

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.

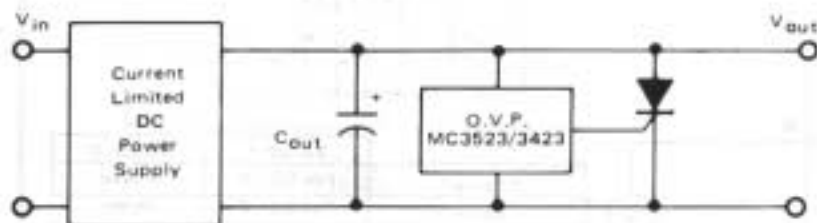
The protection voltage threshold is adjustable and the MC3423/3523 can be programmed for minimum duration of overvoltage condition before tripping, thus supplying noise immunity.

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

MAXIMUM RATINGS

Rating	Symbol	Value	Unit
Differential Power Supply Voltage	$V_{CC}-V_{EE}$	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	°C
Operating Junction Temperature Plastic Package Ceramic Package	T_J	125 150	°C
Storage Temperature Range	T_{stg}	-65 to +150	°C

TYPICAL APPLICATION



MC3423 MC3523

OVERVOLTAGE SENSING CIRCUIT

SILICON MONOLITHIC
INTEGRATED CIRCUIT



P1 SUFFIX
PLASTIC PACKAGE
CASE 626
(MC3423 only)

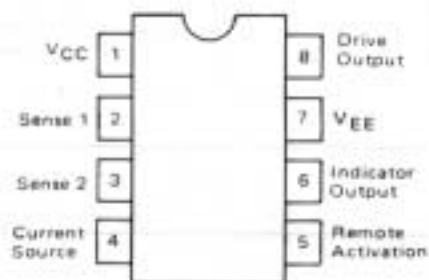


U SUFFIX
CERAMIC PACKAGE
CASE 693



D SUFFIX
PLASTIC PACKAGE
CASE 751
(SOP-8)

PIN CONNECTIONS



(Top View)

ORDERING INFORMATION

Device	Temperature Range	Package
MC3423D	0 to +70°C	SO-8
MC3423P1		Plastic DIP
MC3423U		Ceramic DIP
MC3523U	-55 to +125°C	Ceramic DIP

ELECTRICAL CHARACTERISTICS ($5\text{ V} < V_{CC} - V_{EE} \leq 36\text{ V}$, $T_{\text{low}} < T_A < T_{\text{high}}$ unless otherwise noted.)

Characteristic	Symbol	Min	Typ	Max	Unit
Supply Voltage Range	$V_{CC} - V_{EE}$	4.5	—	40	Vdc
Output Voltage ($I_O = 100\text{ mA}$)	V_O	$V_{CC} - 2.2$	$V_{CC} - 1.8$	—	Vdc
Indicator Output Voltage ($I_{O(\text{Ind})} = 1.6\text{ mA}$)	$V_{OL(\text{Ind})}$	—	0.1	0.4	Vdc
Sense Trip Voltage ($T_A = 25^\circ\text{C}$)	$V_{\text{Sense } 1}$, $V_{\text{Sense } 2}$	2.45	2.6	2.75	Vdc
Temperature Coefficient of $V_{\text{Sense } 1}$ (Figure 2)	TCV_{S1}	—	0.06	—	%/ $^\circ\text{C}$
Remote Activation Input Current ($V_{IH} = 2.0\text{ V}$, $V_{CC} - V_{EE} = 5.0\text{ V}$) ($V_{IL} = 0.8\text{ V}$, $V_{CC} - V_{EE} = 5.0\text{ V}$)	I_{IH} I_{IL}	— —	5.0 -120	40 -180	μA
Source Current	I_{Source}	0.1	0.2	0.3	mA
Output Current Risetime ($T_A = 25^\circ\text{C}$)	t_r	—	400	—	mA/ μs
Propagation Delay Time ($T_A = 25^\circ\text{C}$)	t_{pd}	—	0.5	—	μs
Supply Current MC3423 MC3523	I_O	— —	6.0 5.0	10 7.0	mA

$T_{\text{low}} = -55^\circ\text{C}$ for MC3523
 $= 0^\circ\text{C}$ for MC3423

$T_{\text{high}} = +125^\circ\text{C}$ for MC3523
 $= +70^\circ\text{C}$ for MC3423

