

## RCA Industry Service Laboratory Bulletins

1955

### *Engineering Bulletins*

- LB-966 The Variation of Current Gain with Junction Shape and Surface Recombination in Alloy Transistors
- LB-967 Large-Area High-Current Photoconductive Cells Using Cadmium Sulfide Powder
- LB-968 Selectivity and Transient Response Synthesis
- LB-970 A New Method for Magnifying Electron Beam Images
- LB-971 Methods for Revealing p-n Junctions and Inhomogeneities in Germanium Crystals
- LB-972 Unusual Assembly Methods Used in Developing a New Thyatron
- LB-973 Technique for Fabricating Small Cylindrical Grids of Novel Design for Use in Pencil Tubes
- LB-974 Transistorized Sync Separator Circuits for Television Receivers
- LB-975 Class B Operation of Audio-Frequency Junction Transistors
- LB-976 An Immittance Chart
- LB-978 An Experimental High-Speed Photo-Resist Technique for Printed Circuits
- LB-979 Temperature Effects in Circuits Using Junction Transistors
- LB-980 Frequency Characteristics of Local Oscillators
- LB-981 Electromechanical Filters for 100kc Carrier and Sideband Selection
- LB-982 The Model 21CT662U RCA 21-Inch Color TV Receiver
- LB-983 Electrical Characteristics of Electrofax Coatings on Metallic and Paper Supports
- LB-984 Bias and Drive Considerations for Three-Gun Color Kinescopes
- LB-985 Transistor Fabrication by the Melt-Quench Process
- LB-986 A Test Set for Transistor Performance Measurements at 455Kc
- LB-988 Alloyed Junction Type n-p-n Germanium-Silicon Transistors
- LB-989 Performance of a Radio-Frequency Alloy Junction Transistor in Different Circuits
- LB-990 Uniform Planar Alloy Junctions for Germanium Transistors
- LB-991 Surface Treatment of Silicon for Low Recombination Velocity
- LB-992 Grounded-Green-Grid Kinescope Adding System

- LB-993 A Noise-Clipping AGC Circuit for High-Gain Video Amplifiers
- LB-994 A Synchronous Color Killer and Balanced Phase Detector
- LB-995 A Parabolic Tubeless Convergence Circuit for the RCA 21-Inch Color Kinescope
- LB-996 A High-Gain Video-Amplifier Peaking Circuit
- LB-997 High-Level Triode Demodulator Design Considerations
- LB-998 Color Television IF Amplifiers
- LB-999 A DC Stabilized Color Difference Amplifier
- LB-1000 A Low-Cost Sound Detector for Television Receivers
- LB-1001 Peak Brightness Considerations in Color Television Receivers
- LB-1002 Improvement in Color Kinescopes
- LB-1003 Experimental High-Transconductance Gun for Cathode-Ray Tubes
- LB-1004 Miniature Loudspeakers for Personal Radio Receivers
- LB-1005 A Variable-Capacitance Germanium Junction Diode for UHF
- LB-1006 "Electrofax" – A New Tool for the Graphic Arts
- LB-1008 Cross Modulation in Transistor RF Amplifiers
- LB-1009 A Double-Corona Charging Unit and Its Utilization In The Electrofax Process
- LB-1010 Recent Advances in Power-Junction Transistors
- LB-1011 A Hermetic Enclosure for Power Transistors
- LB-1012 A 20-Watt Transistor Audio Amplifier
- LB-1013 High Emitter Efficiency Alloy Materials for P-N-P Transistors
- LB-1014 Stability Considerations in Transistor IF Amplifiers
- LB-1015 A Method for Salvaging Components of Brazed Assemblies
- LB-1016 Junction Transistor Designed for Iterative Operation at Low Frequencies

*Research Bulletins*

- RB-1 Electrolytic Etching at Small-Angle Grain Boundaries in Germanium
- RB-2 Some Aspects of Thermal Conversion in Germanium

