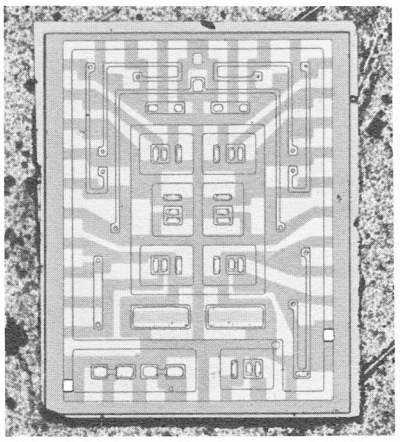
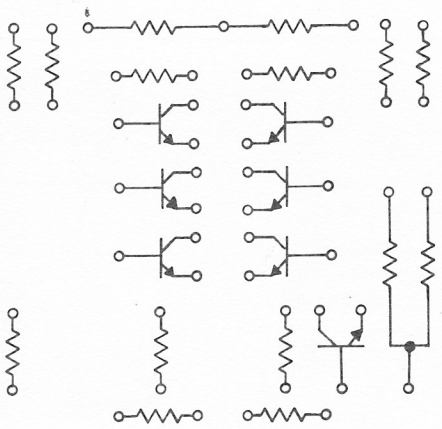
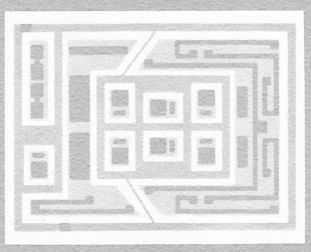
INTEGRAL CIRCUITRY

NM-3011, NM-3015







DATA SHEET IC105A/MAY '65
TENTATIVE SPECIFICATIONS

MASTER DICE BREADBOARDS

The NM-3011 and NM-3015 are single-crystal master dice breadboard chips containing all the elements of monolithic integrated microcircuits but lacking interconnecting patterns. Instead, the connections to the individual elements within the dice are brought out to bonding pads.

Thus, a designer can produce his own circuit by bonding interconnections, or by providing Norden with a schematic for the connections, thereby making possible a fast, economical method of proving feasibility of an integrated circuit design.

CHARACTERISTICS *

RESISTORS		TRANSISTORS	TYPICAL VALUES	
R_1, R_8	3900 Ω ± 20%, ± 5% Match	Q_1 to Q_7 — NPN TYPE	**NM-3011**	**NM-3015**
R_2, R_7	5000 Ω ± 20%, ± 5% Match	BV_{CIO} $I_C = 0.01$ ma, $I_B = I_E = 0$	80V	100V
R_3, R_6	5000 Ω ± 20%, ± 5% Match	BV_{CBO} $I_C = 0.01$ ma, $I_E = 0$	30V	60V
R_4, R_5	165 Ω ± 20%, ± 5% Match	BV_{EBO} $I_E = 0.01$ ma, $I_C = 0$	9V	9V
R_9	750 Ω ± 20%	V_{CEO} (Sust) $I_C = 10$ ma, $I_B = 0$	15V	30V
R_{10}, R_{11}	250 Ω ± 20%, ± 5% Match	V_{CER} (Sust) $I_C = 10$ ma, $R_{BE} \leqslant 10$ Ω	20V	50V
R_{12}, R_{13}	25 Ω to 40 Ω	BETA $I_C = 1$ ma, $V_{CE} = 5V$	40	80
R_{14}	1700 Ω ± 20%	V_{CE} (Sat) $I_C = 5$ ma, $I_B = 0.5$ ma	0.8V	0.3V
R_{15}	2700 Ω ± 20% TCR = +0.25%/°C	V_{BE} (Sat) $I_C = 5$ ma, $I_B = 0.5$ ma	0.8V	0.75V

*@ $T_A = 25°C$

EXPERIMENTAL I.F. AMPLIFIER

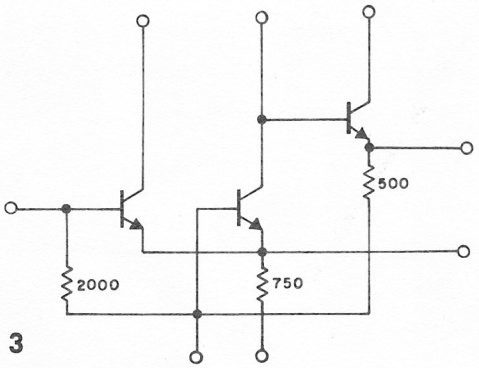
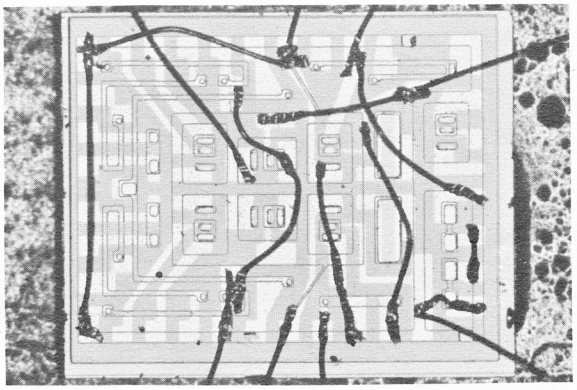