FIGURE 1 – BLOCK DIAGRAM

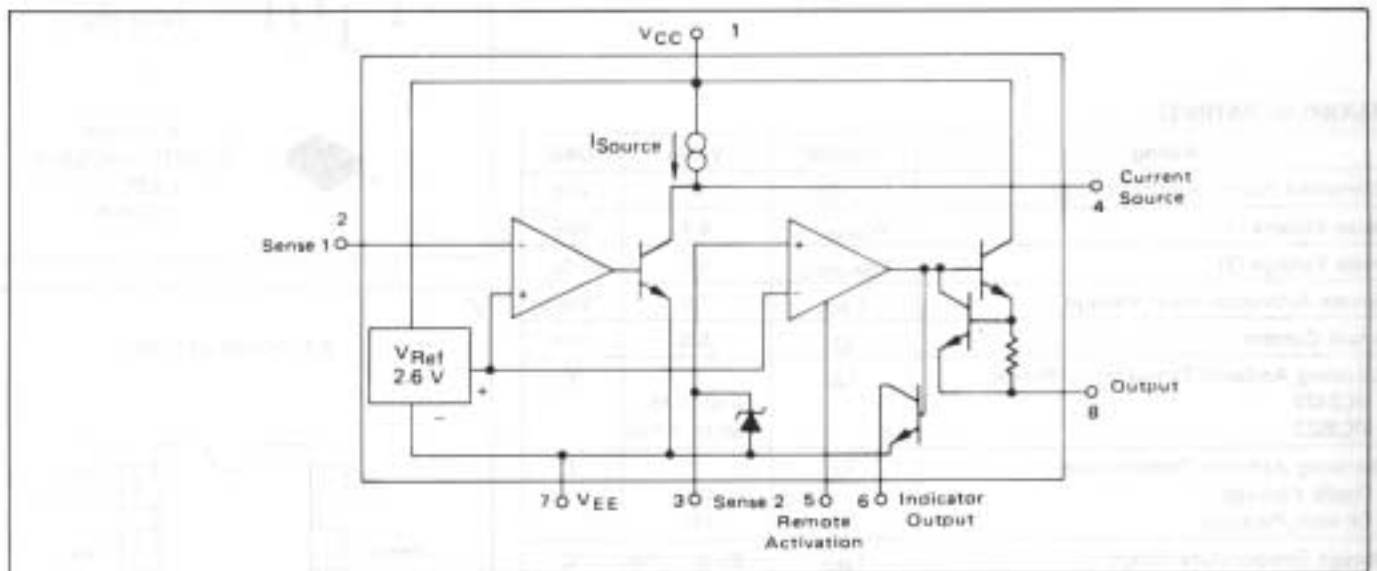
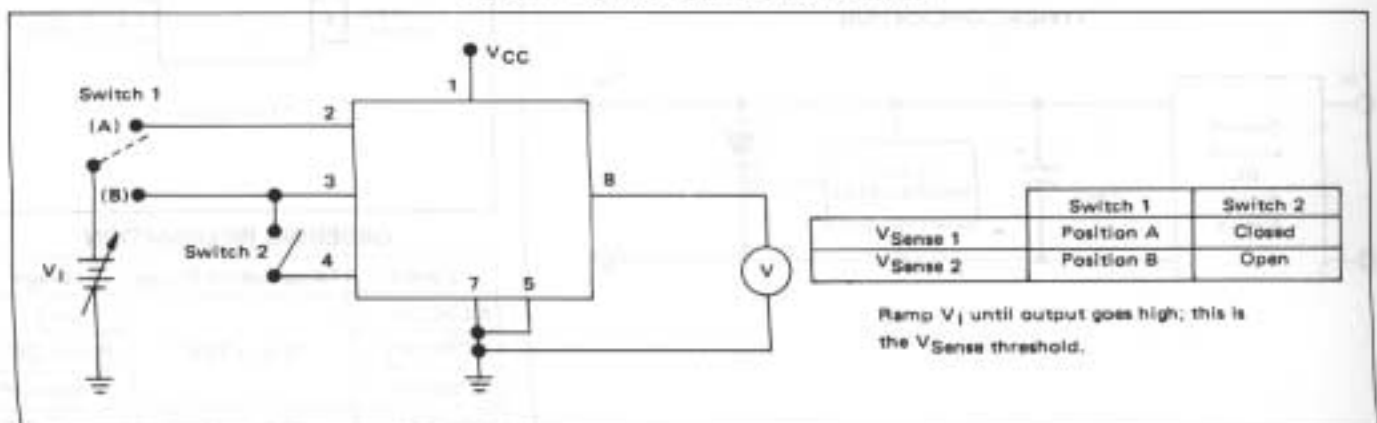


