

TRANSISTOR STUDIES
ARCHIVES COLLECTION #19

Transistor Studies
Lincoln Laboratory
Division VI

Archives Collection No. 19

Donor: Division VI Document Room
Restriction: MITRE Personnel

Contract: AF 19(122)-458, Project 6889

Collection Dates: October 1951 - August 1958

In an effort to provide a faster and more reliable computer for the air defense system,¹ Lincoln's Group 62 established the Transistor Section. This Section was charged with the responsibility of studying the transistor as a possible component in the Whirlwind II System and of evaluating the performance in terms of maximum reliability with the maximum possible speed obtainable.

In 1955, Lincoln's Group 63 designed and constructed the TX-0 computer² to demonstrate a computer using high-speed transistor circuitry and to gain operating experience with transistor systems which communicated with core memory and terminal systems.

AC #19 contains 113 items, and is arranged in chronological order.

The contents of this collection are Unclassified.

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1. Archives Collection No. 18 - "Air Defense Computer Program"
 2. Archives Collection No. 31 - "TX-0 And TX-2 Computer"

April 1965

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ARCHIVES INVENTORY

SUBJECT	IDENTIFICATION	DATE	TITLE	AUTHOR	CLS.	COPY NO.
October 1951	M-1300	13 Oct 51	Trip To Bell Laboratories, Whippany	D.R. Brown	U	
November 1951	E-435	23 Nov 51	Study Of A Transistor Blocking Oscillator	D.R. Brown J.F. Jacobs N.T. Jones	U	
January 1952	E-441	3 Jan 52	Standardized Transistor Parameter Measurements	J.F. Jacobs N.T. Jones	U	
February 1952	E-447	5 Feb 52	Transistor Parameter Variations	J.F. Jacobs N.T. Jones	U	
	E-448	5 Feb 52	Variation Of Transistor Collector Resistance Due To Self Heating	N.T. Jones J.F. Jacobs	U	
	M-1404	20 Feb 52	Transistor Group Experimental Procedures	N.T. Jones	U	
	M-1406	21 Feb 52	General Notes On Negative Resistance Transistor Circuits	J.F. Jacobs N.T. Jones	U	
March 1952	E-451	3 Mar 52	Variation Of Transistor Collector Resistance With Collector Voltage	N.T. Jones R.J. Callahan	U	
	M-1430	20 Mar 52	Emitter And Base Triggering Of A Single Transistor, Base-Stabilized Flip-Flop	A.W. Heineck W.A. Klein	U	
	M-1433	25 Mar 52	A Positive Or Negative Regenerative Transistor Pulse Amplifier	A.W. Heineck	U	
April 1952	M-1442	3 Apr 52	Linearized Characteristics Of A Base Fed, Grounded Emitter Transistor	J.F. Jacobs W.A. Klein	U	
	M-1459	15 Apr 52	Preliminary Design Of Transistor Test Accumulator And A-Register	D.J. Eckl	U	

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SUBJECT	IDENTIFICATION	DATE	TITLE	AUTHOR	CLS.	COPY NO.
	E-455	17 Apr 52	Measurement Of Collector Current Rise And Fall Times In Transistor	N.T. Jones	U	
	E-455 S#1	23 Mar 53	Change In Standard Transistor Collector Current Rise And Fall Time Measurement	N.T. Jones	U	
	E-461	24 Apr 52	A High-Speed Two-Transistor Flip-Flop	J.F. Jacobs R.J. Callahan	U	
May 1952	M-1478	6 May 52	Transistor Circuits As Realizations Of Boolean Functions	J.F. Jacobs W.A. Klein	U	
	M-1480	7 May 52	A Transistor "AND" Gate	R.J. Callahan	U	
June 1952	E-441-1	10 Jun 52	Standardized Transistor Parameter Measurements	N.T. Jones	U	
	E-463	24 Jun 52	Introduction To The Theory Of Semiconductors I, Some Remarks On Quantum Mechanics	D.J. Eckl	U	
	M-1540	26 Jun 52	Notes On The Specifications Of The RCA TA 165	J.F. Jacobs	U	
July 1952	M-1555	9 Jul 52	A Three Megacycle Transistor Flip-Flop	A.W. Heineck	U	
	E-468	28 Jul 52	Introduction To The Theory Of Semiconductors II, A Brief Discussion Of Statistical Mechanics	D.J. Eckl	U	
August 1952	M-1610	11 Aug 52	Evaluation Of Sample French Westcresl Transistors	N.T. Jones	U	
	M-1607	14 Aug 52	Raytheon Tour Conducted By George Freedman, Herb Stack	J. Woolf	U	
	M-1620	21 Aug 52	Interpretation Of Transistor Data Cards	N.T. Jones	U	

