

NOTICE OF REVISION (NOR)		1. DATE (YYMMDD) 020718	<i>Form Approved</i> OMB No. 0704-0188																								
THIS REVISION DESCRIBED BELOW HAS BEEN AUTHORIZED FOR THE DOCUMENT LISTED.																											
Public reporting burden for this collection is estimated to average 2 hours per response, including the time for reviewing instructions, searching existing data sources, gathering and maintaining the data needed, and completing and reviewing the collection of information. Send comments regarding this burden estimate or any other aspect of this collection of information, including suggestions for reducing this burden, to Department of Defense, Washington Headquarters Services, Directorate for Information Operations and Reports, 1215 Jefferson Davis Highway, Suite 1204, Arlington, VA 22202-4302, and to the Office of Management and Budget, Paperwork Reduction Project (0704-0188), Washington, DC 20503. PLEASE DO NOT RETURN YOUR COMPLETED FORM TO EITHER OF THESE ADDRESSED. RETURN COMPLETED FORM TO THE GOVERNMENT ISSUING CONTRACTING OFFICER FOR THE CONTRACT/ PROCURING ACTIVITY NUMBER LISTED IN ITEM 2 OF THIS FORM.		2. PROCURING ACTIVITY NO.																									
		3. DODAAC																									
4. ORIGINATOR	b. ADDRESS (<i>Street, City, State, Zip Code</i>) Defense Supply Center, Columbus P. O. Box 3990 Columbus, OH 43216-5000	5. CAGE CODE 14933	6. NOR NO. 5950-R002-02																								
a. TYPED NAME (<i>First, Middle Initial, Last</i>) Gene Ebert		7. CAGE CODE 14933	8. DOCUMENT NO. 82030																								
9. TITLE OF DOCUMENT TRANSFORMER, PULSE, LOW POWER		10. REVISION LETTER																									
		a. CURRENT C	b. NEW D																								
11. ECP NO. No users listed.																											
12. CONFIGURATION ITEM (OR SYSTEM) TO WHICH ECP APPLIES All																											
13. DESCRIPTION OF REVISION Page 1: Add notes: "Previous CAGE 14933 superseded by 037Z3". Page 12: Change paragraph 6.4 to 6.5 Insert the following; 6.4 <u>Supersession data</u> . Devices covered by this drawing are replaced by Military Specification stated in table II.																											
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<table border="1" style="width:100%; border-collapse: collapse; text-align: center;"> <thead> <tr> <th>MILITARY P/N</th> <th>Superseded by PIN</th> <th>MILITARY P/N</th> <th>Superseded by PIN</th> </tr> </thead> <tbody> <tr> <td>82030-1</td> <td>N/A</td> <td>82030-6</td> <td>M21038/27-05</td> </tr> <tr> <td>82030-2</td> <td>M21038/27-01</td> <td>82030-7</td> <td>M21038/27-06</td> </tr> <tr> <td>82030-3</td> <td>M21038/27-02</td> <td>82030-8</td> <td>M21038/27-07</td> </tr> <tr> <td>82030-4</td> <td>M21038/27-03</td> <td>82030-9</td> <td>M21038/27-08</td> </tr> <tr> <td>82030-5</td> <td>M21038/27-04</td> <td>82030-10</td> <td>M21038/27-09</td> </tr> </tbody> </table>				MILITARY P/N	Superseded by PIN	MILITARY P/N	Superseded by PIN	82030-1	N/A	82030-6	M21038/27-05	82030-2	M21038/27-01	82030-7	M21038/27-06	82030-3	M21038/27-02	82030-8	M21038/27-07	82030-4	M21038/27-03	82030-9	M21038/27-08	82030-5	M21038/27-04	82030-10	M21038/27-09
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82030-5	M21038/27-04	82030-10	M21038/27-09																								
14. THIS SECTION FOR GOVERNMENT USE ONLY																											
a. (<i>X one</i>)	X	(1) Existing document supplemented by the NOR may be used in manufacture.																									
		(2) Revised document must be received before manufacturer may incorporate this change.																									
		(3) Custodian of master document shall make above revision and furnish revised document.																									
b. ACTIVITY AUTHORIZED TO APPROVE CHANGE FOR GOVERNMENT DSCC-VAT		c. TYPED NAME (<i>First, Middle Initial, Last</i>) KENDALL COTTONGIM																									
d. TITLE CHIEF, ELECTRONICS COMPONENTS TEAM	e. SIGNATURE KENDALL COTTONGIM		f. DATE SIGNED (YYMMDD) 020718																								
15a. ACTIVITY ACCOMPLISHING REVISION DSCC-VAT	b. REVISION COMPLETED (<i>Signature</i>) GENE EBERT		c. DATE SIGNED (YYMMDD) 020718																								

