

REVISIONS

LTR	DESCRIPTION	DATE	APPROVED
A	Add new source of supply. Editorial changes throughout.	8-DEC-2017	Thomas M. Hess

**Devices on this drawing may be used as a substitute for
MIL-S-19500/186 which has been inactivated for new design.**

CURRENT DESIGN ACTIVITY CAGE CODE 037Z3
DEFENSE LOGISTICS AGENCY
DLA LAND AND MARITIME,
COLUMBUS, OHIO 43218-3990

THE ORIGINAL FIRST PAGE OF THIS DRAWING HAS BEEN REPLACED.



Prepared in accordance with ASME Y14.100

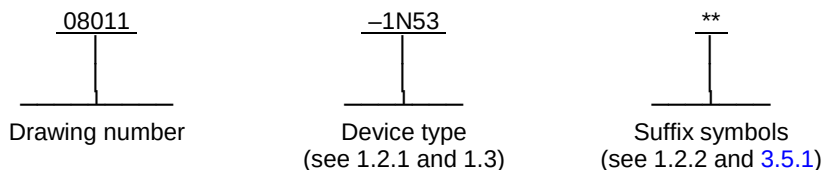
Approved item drawing

REV																	
PAGE																	
REV STATUS OF PAGES	REV	A	A	A	A	A	A	A	A	A	A	A	A	A	A		
	PAGE	1	2	3	4	5	6	7	8	9	10	11	12	13			
PMIC N/A		PREPARED BY Roger Kissel						DESIGN ACTIVITY DEFENSE SUPPLY CENTER COLUMBUS COLUMBUS, OH 43218									
Original date of drawing 11 August 2008		CHECKED BY Jason Hochstetler						TITLE SEMICONDUCTOR DEVICE, DIODE, SILICON, RF MIXER, TYPES 1N53B, 1N53BR, 1N53BM, AND 1N53BMR									
		APPROVED BY Thomas M. Hess															
		SIZE A		CAGE CODE 037Z3				DWG. NO. 08011									
		REV A				PAGE 1 OF 13											

1. SCOPE

1.1 Scope. This drawing covers the performance requirements for a silicon point contact semiconductor diode for use as single units, matched forward pairs, and matched forward and reverse pairs for use as a mixer (first detector) in K-band equipment. This drawing may be used as a substitute for parts listed on MIL-S-19500/186 (see 6.3).

1.2 Part or Identifying Number (PIN). An example of the complete PIN is as follows:



1.2.1 Device types. The device type as modified by suffix symbols, identify the polarity and voltage of the devices as follows:

Device type	Description	Device type	Description
1N53B	Single device, forward polarity	1N53BR	Single device, reverse polarity
1N53BM	Matched pairs, both forward polarity	1N53BMR	Matched pairs, one device is forward polarity and the second is reverse polarity

1.2.2 Suffix symbols. The following suffix symbols are incorporated into the PINs for this drawing.

1.2.2.1 Electrical values. All diodes covered by this drawing use the suffix "B" that designates the electrical values as described in 1.3.

1.2.2.2 Single diodes. All single diodes covered by this drawing use only the suffix "B" (forward polarity) or "BR" (reverse polarity).

1.2.2.3 Diode pairs. The PINs for matched pair diodes include additional suffix symbols after the "B" suffix symbol. Diodes supplied to these PINs consists of two matched pair diodes. The suffix symbols and the particular device details are as follows:

- M The "M" suffix is used for matched pair forward polarity diodes. The pairs consist of two diodes, both of forward polarity. The complete suffix symbols for the pair would be "BM".
- MR The "MR" suffix is used for matched pair forward and reverse polarity diodes. The pairs consist of two diodes, one diode tested in the forward polarity direction and the second diode tested in the reverse polarity direction. The complete suffix symbols for the pair would be "BMR".

See 3.5.1 regarding product identification marking.

1.3 Ratings. Unless otherwise specified, $T_A = +25^{\circ}\text{C}$.

Type 1N53B (1)	$Z_{(IF)}$	L_c	NF_o	VSWR	T_{STG} and T_{OP}
Minimum	<u>ohms</u> 500	<u>dB</u> 6.5	<u>ratio</u> 10	<u>ratio</u> 1.6	-65°C to +150°C
Maximum	700				

(1) Ratings for type 1N53B are applicable to all types having additional suffix symbols "R", "M" and "MR".

