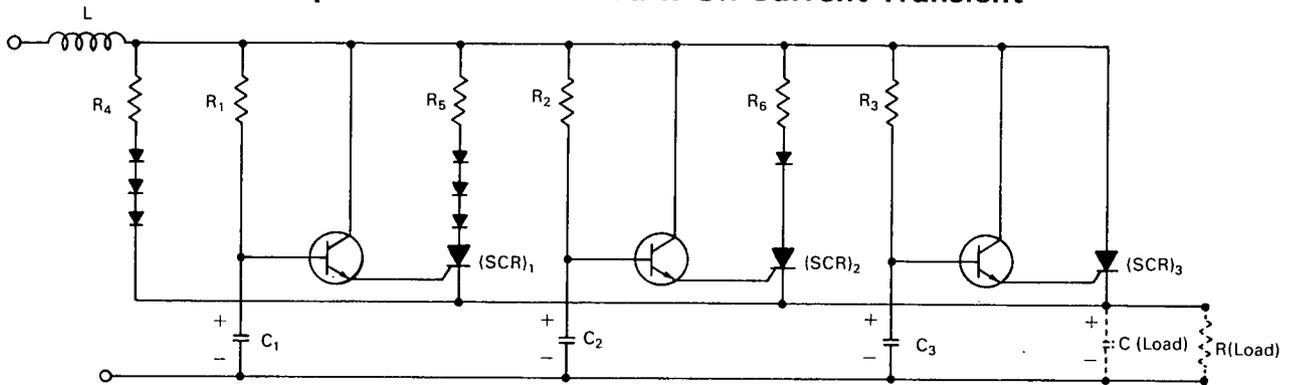


NASA TECH BRIEF



NASA Tech Briefs are issued to summarize specific innovations derived from the U.S. space program, to encourage their commercial application. Copies are available to the public at 15 cents each from the Clearinghouse for Federal Scientific and Technical Information, Springfield, Virginia 22151.

Improved Limiter for Turn-On Current Transient



This circuit limits the turn-on current transient to a specified amplitude and provides a low-impedance path between supply voltage and load after a prescribed time interval. The circuit offers a wide range of flexibility in adjusting peak current and time to complete connection to the load. It is more compact and lighter than a comparable limiter circuit which uses a large choke but which is still not effective where large load capacities are involved.

The new circuit automatically controls the initial peak current that can flow into a high-capacity load when voltage is applied. The load capacity is charged in four controllable steps. Peak current limiting is controlled by the values of resistors R_4 , R_5 , and R_6 . The time for completion of the cycle is automatically controlled by the selection of time constants R_1C_1 , R_2C_2 , and R_3C_3 . The small choke (L) offers a high impedance to small stray-capacity charging currents and short-duration voltage changes. When power is removed, the sequence of steps is automatically ready for the next power turn-on.

In one modification of the basic circuit, a relay that is switched on by $(SCR)_3$ is used to eliminate the unnecessary holding or gate current to $(SCR)_3$. In another modification a transistor increases the voltage across the relay coil and offers higher gain in the last stage than is obtainable with the first modification.

Note:

Complete technical details may be obtained from:
 Technology Utilization Officer
 Goddard Space Flight Center
 Greenbelt, Maryland 20771
 Reference: B68-10384

Patent status:

Inquiries about obtaining rights for the commercial use of this invention may be made to NASA, Code GP, Washington, D.C. 20546.

Source: F. C. Hallberg
 (GSC-10413)

Category 01