5.0 -120	40 -180	μA
Source Current	I <sub>Source</sub>	0.1	0.2	0.3	mA
Output Current Risetime (T <sub>A</sub> = 25°C)	t <sub>r</sub>	-	400	-	mA/μs
Propagation Delay Time (T <sub>A</sub> = 25°C)	t <sub>pd</sub>	-	0.5	-	μs
Supply Current MC3423 MC3523	I <sub>O</sub>	- -	6.0 5.0	10 7.0	mA

T<sub>low</sub> = -55°C for MC3523  
= 0°C for MC3423

T<sub>high</sub> = +125°C for MC3523  
= +70°C for MC3423

FIGURE 1 - BLOCK DIAGRAM

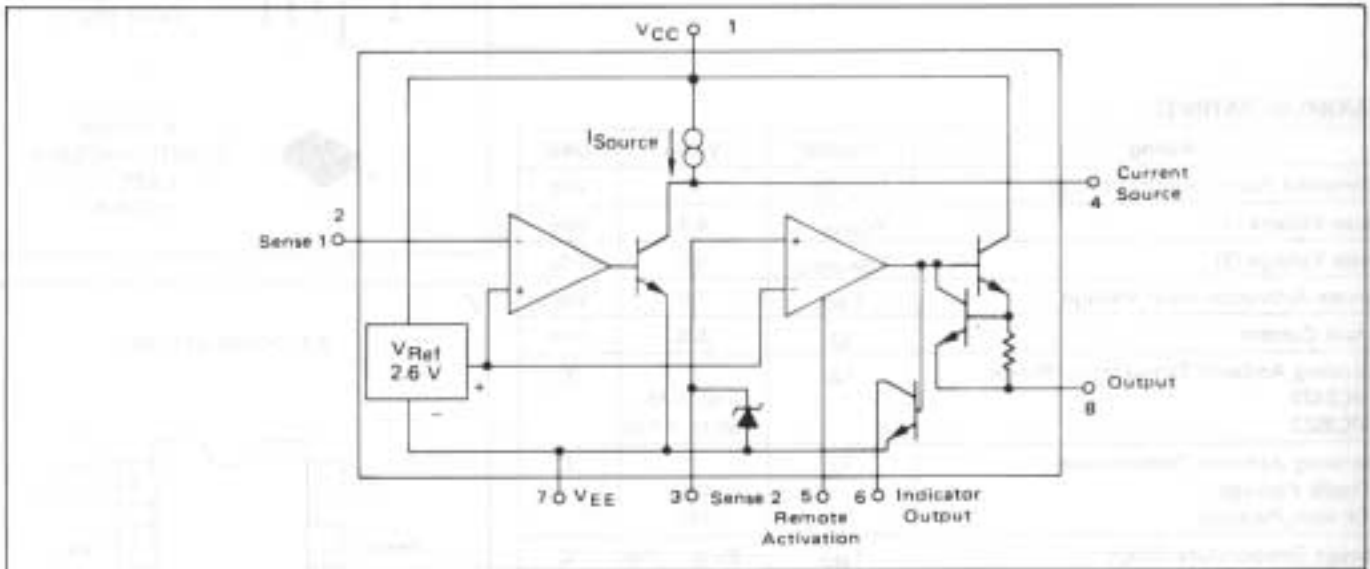
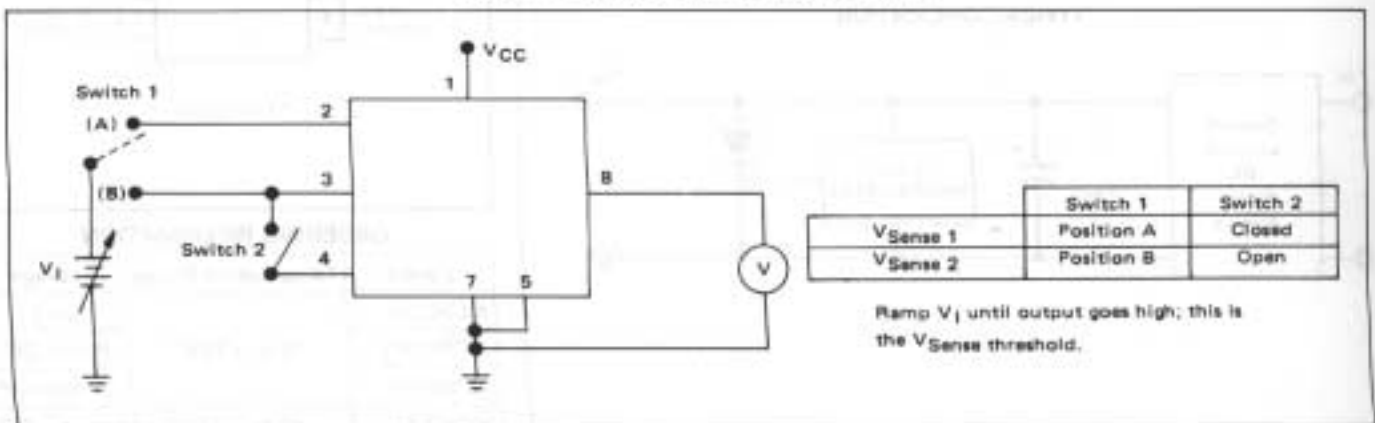