DEFENSE SUPPLY CENTER COLUMBUS
COLUMBUS, OH 43218

SIZE

A

CAGE CODE

037Z3

REV

A

DWG NO.

08011

PAGE

2

2. APPLICABLE DOCUMENTS

2.1 General. The documents listed in this section are specified in sections 3 and 4 of this document. This section does not include documents cited in other sections of this document or recommended for additional information or as examples. While every effort has been made to ensure the completeness of this list, document users are cautioned that they must meet all specified requirements of documents cited in sections 3 and 4 of this document, whether or not they are listed.

2.2 Government documents.

2.2.1 Specifications, standards, and handbooks. The following specifications, standards, and handbooks form a part of this document to the extent specified herein. Unless otherwise specified, the issues of these documents are those cited in the solicitation or contract (see 6.2).

DEPARTMENT OF DEFENSE SPECIFICATIONS

MIL-PRF-19500 – Semiconductor Devices, General Specification for.

DEPARTMENT OF DEFENSE STANDARDS

MIL-STD-750 – Test Methods for Semiconductor Devices.

MIL-STD-1285 – Marking of Electrical and Electronic Parts.

(Copies of these documents are available online at <http://quicksearch.dla.mil>).

2.3 Order of precedence. Unless otherwise noted herein or in the contract, in the event of a conflict between the text of this document and the references cited herein, the text of this document takes precedence. Nothing in this document, however, supersedes applicable laws and regulations unless a specific exemption has been obtained.

3. REQUIREMENTS

3.1 General. The individual item requirements shall be in accordance with **MIL-PRF-19500**, and as specified herein.

3.2 Certification and manufacturer eligibility.

3.2.1 Certification as approved source of supply. In order to be listed as an approved source of supply of diodes compliant to this drawing (see 6.5), a manufacturer shall submit a certificate of compliance to DLA Land and Maritime - VAC prior to listing as an approved source of supply.

3.2.2 Certificate of conformance. A certificate of conformance shall be provided with each lot of devices delivered in accordance with this drawing. The certificate of compliance shall state that the manufacturer's product meets the requirements of this drawing. Diodes meeting the matched pair requirements of this drawing will be packaged with a statement to that effect (see 6.2.d).

3.2.3 Manufacturer eligibility. To be eligible for listing as an approved source of supply, a manufacturer shall be either listed on the **MIL-PRF-19500** Qualified Manufacturers List for at least one device type or, when specified, perform eligibility inspection in accordance with this drawing (see 4.2) on a sample of parts agreed upon by the manufacturer and DLA Land and Maritime-VAC.

3.3 Abbreviations, symbols, and definitions. The abbreviations, symbols, and definitions used herein shall be as specified in **MIL-PRF-19500** and as listed in 6.6.

3.4 Interface and physical dimensions. The interface and physical dimensions shall be as specified in **MIL-PRF-19500** and herein.

3.4.1 Package outline. The package outline shall conform to **figure 1**. The semiconductor diode shall be of symmetrical construction and shall consist of a cylindrical body having pins on both ends.

DEFENSE SUPPLY CENTER COLUMBUS COLUMBUS, OH 43218	SIZE A	CAGE CODE 037Z3	DWG NO. 08011
		REV A	PAGE 3

3.4.2 Materials.

3.4.2.1 Package and lead termination finish. External metallic package elements, including leads and terminals, shall meet the applicable requirements of appendix H of MIL-PRF-19500 with the following details and exceptions:

- a. Gold plate: Gold plating shall be .0001 inch (0.003 mm) minimum with an underplate of nickel with a minimum thickness of .0001 inch (0.003 mm).
- b. Silver plate: Silver plating shall be .0001 inch (0.003 mm) minimum with an underplate of nickel with a minimum thickness of .0001 inch (0.003 mm).
- c. Solder coating: Solder coating shall be .0001 inch (0.003 mm) minimum with an underplate of nickel with a minimum thickness of .0001 inch (0.003 mm).

3.4.2.2 Pure tin. The use of pure tin, as an underplate or final finish, is prohibited both internally and externally. Tin content of diode components and solder shall not exceed 97 percent, by mass. Tin shall be alloyed with a minimum of 3 percent lead, by mass.