*Research Bulletins (Continued)*

- RB-3 The Direct Conversion of Radiation into Electrical Energy
- RB-4 Radiative Transitions in Semiconductors
- RB-5 Photoconductivity of the Sulfide, Selenide, and Telluride of Zinc or Cadmium
- RB-6 The Noise Factor of Junction Transistors
- RB-7 Heterodyne Mixer Cross Modulation Tests
- RB-8 Speculations on the Energy Band Structure of Zinc-Blende-Type Crystals
- RB-9 Initial Permeability in Ferrimagnetic Spinel
- RB-10 Minority Carrier Lifetime in CdS
- RB-11 Periodic Magnetic Field Focusing for Low-Noise Traveling-Wave Tubes
- RB-12 Plasma Oscillations at Extremely High Frequencies
- RB-13 Magnetoresistance of Germanium-Silicon Alloys
- RB-14 An Electroluminescent Light-Amplifying Picture Panel
- RB-15 Vapor Pressure Data on Metals and Alloys
- RB-16 Edge Emission from ZnS Single Crystals
- RB-17 Television Vertical Aperture Compensation
- RB-18 Preparation, Properties, and Applications of a New Oxide Permanent Magnet Material
- RB-19 Photoconduction in Germanium and Silicon
- RB-20 Noise Considerations for P-N-P Junction Transistors
- RB-21 Electron and Ion Motion in Oxide Cathodes
- RB-22 Optical Factors in the Photo-Emission of Thin Films
- RB-23 Calculations of Alloying Depth of Indium in Germanium
- RB-24 Instantaneous Light Output and Buildup Effects in Electro-Luminescent Phosphors
- RB-25 New Alignment and Constructional Techniques for the Bode Linear Phase-Shift Filter
- RB-26 Two Bridged-T Equivalents of the Bode Low-Pass Lattice Filter
- RB-27 The Electronic Energy Band Structure of Silicon and Germanium

*Patent Bulletins*

- LB-969 Licensee Patent Bulletin, Series 54-4
- LB-987 Licensee Patent Bulletin, Series 55-2
- LB-977 Licensee Patent Bulletin, Series 55-1
- LB-1007 Licensee Patent Bulletin, Series 55-3

## RCA Industry Service Laboratory Bulletins

First Quarter

1956

### *Research Bulletins*

- RB-27 The Electronic Energy Band Structure of Silicon and Germanium
- RB-28 Basic Transistor Device Concepts
- RB-29 A Determination of I/F Noise Sources in Semiconductor Diodes and Triodes
- RB-30 Equipment for Measuring Junction Temperature of an Operating Transistor
- RB-31 Phase Angle Distortion and Differential Phase Shift in Traveling-Wave Tubes
- RB-32 Spectral Distribution of Photoconductivity
- RB-33 Effect of Magnetic Deflection on Electron Beam Convergence
- RB-34 Discharge Mechanism of Mercury Pool Arcs
- RB-35 Comparison of Surface-Excited and Volume-Excited Photoconduction in Cadmium Sulfide Crystals
- RB-36 Luminescence in Electronically Active Solids
- RB-37 Video Transformers
- RB-38 Theoretical and Practical Considerations for Determining the Optimum Semiconductor for Photovoltaic Solar Energy Converters
- RB-39 Metal-Based Photoconducting Cells for Controlling High Power
- RB-40 Molecular Ringing
- RB-41 Space Charge Limitation on the Focus of Electron Beams
- RB-42 The Electron-Voltaic Effect in Ge and Si P-N Junctions
- RB-43 Determination of Crystal Axis Orientation by Etch Pit Observation
- RB-44 Multi-Alkali Photocathodes

### *Engineering Bulletins*

- LB-1017 AFC of Television Receivers Using Junction Diodes
- LB-1018 The Drift Transistor
- LB-1019 The Transfluxor
- LB-1020 The Omniguide Antenna; An Omnidirectional Wave Guide Array for UHF-TV Broadcasting
- LB-1021 Design Considerations in Class B Complementary Symmetry Circuits
- LB-1022 Transistor Audio Amplifiers
- LB-1023 Etch Pits and Dislocation Studies in Silicon Crystals
- LB-1024 Reduction of Power-Line-Conducted Interference Output of Television Receivers