1. SCOPE

1.1 Scope. This drawing describes the requirements for a low-power pulse transformer. This drawing provides for a level of transformer quality and reliability assurance for acquisition of type TP7SXNNNKZ low-power pulse transformer in accordance with MIL-T-21038.

1.2 Part number. The complete part number shall be as shown in the following example:



2. APPLICABLE DOCUMENTS

2.1 Government specification and standard. Unless otherwise specified, the following specification and standard, of the issue listed in that issue of the Department of Defense Index of Specifications and Standards specified in the solicitation, form a part of this drawing to the extent specified herein.

SPECIFICATION

MILITARY

MIL-T-21038 - Transformers, Pulse, Low Power, General Specification for.

STANDARD

MILITARY

MIL-STD-202 - Test Methods for Electronic and Electrical Component Parts.

(Copies of the specification and standard required by manufacturers in connection with specific acquisition functions should be obtained from the contracting activity or as directed by the contracting activity.)

3. REQUIREMENTS

3.1 Item requirements. The individual item requirements shall be in accordance with MIL-T-21038, grade 7, and as specified herein.

3.2 Design and construction.

3.2.1 Dimensions and configurations. Dimensions and configurations shall be as specified on figure 1 and in table I.

3.2.2 Weight. The weight shall be 5 grams maximum.

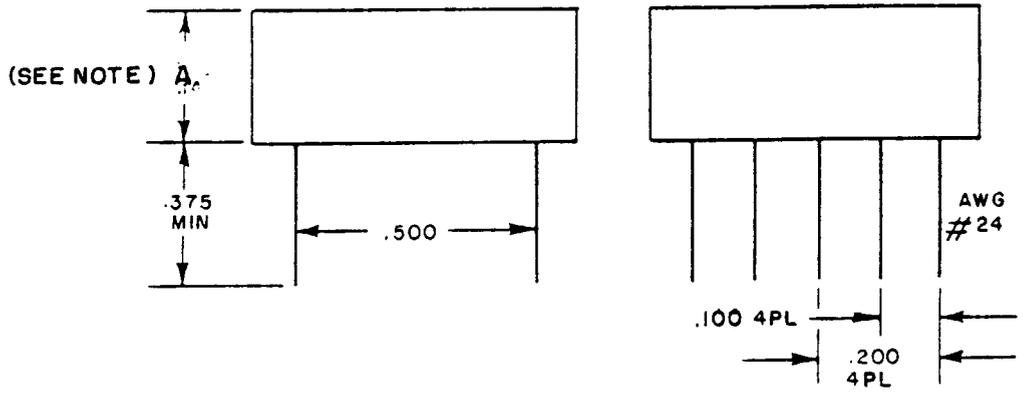
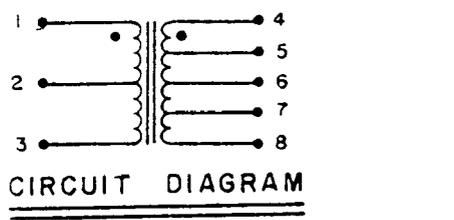
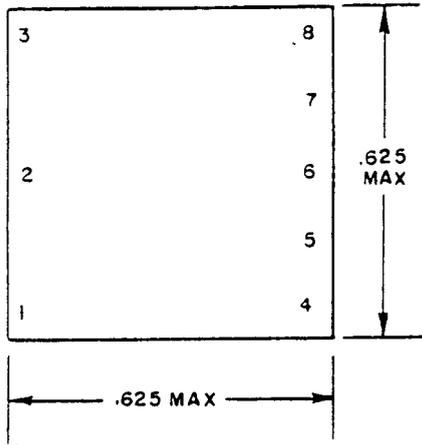
3.2.3 Case. The case shall be epoxy.