3.5 Marking. The marking shall be placed on each device in accordance with MIL-PRF-19500 and herein.

3.5.1 Product identification. It is prohibited for a manufacturer not listed in 6.5 to mark diodes with this drawing's PIN.

3.5.1.1 Forward polarity diodes. The valid type designation and suffix symbols to be included in the PIN marked on the device body are "1N53B".

3.5.1.2 Matched pair diodes. The "M" and "MR" suffix for matched pair diodes shall be omitted from the product identification marking on each device. Diodes meeting the matched pair requirements of this drawing will be packaged with a statement to that effect (see 6.2.d).

3.5.2 Unit pack marking. Each unit package shall be marked in accordance with MIL-STD-1285 and include the PIN as specified herein (see 1.2), the manufacturer's name or Commercial and Government Entity (CAGE) code, and date lot codes. The order of marking is optional.

3.6 Performance characteristics. The performance characteristics shall be in accordance with tables I and II.

3.7 Electrical test requirements. The electrical test requirements shall be in accordance with tables I, II and III as applicable.

3.7.1 Matched pair diode requirements.

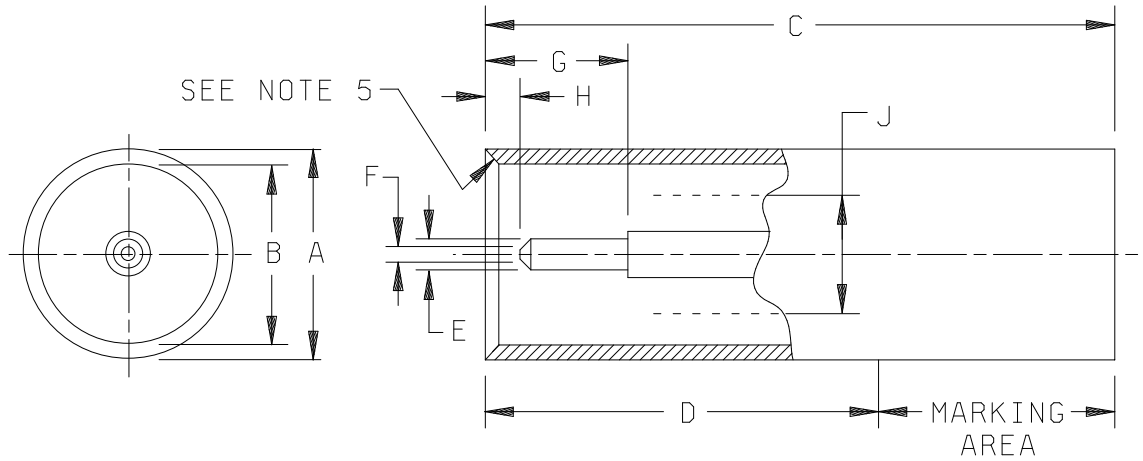
3.7.1.1 Forward polarity matched pair diodes (PINs with "M" suffix). When diodes are tested as specified in 4.5.2.1.1, the variation in the electrical parameters shall not differ by the amount specified in subgroup 4 of table I.

3.7.1.2 Forward and reverse polarity matched pair diodes (PINs with "MR" suffix). When diodes are tested as specified in 4.5.2.1.2, the variation in the electrical parameters shall not differ by the amount specified in subgroup 4 of table I.

3.7.2 Burnout by single pulse. After being tested in accordance with 4.5.2.2, the diode shall be capable of meeting the end-point electrical measurements of subgroup 2 of table I.

3.7.3 Burnout by repetitive pulsing. After being tested in accordance with 4.5.2.3, the diode shall be capable of meeting the end-point electrical measurements of subgroup 2 of table I.