## RCA Industry Service Laboratory Bulletins

Second Quarter

1956

### *Engineering Bulletins*

- LB-1025 Equipment For Displaying Transistor Characteristics.
- LB-1026 Focusing-Grill Color Kinescopes.
- LB-1027 A Transistor Phonograph Amplifier Using a Quasi-Complementary Circuit.
- LB-1028 Theoretical Junction Capacitance and Related Characteristics Using Graded Impurity Semiconductors
- LB-1029 Recent Improvements in the 21AXP22 Color Kinescope
- LB-1030 Corner Reflector Antennas With Arbitrary Dipole Orientation and Apex Angle.
- LB-1031 A Circularly-Polarized Corner Reflector Antenna
- LB-1032 Design Considerations in the First Stage of Transistor Receivers.
- LB-1033 Field-Intensity Measurements on Induction-Heating Equipment
- LB-1034 Growth of Silicon Crystals for Transistor Applications
- LB-1035 Transistorized High Voltage Oscillator Power Supply
- LB-1036 Crystal Puller of Czochralski Type for Germanium or Silicon With 60-Cycle 3-Phase Heater.

### *Research Bulletins*

- RB-45 A Simplified Theory of Space-Charged-Limited Currents in An Insulator With Traps
- RB-46 The Galvanomagnetic Effects in a Semiconductor With Two Sets of Spheroidal Energy Surfaces
- RB-47 Photoconductivity Speed of Response for High-Intensity Excitation in Cadmium Sulfide and Selenide
- RB-48 Thermionic Current in a Parallel-Plane Diode
- RB-49 Printing of Three-Color Phosphor Patterns on Flat Glass by Offset Letter Press
- RB-50 Pressure Microphone Using the XS7834 2-1/8-Inch Diameter Loudspeaker Mechanism
- RB-51 A Magnetic Tape System for Recording and Reproducing Standard FCC Color Television Signals
- RB-52 Viewing Storage Tubes
- RB-53 Electrolytic Transport Phenomena in the Oxide Cathode
- RB-54 On the Growth of Germanium Crystals
- RB-55 Recording Fluxmeter
- RB-56 Trends in Thinking About Thermionic Emitters

## RCA Industry Service Laboratory Bulletins

Third Quarter

1956

### *Engineering Bulletins*

- LB-1037 The Soldered Transistor
- LB-1038 A Simple Paper Coating Method
- LB-1039 Practical Aspects of Local Oscillator Stabilization
- LB-1040 Intermediate Frequency Transistor Construction and Production
- LB-1041 Some Characteristics of Avalanche Operation of Junction Transistors
- LB-1042 Transistor Input Stage for Phonograph Pickups
- LB-1043 The Tricolor Vidicon -- A Developmental Camera Tube for Color Television
- LB-1044 Simultaneous Signal Separation in the Tricolor Vidicon

### *Research Bulletins*

- RB-57 Coherent Spontaneous Microwave Emission by Pulsed Resonance Excitation
- RB-58 A New Ferrite Isolator
- RB-59 The Electron Donor Centers in The Oxide Cathode
- RB-60 Kinescope Electron Guns for Producing Non-Circular Spots
- RB-61 Current Steering in Magnetic Circuits
- RB-62 Low Noise Traveling-Wave Tubes -- Verification of Fundamental Theory and Explanation of Higher Order Effects
- RB-63 Etch Pits and Slip Bands in Silicon
- RB-64 Semiconductor Alloys
- RB-65 On The Stability of Periodic-Field Beam Focusing
- RB-66 The Determination of Unit cells From X-Ray Powder Patterns:  
*BaBeF<sub>4</sub>* and *aZn<sub>3</sub>(PO<sub>4</sub>)<sub>2</sub>*
- RB-67 Associative Machine Languages
- RB-68 Effect of Annealing in Various Gases on The Bulk Lifetime of Germanium
- RB-69 Multi-Band Luminescence in Boron Nitride