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SUBJECT	IDENTIFICATION	DATE	TITLE	AUTHOR	CLS.	COPY NO.
September 1952	E-474	28 Aug 52	Introduction To The Theory Of Semiconductors III, Conduction In Metals; The Field-Free Case	D.J. Eckl	U	
	M-1540-1	15 Sep 52	Notes On The Specifications Of The RCA TA-165	J.F. Jacobs	U	
	E-480	17 Sep 52	Experience With General Electric G11A Transistors	J.F. Jacobs	U	
October 1952	E-483	17 Sep 52	Results Of Transistor Thermal Experiments	R. Schmidt	U	
	E-485	1 Oct 52	Transistor Test Equipment	I. Aronson	U	
	E-485 S#1	14 Oct 53	Transistor Test Equipment	E.U. Cohler	U	
	E-485 S#2	4 May 54	Transistor Test Equipment	E.U. Cohler	U	
	M-1662	10 Oct 52	Analysis Of The Transistor Equivalent Circuit	W.A. Klein	U	
November 1952	E-492	22 Oct 52	Introduction To The Theory Of Semiconductors IV, Quantum States In Crystals - The Bound Electron Case	D.J. Eckl	U	
	M-1686	22 Oct 52	Western Electric Gold-Bonded Diodes, Models A-1764, A-1815, A-1816	I. Aronson	U	
	E-541	28 Nov 52	Transistor Collector Characteristic Curve Plotter	I. Aronson L. Riley D.J. Eckl	U	
December 1952	E-511	4 Dec 52	The Four-Digit Transistor Accumulator	D.J. Eckl R.J. Callahan	U	

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	M-1759	17 Dec 52	Single-Transistor Circulating Pulse Circuit	R.H. Gerhardt	U	
January 1953	M-1800	20 Jan 53	Tentative Transistor Specifications	N.T. Jones	U	
	E-517	21 Jan 53	A Transistor Pulse Standardizer	E.U. Cohler	U	
	E-507	28 Jan 53	Triggering Requirements For A Single Transistor Flip-Flop	N. Pribble	U	
February 1953	M-1819	3 Feb 53	Revised Control System For Transistor Accumulator	D.J. Eckl	U	
	M-1838	11 Feb 53	Specifications For The M-1734 Transistor	B.G. Farley D.J. Eckl	U	
	E-525	17 Feb 53	Normalized Flip-Flop Chart	H.W. Boyd	U	
	E-526	24 Feb 53	High-Speed (5965) Flip-Flop	H.W. Boyd	U	
	M-1862	24 Feb 53	High-Speed Flip-Flop Cathode Followers	H.W. Boyd	U	
March 1953	M-1895	10 Mar 53	The Effects Of Variations In Transistor And Circuit Parameters On A Typical Emitter N-Curve	R.J. Callahan D.J. Eckl	U	
April 1953	E-556	24 Apr 53	A Study Of A Two Transistor Flip-Flop	E.U. Cohler	U	
July 1953	E-550	9 Jul 53	Open-Circuit Impedance Representation Of Transistors	N.T. Jones	U	
	E-557	9 Jul 53	The Design Of A Two Transistor Saturating Flip-Flop	E.U. Cohler	U	
	M-2325	28 Jul 53	Results Of Transistor Life Tests; June 1952 To April 1953	D.J. Eckl	U	