DEFENSE SUPPLY CENTER COLUMBUS COLUMBUS, OH 43218	SIZE A	CAGE CODE 037Z3	DWG NO. 08011
		REV A	PAGE 4



Ltr	Dimensions				NOTE
	Inches		Millimeters		
	Min	Max	Min	Max	
A	.158	.162	4.01	4.11	4
B	.123	.127	3.12	3.23	
C	.545	.555	13.84	14.10	
D	.281		7.14		4
E	.044	.046	1.12	1.17	
F	.019	.021	0.48	0.53	
G	.099		2.51		
H	.010	.018	0.25	0.46	
J	.082		2.08		6

NOTES:

1. Dimensions are in Inches. Millimeters are given for general information only.
2. Axis of center conductor shall not deviate from axis of outer conductor, referred to its outside diameter, more than .002 in. (0.051 mm).
3. Standard units shall have the cathode connected to the center conductor. Reversed units shall have the anode connected to the center conductor.
4. Outside diameter, .215 in. (5.46 mm) to .220 in. (5.58 mm) applies for length of dimension D.
5. This edge to be sharp and free from burrs.
6. Space for matching transformer when used.
7. Finish: See [3.4.2.1](#).
8. In accordance with ASME Y14.5M, diameters are equivalent to Φ x symbology

FIGURE 1. Package outline for device types 1N53B, 1N53BR, 1N53BM, and 1N53BMR.

DEFENSE SUPPLY CENTER COLUMBUS COLUMBUS, OH 43218	SIZE A	CAGE CODE 037Z3	DWG NO. 08011
		REV A	PAGE 5

3.8 Traceability and lot formation. Devices compliant to this drawing shall meet the traceability and lot formation requirements of [MIL-PRF-19500](#) except as modified by the procuring activity.

3.9 Recycled, recovered, environmentally preferable, or biobased materials. Recycled, recovered, environmentally preferable, or biobased materials should be used to the maximum extent possible provided that the material meets or exceeds the operational and maintenance requirements, and promotes economically advantageous life cycle costs.

3.10 Workmanship. The diodes shall be processed in such a manner as to uniform in quality and free from any defects that will affect life, serviceability, or appearance.

4. VERIFICATION

4.1 Sampling and inspection. Unless otherwise specified, sampling and inspection procedures shall be performed in accordance with [MIL-PRF-19500](#), and as specified herein.

4.1.1 Inspection of product for delivery. Inspection of product for delivery shall consist of conformance inspection in accordance with [4.4.1](#) and [4.4.2](#) (groups A and B inspection).

4.2 Manufacturer eligibility. When conformance testing is used to verify a device manufacturer eligibility, a sample of devices shall be subjected to conformance inspection in accordance with 4.1.2. In addition, the device manufacturer shall make available to DLA Land and Maritime, upon request, all pertinent test data on its production of the listed parts, including, but not limited to, test data in accordance with [tables I and II](#).

4.2.1 Group E qualification. Group E inspection shall be performed on test specimens that are representative of subsequent production.

4.2.2 Inspection routines. Group E inspection shall consist of either a full inspection or partial inspection as specified.

4.2.2.1 Full inspection. A sample of test specimens shall be submitted for group E inspection and subjected to the testing of each subgroup of [table III](#) in the order shown. Alternately, separate samples of test specimens of the same PIN may be tested for each subgroup. All product characteristics of the PINs to be listed for a manufacturer shall be covered in the full group E inspection.

4.2.2.2 Partial inspection. At the discretion of DLA Land and Maritime VAC, a manufacturer may be required to perform a partial group E inspection for the reason listed in 4.2.3. The manufacturer shall coordinate with DLA Land and Maritime VAC to determine the applicable subgroups of [table III](#) and sample quantities required to be tested.

4.2.2 Extent of listing. A group E inspection on a particular diode PIN shall be extended to cover all other diode PINs of this drawing.

4.2.3 Design, location, material, or process changes. A full or partial group E inspection may be required when any of the following events occurs:

- a. A change in the design affecting form, fit, or function of the part.
- b. A change in the location of the manufacture.
- c. A change in manufacturing source(s), process(es), inspection method(s), tooling or materials, affecting form, fit, or function.
- d. A natural or man-made event, which may adversely affect the manufacturing process.
- e. A lapse of production for two years or more, or as specified by the customer.

DEFENSE SUPPLY CENTER COLUMBUS COLUMBUS, OH 43218	SIZE A	CAGE CODE 037Z3	DWG NO. 08011
		REV A	PAGE 6

4.2.4 Nonconformance. The group E inspection is not complete until all non-conformances are closed affecting the part and corrective actions have been implemented. The group E inspection shall be repeated for the affected characteristics and the results recorded.

4.3 Screening (burn-out by single pulse). At the end of all manufacturing processes, and prior to selecting samples for conformance inspection, all diodes shall be subjected to 100 percent burn-out by single pulse test in accordance with 3.7.2.