Fig. 3



MULTI-PURPOSE AMPLIFIER CIRCUIT

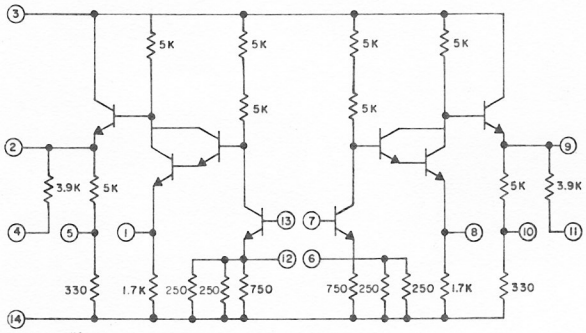
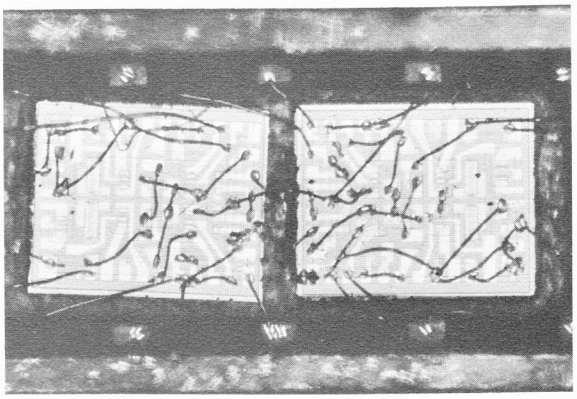


Fig. 4



GYRO CONTROL PRE-AMPLIFIER

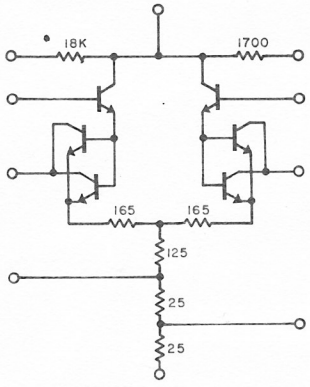
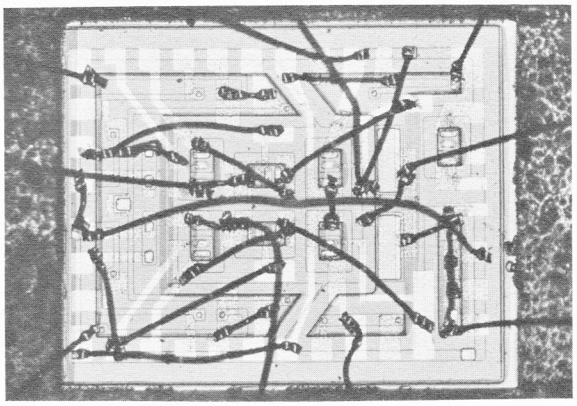


Fig. 5



Typical circuits breadboarded using the NM-3011 and NM-3015 are shown in figures 3, 4 & 5. Other circuits that have been successfully produced include 1-strobe and 2-strobe sense amplifiers, 2-stage differential amplifier, delay line read amplifier, voltage comparator, error amplifier, differential current amplifier, high-gain general purpose amplifier, low power audio amplifier, Schmitt trigger, high input impedance amplifier, filter amplifier, IF amplifier and several binary switching elements.

The NM-3011 is identical with the NM-3015 except for transistor parameters, as shown in the table on the front page. Either type can be supplied mounted on a 12-, 10-, or 8-lead TO-5 header, or in a flat pack. The dice themselves measure 0.065 by 0.085 inch. Unless otherwise specified, will be supplied on 12 pin header.

For complete information about Norden's line of INTEGRAL CIRCUITS including specifications and performance data — write or call your local Norden representative or Norden division of United Aircraft Corporation, Norwalk, Connecticut, area code 203 838-4471, TWX NWLK 21

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