# RCA Industry Service Laboratory Bulletins

Fourth Quarter

1956

## *Engineering Bulletins*

- LB-1045 A Drift Transistor For High Frequency Applications
- LB-1046 Wide-Range Impedance Transformer
- LB-1047 A UHF Diode-Mixer Test Set
- LB-1048 The Design, Construction and High Frequency Performance of Developmental Drift Transistors
- LB-1049 A Miniature Vidicon of High Sensitivity
- LB-1050 Transistorized Television Cameras Using The Miniature Vidicon
- LB-1051 An Improved Low-Capacitance Probe
- LB-1052 Large-Area Germanium Power Transistors
- LB-1053 Uni-Pressure Microphone
- LB-1054 A Six-Transistor Portable Receiver Employing A Complementary Symmetry Output Stage
- LB-1055 Reduction of Co-Channel Television Interference by Precise Frequency Control of Television Picture Carriers
- LB-1056 Thermal Stability of Junction Transistors and Its Effect on Maximum Power Dissipation
- LB-1057 Concentric-Shear Mode 455 KC Electromechanical Filter
- LB-1058 Microwave Noise Source Modulator and Power Supply
- LB-1059 Electrofax Papers and Developers

## *Research Bulletins*

- RB-70 The Lifetimes of Free Electrons and Holes in Solids
- RB-71 Analysis of Photoconductivity Applied to CdS-Type Photoconductors
- RB-72 Alloying Properties of Germanium Free of Edge Dislocations
- RB-73 The Conduction Band Structure of Germanium-Silicon Alloys
- RB-74 Viewing Storage Tubes For Large Displays
- RB-75 The Apparent Contact Potential of A Pseudo-Abrupt Junction
- RB-76 The Lateral Photoeffect and Its Application to A New Type of Semiconductor Photocell
- RB-77 Alloying of Indium to Germanium
- RB-78 Low Field Electroluminescence in Insulating Crystals of CdS
- RB-79 "Withdrawn"
- RB-80 Ionization Energies of Gold Impurity in Germanium-Silicon Alloys
- RB-81 Photoelectric Emission
- RB-82 Electroluminescence of Zinc Sulfo-Selenide Phosphors With Copper Activator And Halide Co-Activators
- RB-83 A Method of Accurate Thickness Determination of Germanium Wafers Suitable For Transistor Production
- RB-84 Ferrite Apertured Plate For Random Access Memory
- RB-85 The Dissolution of Germanium by Molten Indium

## RCA Industry Service Laboratory Bulletins

First Quarter

1957

### *Engineering Bulletins*

- LB-1060 Design Considerations of Television Antenna-Multiplex Systems
- LB-1061 Analysis of Transistor Oscillators for Broadcast Receivers
- LB-1062 A Monostable Multivibrator Circuit Using Complementary Transistors
- LB-1063 Envelope Distortion in Transistor-Tuned Amplifiers
- LB-1064 Spreading of Indium Over Germanium Surfaces in the Alloy Process
- LB-1065 A Horizontal-Deflection and Pulse-Regulated High-Voltage Circuit for Color Television Receivers
- LB-1066 Fixing of Electrofax Prints

### *Research Bulletins*

- RB-86 Gas Discharges as Technical Devices
- RB-87 Space Charge Neutralization in the Ionizing Beam of a Mass Spectrometer
- RB-88 Ferromagnetic Resonance Absorption in Some Cobalt Zinc Ferrites
- RB-89 Analysis of Low-Energy Sputtering
- RB-90 Constant-Current Generator
- RB-91 N-Halogen Organic Compounds as Cathode Materials for Primary Batteries
- RB-92 Variation of the Thermal Conductivity of Germanium With Temperature
- RB-93 Dissociation Pressure and Cohesive Energy of Indium Phosphide
- RB-94 Photoelectromagnetic Effect
- RB-95 Internal Friction and Defect Interaction in Germanium Section I. Experimental Section II. Theoretical