4.4 Conformance inspection.

4.4.1 Group A inspection. Group A inspection shall consist of the inspections and tests specified in table I.

4.4.2 Group B inspection. Group B inspection shall consist of the inspections and tests specified in table II.

4.5 Methods of inspection and test. Methods of inspection and test shall be as specified in the appropriate tables and as follows.

4.5.1 Test conditions.

4.5.1.1 Electrical test parameters. Unless otherwise specified herein, the parameters to be used when performing electrical test shall be as follows:

- a. $f = 34.86 \text{ GHz} \pm 140 \text{ MHz}$.
- b. $P = 1.0 \text{ mW} \pm 5 \text{ percent}$.
- c. $R_L = 100\Omega \pm 1\Omega$.
- d. $Z_m = 500\Omega \pm 10\Omega, +j\omega\Omega$.

4.5.1.2 Microwave parameters. The parameters for L_c , NF_o , and NR_o may be determined by any suitable combination of measured parameters selected from among the following: L_c , NF_{if} (actual), NF_o (actual) and NR_o . A measurement of either L_c or NR_o , but not both is required. NF_o shall be determined for an assumed or actual intermediate-frequency noise figure (NF_{if}) of $1.5 \pm 0.25 \text{ dB}$.

4.5.1.3 Output noise ratio NR_o . The plunger in the noise measuring apparatus shall be set at a position which delivers the maximum power as evidenced by maximum diode current to an average diode, from a group of diodes, that meet initial conversion loss, IF impedance, and VSWR limits.

4.5.1.4 Time limit for end-points. The end-point electrical measurements for device manufacturer eligibility and conformance inspection shall be completed within 96 hours after completion of the last test in the subgroup.

4.5.2 Test method details.

4.5.2.1 Matched pair tests.

4.5.2.1.1 Forward polarity only pairs (PINs with "M" suffix). The matched forward polarity only diode pairs shall be tested to the electrical requirements tests listed of subgroup 4 of table I. Both diodes shall be tested in the forward polarity direction.

4.5.2.1.2 Forward and reverse polarity pairs (PINs with "MR" suffix). The matched pair forward and reverse polarity diode pairs shall be tested to the electrical requirements of subgroup 4 of table I. The diodes shall be tested with one diode in the forward polarity direction and the second diode in the reverse polarity direction.

4.5.2.2 Burnout by single pulse. The burnout by single pulse test shall be performed in accordance with test method 4146 of MIL-STD-750. The diode shall be placed in a suitable test holder with the following details: The device being tested shall be in the forward-direction operation with $E = 125 \text{ V dc}$ minimum.

4.5.2.3 Burnout by repetitive pulsing. The burnout by repetitive pulsing test shall be performed in accordance with test method 4141 of MIL-STD-750. The diode shall be placed in a suitable test holder and the following test parameters shall be used: $e_o = 5 \text{ V}$, $R_g = 50 \text{ ohms}$; 60,000 pulses minimum, $t_p = 1.0 \mu\text{s}$, PRF optional.

DEFENSE SUPPLY CENTER COLUMBUS COLUMBUS, OH 43218	SIZE A	CAGE CODE 037Z3	DWG NO. 08011
		REV A	PAGE 7

4.6 Generic test data. Generic test data may be used to satisfy the requirements of 4.2. Generic test data shall be from devices date coded no more than 1 year old and be of the same design, of the same material, and was made using the same manufacturing processes. The vendor is required to retain the generic data used for verifying manufacturer eligibility for a period of not less than 3 years from the date of shipment.

TABLE I. Group A inspection.

Inspection <u>1/</u>	MIL-STD-750		Symbol	Limit		Unit
	Method	Conditions		Min	Max	
<u>Subgroup 1</u>						
Visual and mechanical examination	2071					
<u>Subgroup 2</u>						
Voltage standing wave ratio	4136	Test condition A, I = 1.0 mAdc; see 4.5.1 for test conditions	VSWR		1.6	ratio
Overall noise figure	4126	Test condition A; see 4.5.1 for test conditions	NF _o		6.5	dB
<u>Subgroup 3</u>						
Conversion loss	4101		L _c		6.5	dB
Intermediate frequency impedance	4116		Z _(IF)	500	700	ohms
Output noise ratio	4121		NR _o		2.0	
<u>Subgroup 4 2/</u>						
Matched pair requirements		See 3.7.1				
Conversion loss unbalance	4101	Test condition D	ΔL _c		0.3	dB
Intermediate frequency impedance unbalance	4116	Test condition B, see 4.5.1 for test conditions	ΔZ _(IF)		25	ohms

1/ For sample size, see table E-V of MIL-PRF-19500.

