

MCC1723 MCC1723C

REGULATORS

Advance Information

MONOLITHIC VOLTAGE REGULATOR CHIP

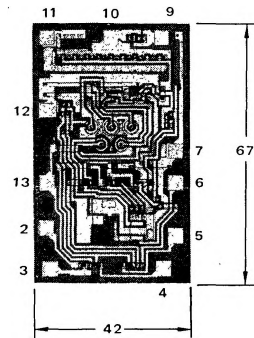
The MCC1723/MCC1723C is a positive or negative voltage regulator designed to deliver load current to 150 mAdc. Output current capability can be increased to several amperes through use of one or more external pass transistors.

The MCC1723 and MCC1723C employ phosphosilicate passivation that protects the entire die surface area, including metalization interconnects. All dice have a minimum gold-backed thickness of 4000 Angstroms. The interconnecting metalization and bonding pads are of evaporated aluminum.

- Output Voltage Adjustable from 2 Vdc to 37 Vdc
- Output Current to 150 mAdc Without External Pass Transistors
- 0.01% Line Regulation
- Adjustable Short-Circuit Protection

VOLTAGE REGULATOR CHIP

MONOLITHIC SILICON
EPITAXIAL PASSIVATED
INTEGRATED CIRCUIT



All dimensions are nominal and in mils (10^{-3} inches).
Die Dimensions
Thickness = 8.0
Bonding Pads = 4.0 x 4.0

FIGURE 1 - TYPICAL CIRCUIT CONNECTION

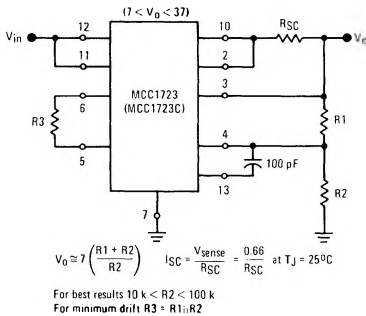
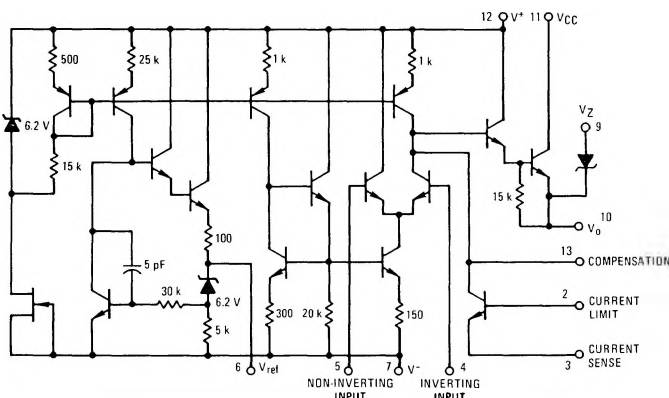


FIGURE 2 - CIRCUIT SCHEMATIC



MCC1723, MCC1723C (continued)

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

Rating	Symbol	Value	Unit
Pulse Voltage from V^+ to V^- (50 ms)	MCC1723 $V_{in(p)}$	50	V_{peak}
Continuous Voltage from V^+ to V^-	V_{in}	40	Vdc
Input-Output Voltage Differential	$V_{in}-V_o$	40	Vdc
Maximum Output Current	I_L	150	mAdc
Current from V_{ref}	I_{ref}	15	mAdc
Operating Temperature Range	T_A	-55 to +125	$^\circ\text{C}$
Junction Temperature Range	T_J	-65 to +150	$^\circ\text{C}$

ELECTRICAL CHARACTERISTICS (Unless otherwise noted: $T_A = +25^\circ\text{C}$, $V_{in} = 12\text{ Vdc}$, $V_o = 5\text{ Vdc}$, $I_L = 1\text{ mAdc}$, $R_{SC} = 0$, $C_1 = 100\text{ pF}$, $C_{ref} = 0$ and divider impedance as seen by the error amplifier $\leq 10\text{ k}\Omega$ connected as shown in Figure 1)

Characteristic	Symbol	MCC1723			MCC1723C			Unit
		Min	Typ	Max	Min	Typ	Max	
Input Voltage Range	V_{in}	9.5	—	40	9.5	—	40	Vdc
Output Voltage Range	V_o	2.0	—	37	2.0	—	37	Vdc
Input-Output Voltage Differential	$V_{in}-V_o$	3.0	—	38	3.0	—	38	Vdc
Reference Voltage	V_{ref}	6.95	7.15	7.35	6.80	7.15	7.50	Vdc
Standby Current Drain ($I_L = 0$, $V_{in} = 30\text{ V}$)	I_{sb}	—	2.3	3.5	—	2.3	4.0	mAdc
Output Noise Voltage ($f = 100\text{ Hz}$ to 10 kHz) $C_{ref} = 0$ $C_{ref} = 5.0\text{ }\mu\text{F}$	V_n	—	20	—	—	20	—	$\mu\text{V(rms)}$
Line Regulation ($12\text{ V} < V_{in} < 15\text{ V}$) ($12\text{ V} < V_{in} < 40\text{ V}$)	Reg_{in}	—	0.01	0.1	—	0.01	0.1	% V_o
Load Regulation ($1.0\text{ mA} < I_L < 50\text{ mA}$)	Reg_{load}	—	0.03	0.15	—	0.03	0.2	% V_o
Ripple Rejection ($f = 50\text{ Hz}$ to 10 kHz) $C_{ref} = 0$ $C_{ref} = 5.0\text{ }\mu\text{F}$	Rej_R	—	74	—	—	74	—	dB
Short Circuit Current Limit ($R_{SC} = 10\text{ }\Omega$, $V_o = 0$)	I_{SC}	—	65	—	—	65	—	mAdc

See current MC1723/1723C data sheet for additional information.

PACKAGING AND HANDLING

The MCC1723/MCC1723C voltage regulator is now available as a single monolithic die or encapsulated in the Motorola Case 603-03 hermetic package. The phosphorsilicate passivation protects the metalization and active area of the die but care must be exercised when removing the dice from the shipping carrier to avoid scratching the bonding pads. A vacuum pickup is useful for handling of dice. Tweezers are not recommended for this purpose.

The non-spill type shipping carrier consists of a compartmentalized tray and fitted cover. Die are placed in the carrier with geometry side up.