3.2.4 Terminals. The terminals shall be solderable, printed-circuit pins.

3.2.5 Operating temperature range. The operating temperature range shall be -55°C to +110°C for dash number 01, and -55°C to +130°C for all other dash numbers.

3.2.6 Design documentation. The design documentation shall be in accordance with MIL-T-21038. Unless otherwise specified in the contract or purchase order, documentation shall be retained by the manufacturer and available for review by the acquiring activity or contractor upon request.

DEFENSE ELECTRONICS SUPPLY CENTER DAYTON, OHIO	SIZE	CODE IDENT. NO.	DWG NO.
	A	14933	82030
	REV	C	PAGE 2



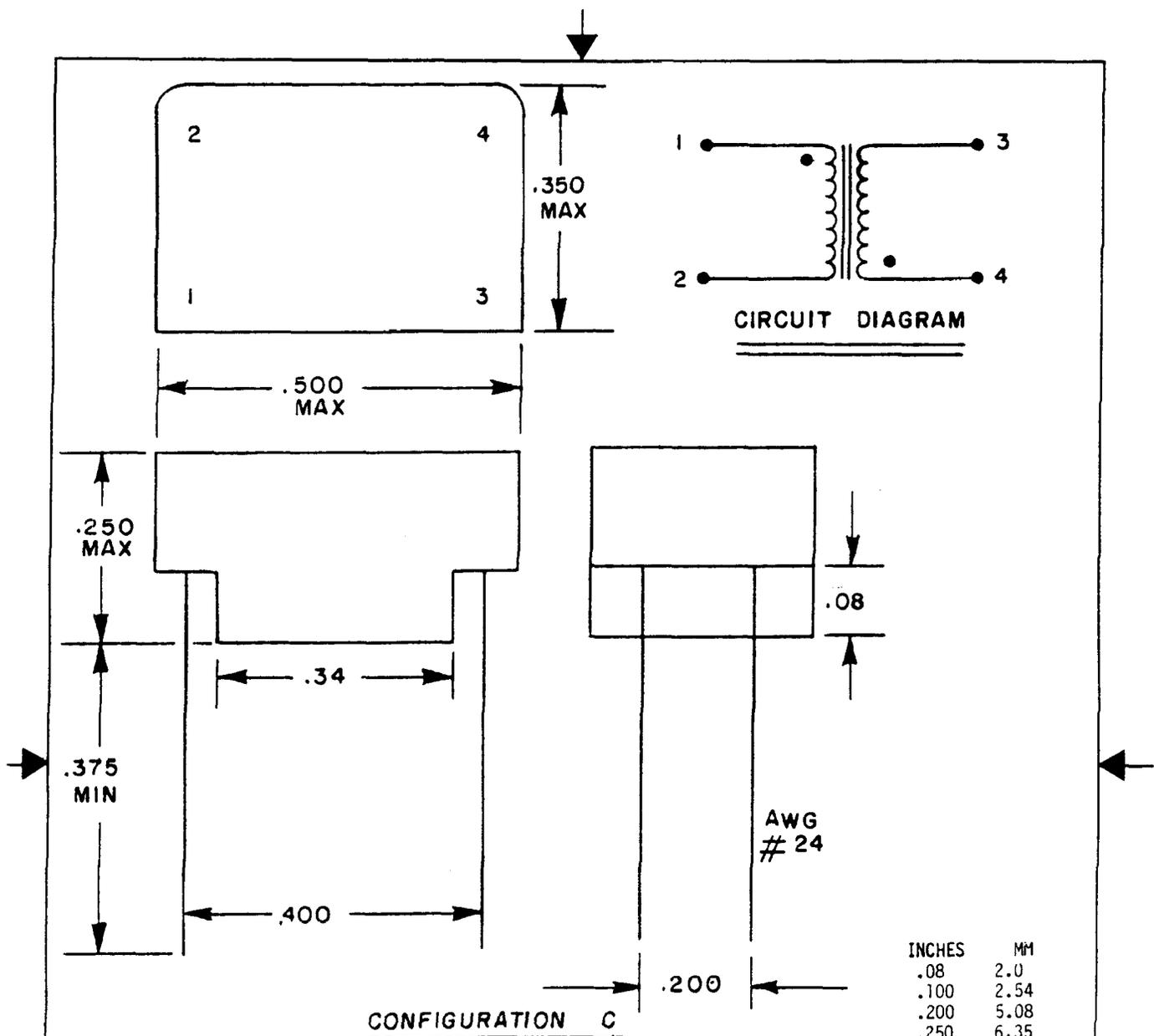
CONFIGURATION A

NOTE: See table I.

FIGURE 1. Dimensions and configurations.

DEFENSE ELECTRONICS SUPPLY CENTER DAYTON, OHIO	SIZE A	CODE IDENT. NO. 14933	DWG NO. 82030
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NOTES:

1. Dimensions are in inches.
2. Metric equivalents are given for general information only.
3. Unless otherwise specified, tolerance is ± 0.010 inches (0.25 mm).
4. Marking shall be on the top of the case.
5. Terminal identification shall be marked on the transformer as shown above.

FIGURE 1. Dimensions and configurations - Continued.