2/ Subgroup 4 is required for matched pair devices only.

DEFENSE SUPPLY CENTER COLUMBUS
COLUMBUS, OH 43218

SIZE

A

CAGE CODE

037Z3

DWG NO.

08011

REV

A

PAGE

8

TABLE II. Group B inspection.

Inspection <u>1/</u>	MIL-STD-750		Symbol	Limit		Unit
	Method	Conditions		Min	Max	
<u>Subgroup 1</u> Physical dimensions	2066	Dimensions A, C, E, and G of figure 1 ; Dimensions C and H for note 2 of figure 1	NFo		11.0	dB
<u>Subgroup 2</u> Temperature cycling (air-to-air)	1051	Test condition A T(high) = +150°C +5°C, -0°C; T(low) = -65°C +0°C, -5°C				
Moisture resistance	1021	Omit initial conditioning				
End-point electrical measurements Overall (average) noise figure	4126	Test condition A; T _A = 25°C				
<u>Subgroup 3</u> Burn-out by repetitive pulsing	4141	See 3.7.3				
End-point electrical measurements		See table I , subgroup 2 herein.	Lc		8.5	dB
<u>Subgroup 4</u> Shock	2016	500 G; t ≅ 1 ms, 5 blows in each orientation: X ₁ , Y ₁ , and Y ₂				
Vibration, variable frequency	2056	15 G; 50 to 2,000 Hz				
Constant acceleration	2006	10,000 G; X ₁ , Y ₁ , and Y ₂ orientations				
End-point electrical measurements		See table I , subgroup 2 herein.				
<u>Subgroups 5</u> High temperature operation		T _A = +150°C, +5°C, -0°C				
Conversion loss	4101	See 4.5.1.2				
<u>Subgroup 6</u> High temperature life (non-operating)	1031	T _A = +150°C, +5°C, -0°C				
End-point electrical measurements		See table I , subgroup 2 herein.				

1/ For sampling plan, see table E-VIB of [MIL-PRF-19500](#).

DEFENSE SUPPLY CENTER COLUMBUS
COLUMBUS, OH 43218

SIZE

A

CAGE CODE

037Z3

REV

A

DWG NO.

08011

PAGE

9

TABLE III. Group E inspection.

Inspections	MIL-STD-750	
	Method	Conditions
<u>Subgroup 1</u>		
Temperature cycling (air to air)	1051	Test condition C, 500 cycles.
End-point electrical measurements		See table I , subgroup 2 herein.
<u>Subgroup 2</u>		
Steady-state operating life	1026	T _A = 25°C, P _T = 0.8 W, V _{CE} = 40 V dc, t = 1000 hours.
End-point electrical measurements		See table I , subgroup 2 herein.
<u>Subgroup 3</u>		
Burn-out by single pulse	4146	See 4.5.2.3 and figures 2 and 3 .
End-point electrical measurements		See table I , subgroup 2 herein.
<u>Subgroups 4, 5, 6, 7, and 8</u>		Not applicable

DEFENSE SUPPLY CENTER COLUMBUS
COLUMBUS, OH 43218

SIZE

A

CAGE CODE

037Z3

DWG NO.

08011

REV

A

PAGE

10



NOTE: The holder used with a diode mounted in it and terminated with 100 ohms and with an incident power of 1.0 mW to the holder, shall have a 2.0 maximum VSWR over a minimum band width of 1/(pulse width used) on both sides of the RF burn-out test frequency used.

FIGURE 3. RF pulse burn-out circuit.

