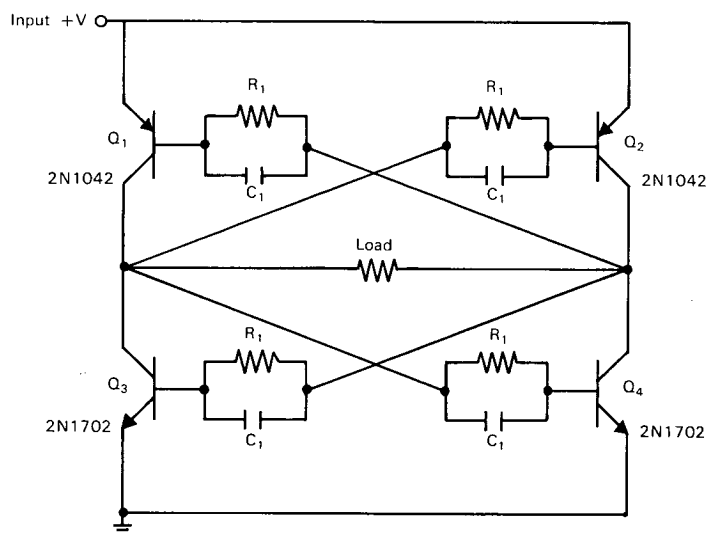


NASA TECH BRIEF



This NASA Tech Brief is issued by the Technology Utilization Division to acquaint industry with the technical content of an innovation derived from the NASA space program.

Highly Efficient Square-Wave Oscillator Operates at High Power Levels



The problem: To develop a compact square-wave oscillator that will operate with high efficiency at relatively high power levels.

The solution: A circuit containing only simple resistor-capacitor combinations and solid-state devices.

How it's done: The circuit is a symmetrical bridge with a transistor in each arm. The base of each transistor is connected to a parallel resistor-capacitor combination. Each combination is connected to the collector of the diagonally opposite transistor. The selection of transistors is the most important design consideration. A smooth, balanced operation is provided by using a matched pair of PNP transistors, Q_1 and Q_2 , and a matched pair of NPN transistors, Q_3 and Q_4 . In addition, these pairs should be complementary.

This oscillator circuit is simple and compact and operates with high efficiency at relatively high power levels. Since the circuit employs only simple resistor-capacitor combinations and solid-state devices, its performance and reliability should be excellent.

Note:

- For further information about this innovation inquiries may be directed to:
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 Reference: B63-10554

Patent status: NASA encourages commercial use of this innovation. No patent action is contemplated.

Source: Duke University under contract to Goddard Space Flight Center (GSFC-112)