#### **EVALUATION ENGINEERING**

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COMPILED BY PRODUCT RELIABILITY INFORMATION NO.  $_{119}$  DATE  $_{12-2-69}$ 

### FIELD EFFECT DIODES

CONTINENTAL DEVICE have expressed an interest in developing the market for field effect diodes. They feel that at present, high prices due to low volume are holding back this development. Prices as low as 50¢ might be possible if the volume market were there. To assist them in deciding whether to make the necessary investment, I would like to obtain information concerning characteristics and annual quantities for applications which would become attractive at lower price levels.

For further information, call me at Ext 7711.

-Tom Jennings

# DIGITAL INTEGRATED CIRCUIT SEMINAR

SIGNETICS CORPORATION will hold a seminar on integrated circuit M.S.I. (Medium-scale Integration) in the Technical Center Auditorium, Tuesday, December 9, 1969, from 8:30 a.m. to 11:30 a.m. The presentation is to be divided into half-hour sessions as follows:

- 1. TTL Design of M.S.I.
- 2. Counters and Shift Registers
- 3. Decoding, Gating and Steering Arrays
- 4. Current and Voltage Translators
- 5. Memory Systems
- 6. Question and Answer Period

The Signetics personnel making the presentation will be Mr. Bill Slaymaker, Manager of Applications, and Mr. Dez Johnson, Manager of Technical Training.

-Bill Markwart

## COMPLIMENTARY TRANSISTORS AND DUALS

We have recently picked up part numbers for several types of general purpose transistors that may be of general interest to design engineers.

151-0301-00 is 2N2907, PNP, TO - 18 Very similar to 151-0134-00 except for package.

151-0302-00 is 2N2222A, NPN, TO - 18 Very similar to 151-0103-00 except for package.

151-0307-00 is a dual version of 2N2907

151-0309-00 is a dual version of 2N2222

151-0287-00 complimentary dual, similar to 2N4854 one-half NPN, the other PNP.

The 151-0103-00 and 151-0134-00 specifications are being raised to 2N2219 and 2N2905 requirements. They were relaxed when these types were new and expensive, but now the relaxed specs are not justified.

As many of you already know, these devises are broadly spec'ed transistors with collector voltages of 40 volts, Beta specs from  $100\mu A$  to 500 mA,  $f_{\mbox{\scriptsize t}}$  of 200 MHz (250 for NPN's), low leakages, reasonable saturation voltages, and switching spec's.

With the inclusion of 151-0287-00, we now have this very useful family of complimentary devices in all of the standard packages except the TO - 18 dual which we do not use for bipolar transistors at TEKTRONIX.

For further information call me at Ext 7711.

-Ken Tomlin

### LOW NOISE DUAL

151-0308-00 is a low noise at low frequency version of our 151-0232-00 NPN dual. We have had several instances of 'noisy' batches of NPN duals in various instruments from time to time.

If you think you may need a low noise spec'ed device, try this one. The spec is 4 nanoVolts per root hertz, at 10 hertz, with a generator resistance of  $1 \text{K}\Omega$  and operating condition of  $V_{CE}$  = 2 volts and  $I_{C}$  = 6mA.

If you have any questions, call me at Ext 7711.

-Ken Tomlin