FIGURE 2 – SENSE VOLTAGE TEST CIRCUIT



MC3423, MC3523

FIGURE 3 – BASIC CIRCUIT CONFIGURATION

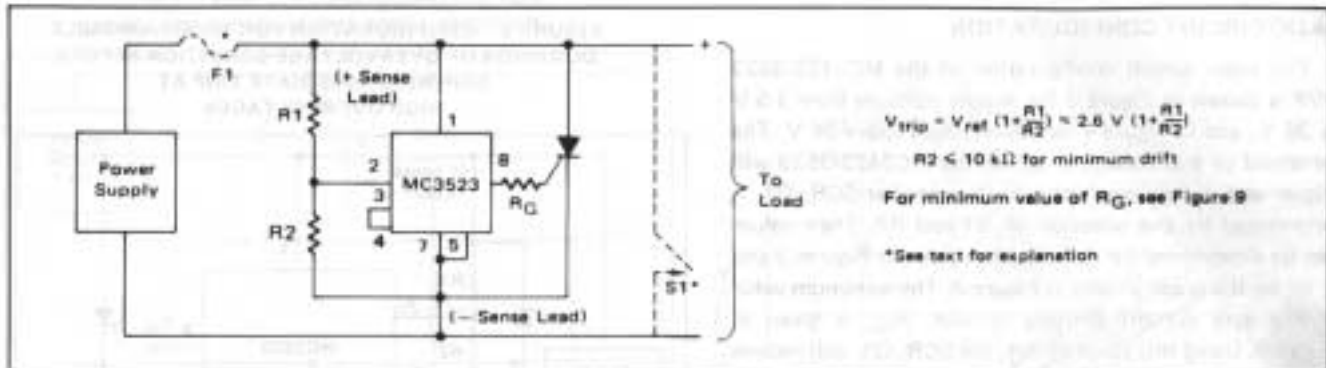


FIGURE 4 – CIRCUIT CONFIGURATION FOR SUPPLY VOLTAGE ABOVE 36 V

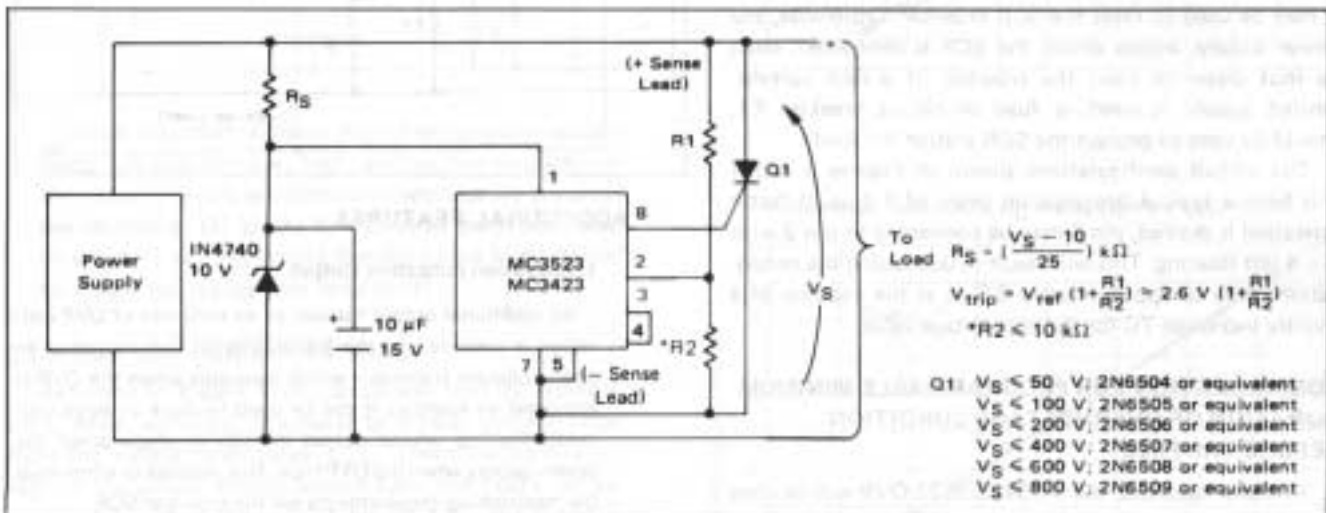


FIGURE 5 – BASIC CONFIGURATION FOR PROGRAMMABLE DURATION OF OVERVOLTAGE CONDITION BEFORE TRIP