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SUBJECT	IDENTIFICATION	DATE	TITLE	AUTHOR	CLS.	COPY NO.
September 1953	M-2426	22 Sep 53	Regenerative Transistor Magnetic Core Drivers	S. Oken	U	
October 1953	M-2450	8 Oct 53	A 2 ⁵ Counter Employing Transistors	E.U. Cohler	U	
November 1953	M-2501	5 Nov 53	Trip To Bell Laboratories, Whippany, October 28, 1953	D.J. Eckl	U	
	M-2512	12 Nov 53	Average RCA And Bell Transistor Characteristics	N.T. Jones	U	
December 1953	M-2562	14 Dec 53	Introduction To The Theory Of Semiconductors V; Properties Of Semiconductors	D.J. Eckl	U	
January 1954	M-2616	13 Jan 54	The General Electric GLLA Point-Contact Transistor	D.J. Eckl	U	
	M-2628	25 Jan 54	Introduction To The Theory Of Semiconductors VI, Properties Of Holes And Electrons	D.J. Eckl	U	
March 1954	M-2690	4 Mar 54	A Transistor Gate Using External Regeneration	C.T. Kirk	U	
	M-2686	11 Mar 54	Steady State Conditions Of A Junction Transistor Flip-Flop	E.U. Cohler	U	
	M-2721	15 Mar 54	The RCA TA-165 And TA-165K Point-Contact Transistors	D.J. Eckl	U	
	M-2764	20 Mar 54	Junction-Transistor Magnetic Core Drivers	S. Oken	U	
May 1954	M-2810	7 May 54	A Transistor Grounded-Base Amplifier As An "AND" Gate	C.T. Kirk	U	

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SUBJECT	IDENTIFICATION	DATE	TITLE	AUTHOR	CLS.	COPY NO.
July 1954	M-2818	10 May 54	Transistor Products 2C And 2F Point-Contact Transistors	D.J. Eckl	U	
	M-2968	1 Jul 54	General Characteristics Of Germanium And Silicon Diodes And Transistors	N.T. Jones	U	
	M-2890	6 Jul 54	Transistor Switching Circuitry For High-Speed Digital Computers	E.U. Cohler	U	
August 1954	M-2948	30 Jul 54	Logical Networks, III - A Logical Network Algebra	R.C. Jeffrey	U	
	M-2961	3 Aug 54	A Carry System Employing A Magnetic Core And Transistors	S. Oken	U	
	M-2998	19 Aug 54	Triggering A Model C Flip-Flop From D.C. Level Changes	E. Anfenger	U	
September 1954	M-3029	9 Sep 54	Transistor Flip-Flops For High-Speed Digital Computer Applications	E.U. Cohler	U	
	6M-3079	22 Sep 54	Operating Instructions For Transistor Characteristics Plotter	E.U. Cohler D.J. Eckl	U	
October 1954	6M-3083	6 Oct 54	Algebraic Synthesis Of Logical Feedback Nets	R.C. Jeffrey	U	
November 1954	6M-2689	30 Nov 54	Reverse Recovery Measurements Of Diodes	N.T. Jones	U	
December 1954	6M-3141	1 Dec 54	Triggering Characteristics Of Transistor Flip-Flops	E.U. Cohler	U	
January 1955	6M-3316	21 Jan 55	Transistor Circuits For Driving Coincident Current Memories	K.H. Olsen	U	

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SUBJECT	IDENTIFICATION	DATE	TITLE	AUTHOR	CLS.	COPY NO.
February 1955	Report	Feb 55	Surface-Barrier Transistors For Digital Computers (First Monthly Progress Report Period Covered: 15 January To 25 February 1955) (#H2034)	Philco Corp.	U	
March 1955	Report	Mar 55	Surface-Barrier Transistors For Digital Computers (Second Monthly Progress Report Period Covered: 26 February To 25 March 1955) (#H2034)	Philco Corp.	U	
April 1955	Report	Apr 55	Surface-Barrier Transistors For Digital Computers (Third Monthly Progress Report Period Covered: 26 March To 25 April 1955) (#H2034)	Philco Corp.	U	
May 1955	Report	May 55	Surface-Barrier Transistors For Digital Computers (Fourth Monthly Progress Report Period Covered: 26 April To 25 May 1955) (#H2034)	Philco Corp.	U	
	6M-3649	31 May 55	Typical SBT Static Characteristics	E.U. Cohler	U	
	6M-3650	31 May 55	Philco Transistor Subcontract	D.R. Brown	U	
June 1955	6M-3710	17 Jun 55	Surface-Barrier Transistor Pulse Generator	M.E. Petersen	U	
July 1955	6M-3738	6 Jul 55	Extension Of Subcontract No. 49	D.R. Brown	U	
	6M-3770	20 Jul 55	Transistor Circuits Course Number 1 - Introduction	D.J. Eckl	U	
	Report	Jul 55	Surface-Barrier Transistors For Digital Computers (Fifth Monthly Progress Report Period Covered: 26 May To 15 July 1955) (#H2034)	Philco Corp.	U	