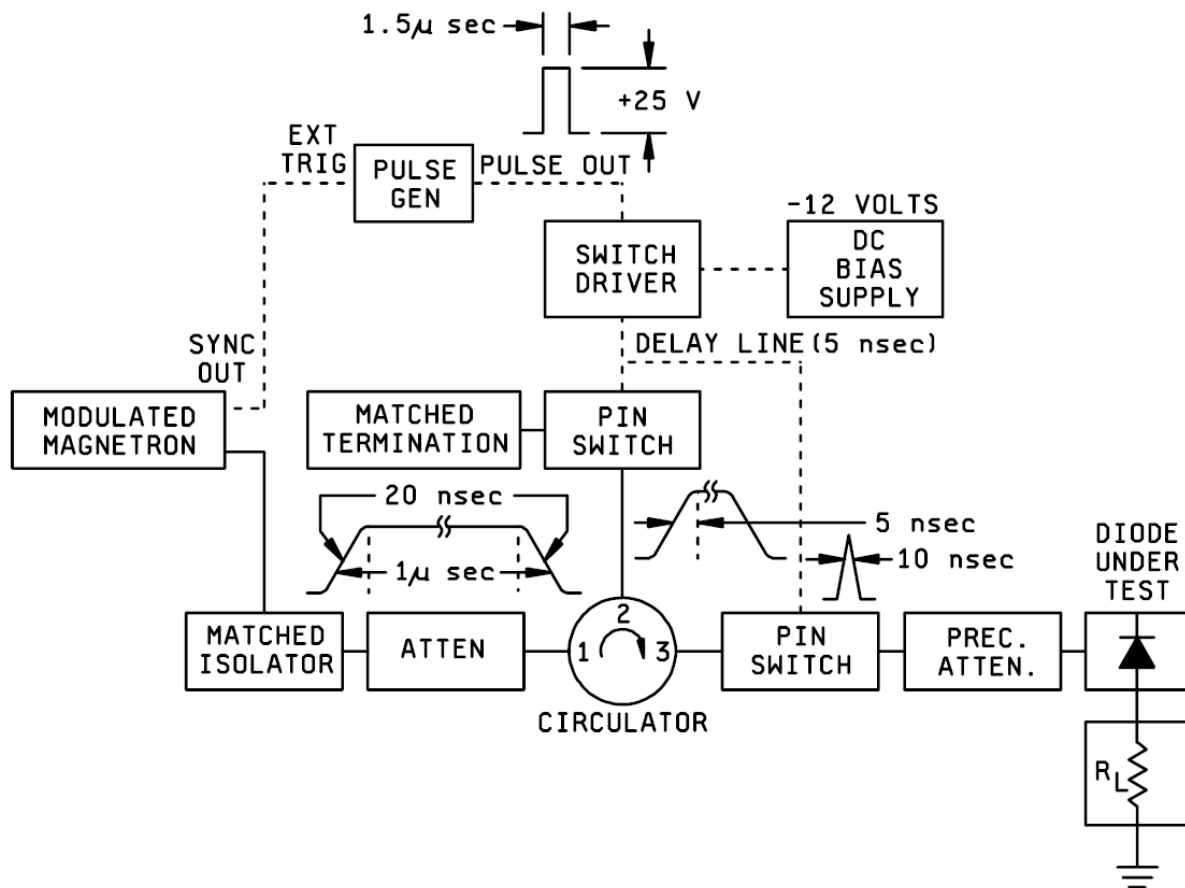


FIGURE 4. RF pulse burn-out system.

DEFENSE SUPPLY CENTER COLUMBUS
COLUMBUS, OH 43218

SIZE

A

CAGE CODE

037Z3

REV

A

DWG NO.

08011

PAGE

11

5. PACKAGING

5.1 Packaging. For acquisition purposes, the packaging requirements shall be as specified in the contract or order (see 6.2). When actual packaging of materiel is to be performed by DoD or in-house contractor personnel, these personnel need to contact the responsible packaging activity to ascertain packaging requirements. Packaging requirements are maintained by the Inventory Control Point's packaging activity within the Military Department or Defense Agency, or within the Military Department's system command. Packaging data retrieval is available from the managing Military Department's or Defense Agency's automated packaging files, CD-ROM products, or by contacting the responsible packaging activity.

6. NOTES

(This section contains information of a general or explanatory nature which may be helpful, but is not mandatory.)

6.1 Intended use. Devices conforming to this drawing are intended for use when performance specification sheets do not exist and qualified military devices that will perform the required function are not available for OEM application. This drawing is intended exclusively to prevent the proliferation of duplicate specifications, drawings, and stock number listings.