FIGURE 2 - SENSE VOLTAGE TEST CIRCUIT



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FIGURE 3 – BASIC CIRCUIT CONFIGURATION

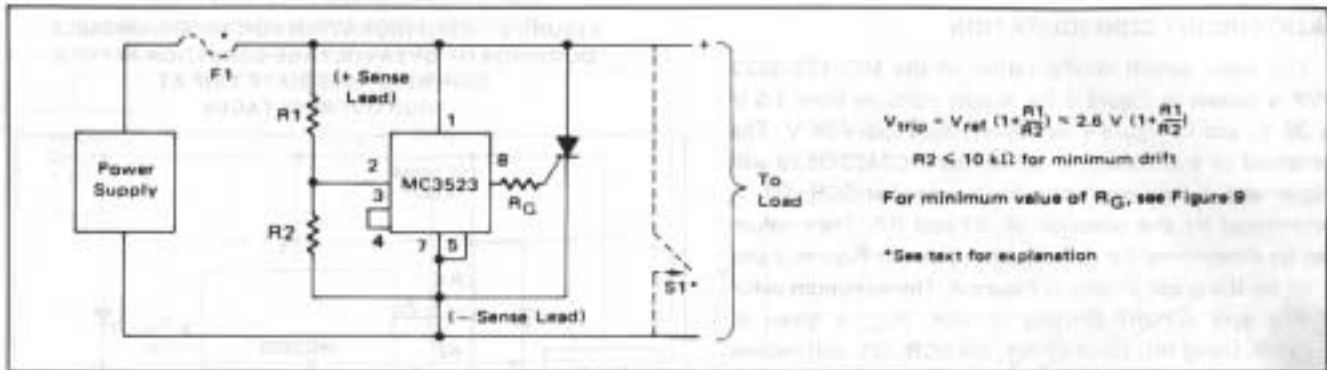


FIGURE 4 – CIRCUIT CONFIGURATION FOR SUPPLY VOLTAGE ABOVE 36 V

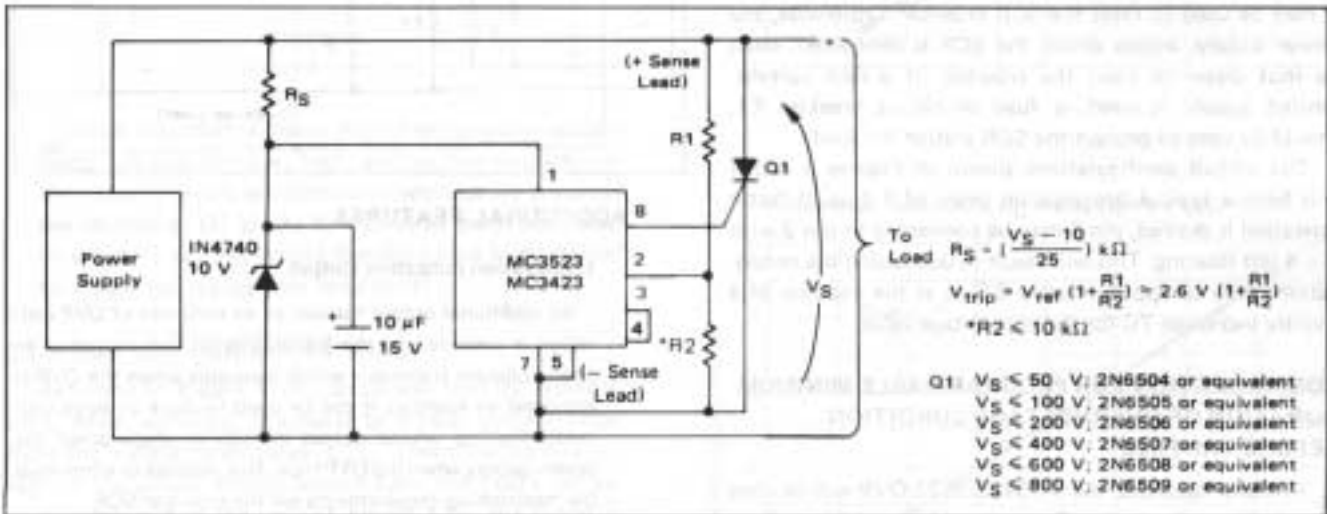


FIGURE 5 – BASIC CONFIGURATION FOR PROGRAMMABLE DURATION OF OVERVOLTAGE CONDITION BEFORE TRIP