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SUBJECT	IDENTIFICATION	DATE	TITLE	AUTHOR	CLS.	COPY NO.
August 1955	6M-3796	1 Aug 55	Transistor Circuits Course Number 2 - Equivalent Circuits Of Transistors	D.J. Eckl	U	
	6M-3800	4 Aug 55	Transistor Circuits Course Number 3 - Characteristic Curves	D.J. Eckl	U	
	6M-3830	12 Aug 55	Positive Bias As Applied To Surface- Barrier Transistor Switching Circuits	K.H. Konkle E.U. Cohler	U	
	6M-3815	19 Aug 55	Transistor Circuits Course Number 4 - Transistor Amplifiers	D.J. Eckl	U	
September 1955	6M-3856	7 Sep 55	Pulse Transformer Amplifiers	M.M. Cerier	U	
	6M-3888	27 Sep 55	SBT Hole Storage - 1	C.T. Kirk	U	
December 1955	6M-4035	2 Dec 55	Transistor Circuits Course Number 5 - Thermal Stability Of Transistors	D.J. Eckl	U	
	6M-4110	14 Dec 55	Surface-Barrier Transistor Life Tests	D.J. Eckl R.L. Burke	U	
	6M-4062	19 Dec 55	Design And Static Analysis Of Emitter - Follower Inverter Combination	T.H. Meisling	U	
April 1956	6M-4303	23 Apr 56	Parameters Of The GE 2N 136 PNP Alloyed Junction Transistor	G.A. Davidson	U	
May 1956	6M-4329	16 May 56	Some Characteristics Of The Western Electric GA 52830 (M-2012) Medium Power Transistor	G.A. Davidson	U	
	6M-4329 SI	16 May 56	Some Characteristics Of The Western Electric GA 52830 (M-2012) Medium Power Transistor	G.A. Davidson	U	

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SUBJECT	IDENTIFICATION	DATE	TITLE	AUTHOR	CLS.	COPY NO.
September 1956	6M-4581	28 Sep 56	Some Notes On The Theory And Design Of Alloy Junction Transistors For Switching Purpose	C.T. Kirk	U	
	6M-4581 SI	21 Aug 57	Some Notes On The Theory And Design Of Alloy Junction Transistors For Switching Purpose	C.T. Kirk	U	
November 1956	6M-4785	15 Nov 56	A Transistorized Sensing Amplifier For The 256 X 256 Core Memory	S. Bradspies	U	
January 1957	6M-4870	17 Jan 57	On The Behavior Of Junction Transistors In Switching Circuits	C.T. Kirk	U	
February 1957	6M-4913	21 Feb 57	Transient Response Of Junction Transistors - I	R.C. Johnston	U	
	6M-4913 SI	19 Jun 57	Transient Response Of Junction Transistors - II	R.C. Johnston	U	
March 1957	6M-4955	19 Mar 57	Parameter Distributions For The Philco L-5122 Surface-Barrier Transistor	D.J. Eckl	U	
August 1957	6M-4521	21 Aug 57	A Laplace Transform Analysis Of Pulse Beta	R.C. Johnston	U	
	6M-4521 SI	12 Sep 57	A Laplace Transform Analysis Of Pulse Beta	R.C. Johnston	U	
	6M-5187	26 Aug 57	Fundamental Processes Governing Hole-Storage Phenomena In Junction Transistors	C.T. Kirk	U	
	6M-5193	28 Aug 57	Inverters And Flip-Flops Using L-5134 Transistors	J.W. Langford	U	

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SUBJECT	IDENTIFICATION	DATE	TITLE	AUTHOR	CLS.	COPY NO.
	6M-5191	30 Aug 57	An Evolutionary Study Of The Theory And Design Of The L-5134 Switching Transistor--Past And Future	C.T. Kirk	U	
September 1957	6M-5216	12 Sep 57	A Transistorized Variable Delay Unit	L. Kleinrock	U	
	6M-5216 S1	20 Jan 58	A Transistorized Variable Delay Unit	J.R. Fadiman	U	
July 1958	6M-5809	25 Jul 58	Calibration Of A High-Frequency f_T Test	R.C. Johnston	U	
August 1958	6M-5856	29 Aug 58	Some Applications Of 2N501 Transistors To Switching Circuits	J.W. Langford	U	