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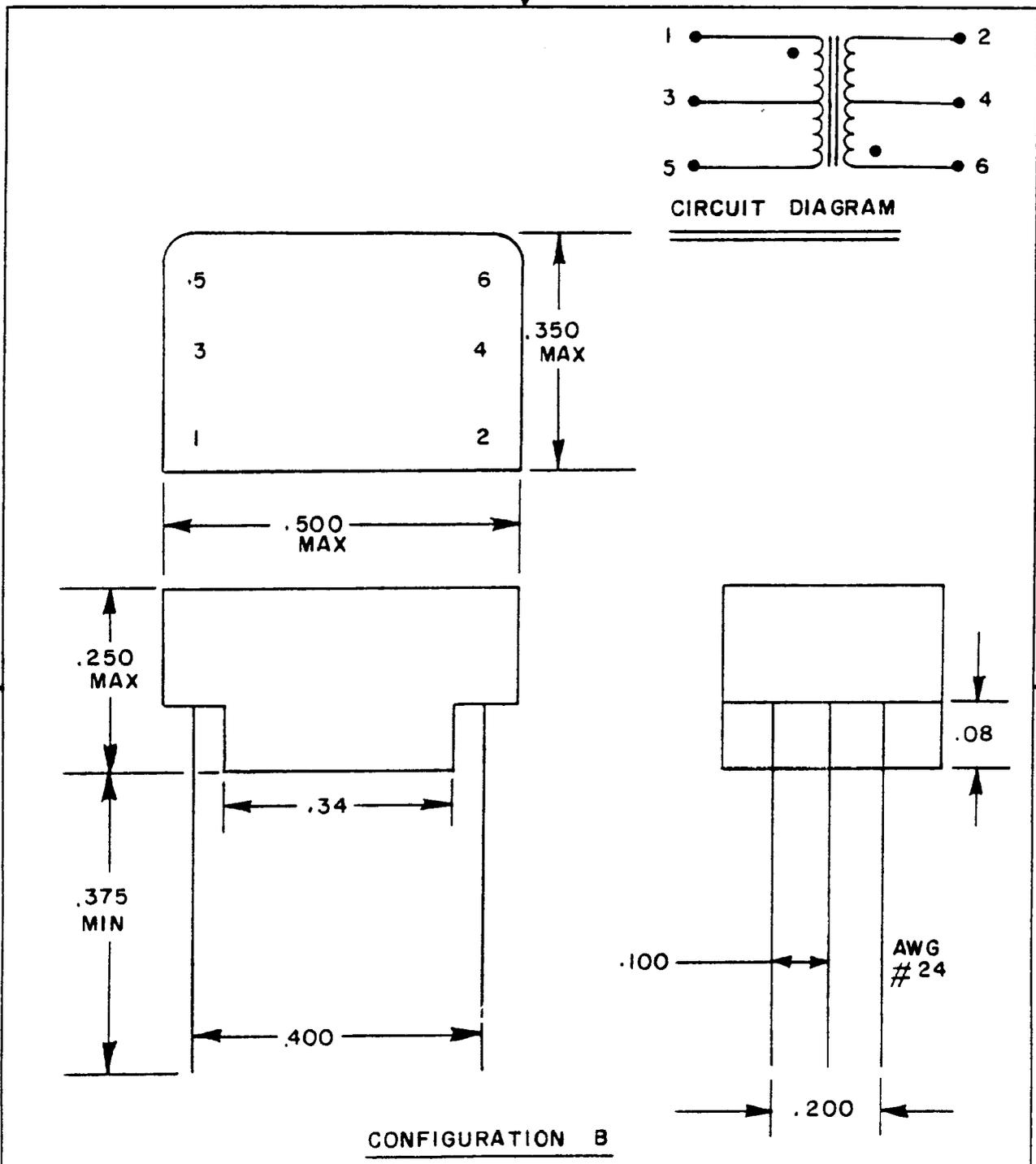


FIGURE 1. Dimensions and configurations - Continued.

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		REV A	PAGE 4

3.3 Electrical ratings.

3.3.1 Rise time of output pulse. The rise time of output pulse shall be less than 100 nanoseconds for dash number 01 and less than 150 nanoseconds for dash numbers 02 through 10.

3.3.2 Pulse width of output pulse. The pulse width of output pulse shall be 2 microseconds.

3.3.3 Overshoot. The overshoot shall be less than 1 volt when tested in accordance with 4.3.2.

3.3.4 Droop. See table I and 4.3.3.

3.3.5 Turns ratio. See table I.

3.3.6 Common mode rejection (CMR). See table I.

3.3.7 Input impedance. The input impedance shall be greater than 3,000 ohms when tested in accordance with 4.3.4 over the frequency range of 75 kilohertz to 1 megahertz with a temperature range of -55°C to +110°C for dash number 01 and -55°C to +130°C for all other dash numbers.

3.3.8 DC resistance. See table I.

3.3.9 Polarity. Polarity shall be in accordance with the circuit diagram of figure 1.

3.4 Terminal strength. The terminal strength shall be in accordance with MIL-STD-202, method 211, test condition A, 2 pounds applied force.

3.5 Dielectric withstanding voltage. The dielectric withstanding voltage shall be tested in accordance with MIL-STD-202, method 301, test voltage 100 V rms.

3.6 Insulation resistance. The insulation resistance shall be 10,000 megohms minimum at 250 V dc.

3.7 Life expectancy. The life expectancy shall be 10,000 hours minimum (X), in accordance with MIL-T-21038.

3.8 Vibration, high frequency. The vibration high frequency shall be tested in accordance with MIL-STD-202, method 204, test condition B.