6.2 Acquisition requirements. The acquisition requirements should specify the following:

- a. Complete DLA Land and Maritime CAGE CODE and PIN (see 1.2).
- b. Requirements for delivery of either a copy of the conformance inspection data or certificate of compliance that devices have passed conformance inspection with each shipment of parts by the manufacturer.
- c. Requirements for packaging and packing.
- d. When applicable, a statement of diode pair matching for diodes meeting the matched pair requirements of this drawing (PINs with suffix symbols "M" or "MR").

6.3 Replaceability. Devices covered by this drawing may be used as a substitute for those on MIL-S-19500/186.

6.4 List of superseded PINs. The following supersession data applies to PINs associated with this document:

Replacement PIN as specified herein	Superseded PIN as specified within MIL-S-19500/186B, dated 11 February 1965	Superseded commercial part number
08011-1N53B	JAN1N53B	1N53B
08011-1N53BR	JAN1N53BR	1N53BR
08011-1N53BM	JAN1N53BM	1N53BM
08011-1N53BMR	JAN1N53BMR	1N53BMR

DEFENSE SUPPLY CENTER COLUMBUS
COLUMBUS, OH 43218

SIZE

A

CAGE CODE

037Z3

REV

A

DWG NO.

08011

PAGE

12

6.5 Approved sources of supply. Approved sources of supply are listed herein. Additional sources will be added as they become available. The vendors listed herein have agreed with this drawing and have submitted a certificate of compliance (see 3.2.1 herein) to DLA Land and Maritime, ATTN: VAC, P.O. Box 3990, Columbus, OH 43218-3990 or emailed to semiconductor@dla.mil.

DSCC drawing PIN (1)	Vendor similar designation or type number (2)	Vendor CAGE	Vendor name and address
08011-1N53B 08011-1N53BR 08011-1N53BM 08011-1N53BMR	UXAN1N53B UXAN1N53BR UXAN1N53BM UXAN1N53BMR	3BBY6 	SemiGen, Inc. 920 Candia Road Manchester, NH 03109-5201 Phone: (603) 624-8311 Fax: (603) 624-8312 URL: http://www.semigen.net

- (1) Parts must be purchased to the DLA Land and Maritime CAGE CODE and this DSCC PIN to assure that all performance requirements and inspections are met.
- (2) Do not use vendor PIN's for acquisition. Items acquired to this number may not satisfy the performance requirements of this drawing.

DSCC drawing PIN (1)	Vendor similar designation or type number (2)	Vendor CAGE	Vendor name and address
08011-1N53B 08011-1N53BR 08011-1N53BM 08011-1N53BMR	1N53B 1N53BR 1N53BM 1N53BMR	1W7D7 	Massachusetts Bay Technologies, Inc. 378 Page Street Stoughton, MA 02072-2971 Office: (781) 344-8809 Fax: (781) 341-8177 URL: https://massbaytech.com

- (1) Parts must be purchased to the DLA Land and Maritime CAGE CODE and this DSCC PIN to assure that all performance requirements and inspections are met.
- (2) Do not use vendor PIN's for acquisition. Items acquired to this number may not satisfy the performance requirements of this drawing.

6.6 Symbols used in this drawing. The following symbols are used in this drawing. The definition associated with the symbol shall be as defined in [MIL-PRF-19500](#) or herein.

f	Local oscillator frequency.
L _c	Conversion loss. Replaces symbol "L".
NF _o	Noise figure, overall. Replaces symbols " $\overline{F}_o$ ", " $\overline{F}_{om}$ ", and " F_{om} ".
NF _{if}	Noise figure, intermediate-frequency. Replaces symbols "N" and "N _{if} ".
NR _o	Noise ratio, output. Replaces symbol "N".
P	Power.
PRF	Pulse repetition frequency
R _L	Load resistance.
VSWR	Voltage standing wave ratio.
Z _m	Modulator frequency load impedance. Replaces symbol "Z _L ".
Z _(IF)	Impedance, intermediate-frequency (IF).

6.7 Changes from previous issue. Marginal notations are not used in this revision to identify changes with respect to the previous issue due to the extensiveness of the changes.

DEFENSE SUPPLY CENTER COLUMBUS COLUMBUS, OH 43218	SIZE A	CAGE CODE 037Z3	DWG NO. 08011
		REV A	PAGE 13