**RCA Industry Service Laboratory Bulletins**

**Second Quarter**

**1957**

*Engineering Bulletins*

- LB-1067 A Constant-Input-Impedance RF Amplifier for VHF Television Receivers
- LB-1068 Galactic Noise – An Important Design Consideration of VHF Television Tuners
- LB-1069 Design Considerations for Direct-Coupled Transistor Amplifiers
- LB-1070 A Transistorized Horizontal-Deflection System
- LB-1071 Transistor Receiver Video Amplifiers
- LB-1072 Circuit Considerations for Audio-Output Stages Using Power Transistors
- LB-1073 Influence of Surface Oxidation on  $\alpha_{cb}$  of Germanium p-n-p Transistors

*Research Bulletins*

- RB-96 High-Precision Measurement of Electron-Beam Noise
- RB-97 Electronic Cooling Equipment
  - 1. Room Air Conditioner
  - 2. Home Refrigerator
- RB-98 Home Television Magnetic-Tape Player
- RB-99 Magnetic Field Dependence of the Seebeck Effect in Germanium
- RB-100 Molecular Amplification and Generation of Microwaves
- RB-101 Light Output of an Electroluminescent Cell Excited by Short Voltage Pulses
- RB-102 Quantum Effects in Human Vision
- RB-103 Theory of a Wide-Gap Emitter for Transistors
- RB-104 Vapor Pressure Data for the More Common Elements
- RB-105 Improvements in the Panel Light Amplifier
- RB-106 Intrinsic Optical Absorption in Germanium-Silicon Alloys
- RB-107 A Pulse-Train-Driven Inductance Bridge for Evaluating Ferrite TV Horizontal Deflection Components
- RB-108 Theory of the Effects of Radiation Damping on Spin Dynamics

**RCA Industry Service Laboratory Bulletins**

**Third Quarter**

**1957**

*Engineering Bulletins*

- LB-1074 Methods for Determining Amplitude-Modulation Rejection Performance of Frequency-Modulation Detectors
- LB-1075 A Transistor FM Sound Detector Circuit for Television Receivers
- LB-1076 Some Circuit Aspects of Solid-State Phenomena
- LB-1077 The Equivalent Circuit of The Drift Transistor
- LB-1078 The "Thyristor" – A New High-Speed Switching Transistor
- LB-1079 An Investigation of Cross-Modulation and Heterodyne Interferences in Transistor IF Amplifiers
- LB-1080 Transistor Switching Performance From Characteristic Curves
- LB-1081 A Basic Tester for Transistors
- LB-1082 High-Power Transistor Audio Amplifiers
- Index Chronological and Subject Index of RCA Industry Service Laboratory Bulletins, 1946 through 1956

*Research Bulletins*

- RB-109 Scintillation Counters
- RB-110 Measurement of Minority Carrier Lifetimes With The Surface Photovoltage
- RB-111 Quasi-Electric and Quasi-Magnetic Fields in Non-Uniform Semiconductors
- RB-112 Surface Studies on Single-Crystal Germanium
- RB-113 The Photovoltaic Effect in The Study of Semiconductors
- RB-114 A Gallium Arsenide Microwave Diode
- RB-115 Some Properties of Gallium Arsenide-Germanium Mixtures
- RB-116 Large Signal Surface Photovoltage Studies With Germanium
- RB-117 Spectrographic Analysis of Silicon-Germanium Alloys
- RB-118 Blackening of ZnS and CdS Single Crystals by Light
- RB-119 The Effect of Impurity Scattering on The Magnetoresistance of n-Type Germanium
- RB-120 Principles of Transfluxor and Core Circuits
- RB-121 On The Emission Mechanism of Cold Cathode Arcs
- RB-122 Considerations of Signal-To-Noise Ratios in Infrared Photoconductors
- RB-123 Anomalous Variation of Band-Gap With Composition in Zinc-Sulfo-and Seleno-Tellurides
- RB-124 Ferroelectricity – Properties of Thiourea
- RB-125 Biperiodic Focusing for High-Density Electron Beams