3.9 Shock (specified pulse). The shock shall be tested in accordance with MIL-STD-202, method 213, test condition 1.

3.10 Marking. Marking shall be in accordance with MIL-T-21038, except the part number shall be in accordance with 1.2 herein. The similar vendor part number may also be marked in accordance with 6.4 herein.

4. QUALITY ASSURANCE PROVISIONS

4.1 Qualification inspection. Qualification inspection for this part is not required.

4.2 Quality conformance inspection.

4.2.1 Inspection of product for delivery. Inspection of product for delivery shall consist of group A and group B inspections of MIL-T-21038.

4.2.2 Group A inspection. Group A inspection shall be in accordance with MIL-T-21038.

4.2.3 Group B inspection. Group B inspection shall be in accordance with MIL-T-21038.

4.2.4 Certification. The acquiring activity, at its discretion, may accept a certificate of compliance with group A and group B requirements in lieu of performing group A and group B tests (see 6.2c).

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	A	14933	82030
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4.3 Methods of inspection. Methods of inspection shall be in accordance with MIL-T-21038 and as specified herein.

4.3.1 Common mode rejection (CMR) (see table I). The transformers shall be tested as specified on figure 2.

4.3.2 Rise time, pulse width, and overshoot (see 3.3.1 through 3.3.3). The transformers shall be tested as specified on figure 3 with the resulting output waveform shown on figure 4.

4.3.3 Droop (see table I). The transformers shall be tested as specified on figure 3 with the resulting output waveform shown on figure 4.

4.3.4 Input impedance. The transformers shall be tested as specified on figure 5 over the frequency range of 75 kHz to 1 MHz at -35°C, +25°C, and +110°C for dash number 01, and at -55°C, -35°C, +25°C +110°C, and +130°C for all other dash numbers.

5. PACKAGING

5.1 Packaging requirements. The requirements for packaging shall be in accordance with MIL-T-21038.

6. NOTES

6.1 Intended use. Transformers conforming to this drawing are intended for use when military specifications 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 unnecessary duplicate specifications, drawings, and stock catalog listings. When a military specification exists and the product covered by this drawing has been qualified for listing on QPL-21038, this drawing becomes obsolete and will not be used for new design. The QPL-21038 product shall be the preferred item for all applications.

6.2 Ordering data. The contract or purchase order should specify the following:

- a. Complete part number (see 1.2).
- b. Requirements for delivery of one copy of the quality conformance inspection data with each shipment of parts by the manufacturer.
- c. Whether the manufacturer performs the group A and group B tests or provides certification of compliance with group A and group B requirements.
- d. Requirements for notification of change of product to the contracting activity, if applicable.

6.3 Replaceability. Transformers covered by this drawing will replace the same commercial device covered by contractor-prepared specification or drawing.

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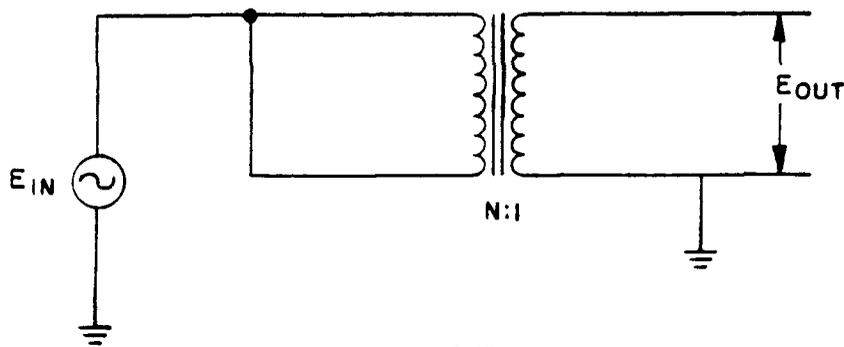
TABLE I. Electrical characteristics and dimensions.

Part number	1/ Turns ratio	Primary	Secondary	% (max.) droop	CMR (min.)	"A" (max.)	R _{DC} Ω (max.)	2/ Configuration
82030-01	1:1 ±3% 1:1.707 ±3%	1-3 1-3	4-8 5-7	20	45 dB	.325	1-3 1.9 4-8 2.1	A
82030-02	1:1 ±3% 1:1.707 ±3%	1-3 1-3	4-8 5-7	20	45 dB	.300	1-3 3.0 4-8 3.0	A
82030-03	1.4:1 ±3% 2:1 ±3%	1-3 1-3	4-8 5-7	20	45 dB	.250	1-3 3.5 4-8 3.0	A
82030-04	1.25:1 ±3% 1.66:1 ±3%	1-3 1-3	4-8 5-7	20	45 dB	.250	1-3 3.2 4-8 3.0	A
82030-05	2.3:1 ±3% 3.2:1 ±3%	4-8 5-7	1-3 1-3	20	45 dB	.300	1-3 1.2 4-8 3.0	A
82030-06	1:1.41 ±3%	1-2	3-4	20	45 dB	---	1-2 2.2 3-4 2.7	C
82030-07	1:1 ±3%	1-5	2-6	20	45 dB	---	1-5 2.5 2-6 2.8	B
82030-08	1:1.41 ±3%	1-5	2-6	20	45 dB	---	1-5 2.2 2-6 2.7	B
82030-09	1:1.66 ±3%	1-5	2-6	20	45 dB	---	1-5 1.5 2-6 2.4	B
82030-10	1:2 ±3%	1-5	2-6	20	45 dB	---	1-5 1.3 2-6 2.6	B

1/ Primary, secondary on all parts except -06 shall have center tap balance to ±5 percent.

2/ See figure 1.

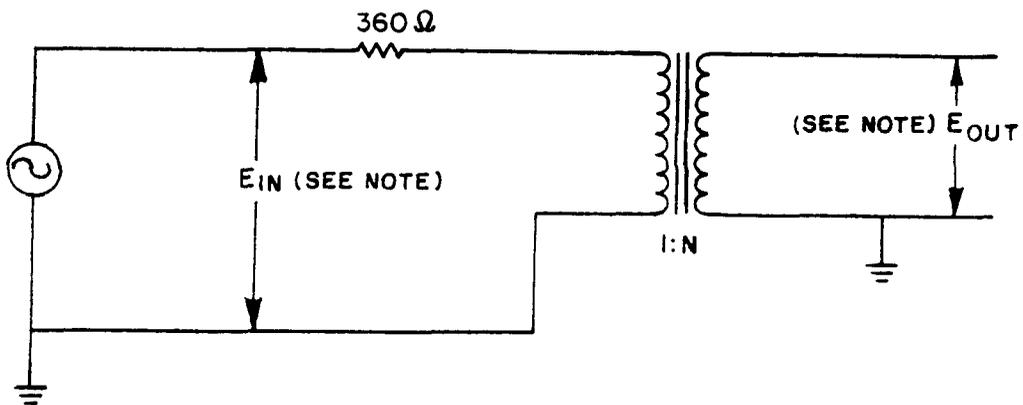
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$E_{IN} = 10 \text{ V rms @ 1 MHz}$
 Calc: $CMR = 20 \log \frac{E_{IN}}{E_{OUT}}$ (SEE NOTE)

NOTE: Input to be applied and output to be measured as shown for all dash numbers.

FIGURE 2. Test circuit for common mode rejection.



$E_{IN} = 250 \text{ kHz square wave, 27.0 volts peak-to-peak with a rise and fall time no greater than 100 ns.}$
 Calc: $\text{Droop} = \frac{E_D}{E_{OUT}} \times 100\%$. (See figure 4 for E_D .)

NOTE: Input to be applied and output to be measured as shown for all dash numbers.

FIGURE 3. Test circuit for droop, rise time, pulse width and overshoot.

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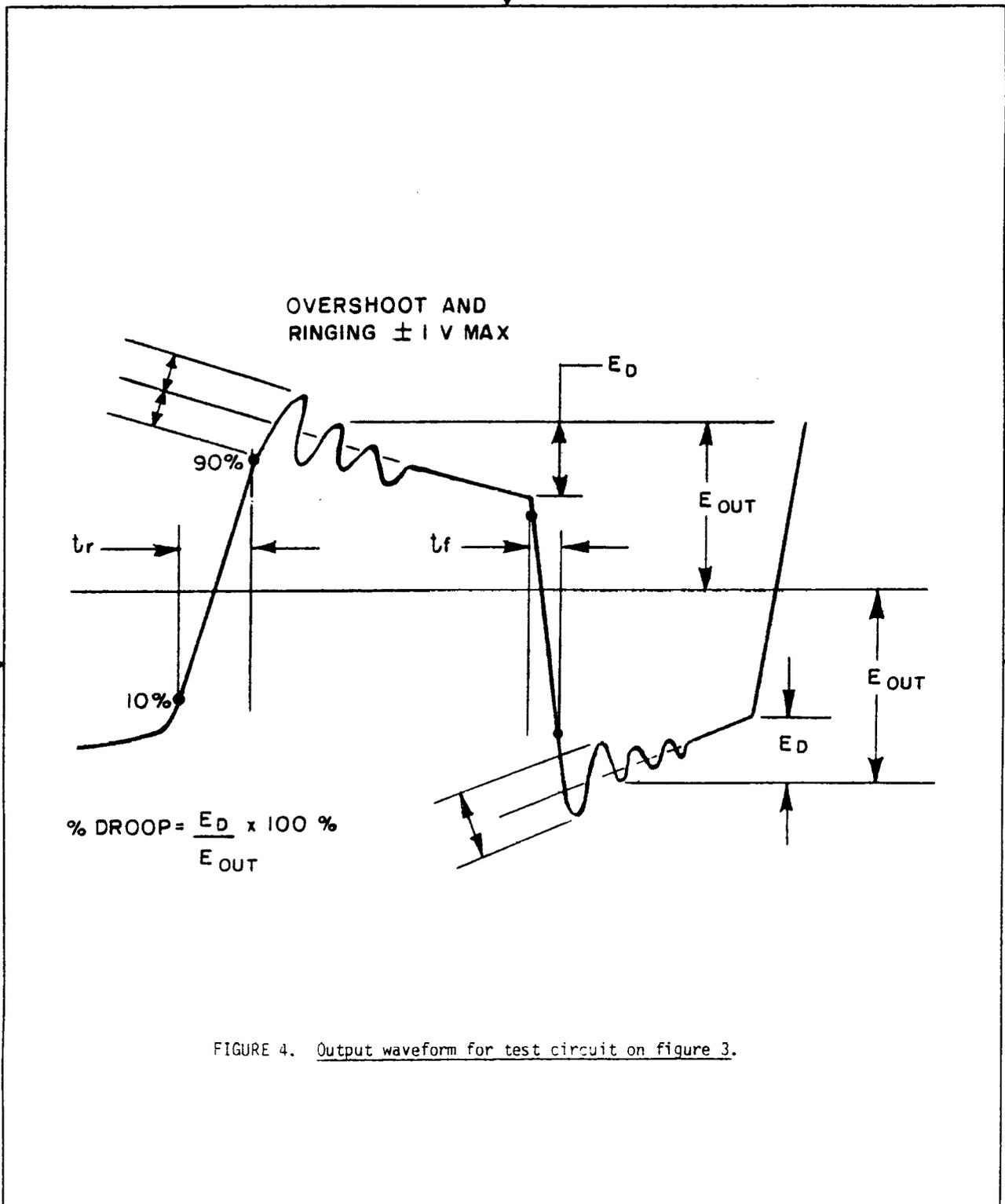
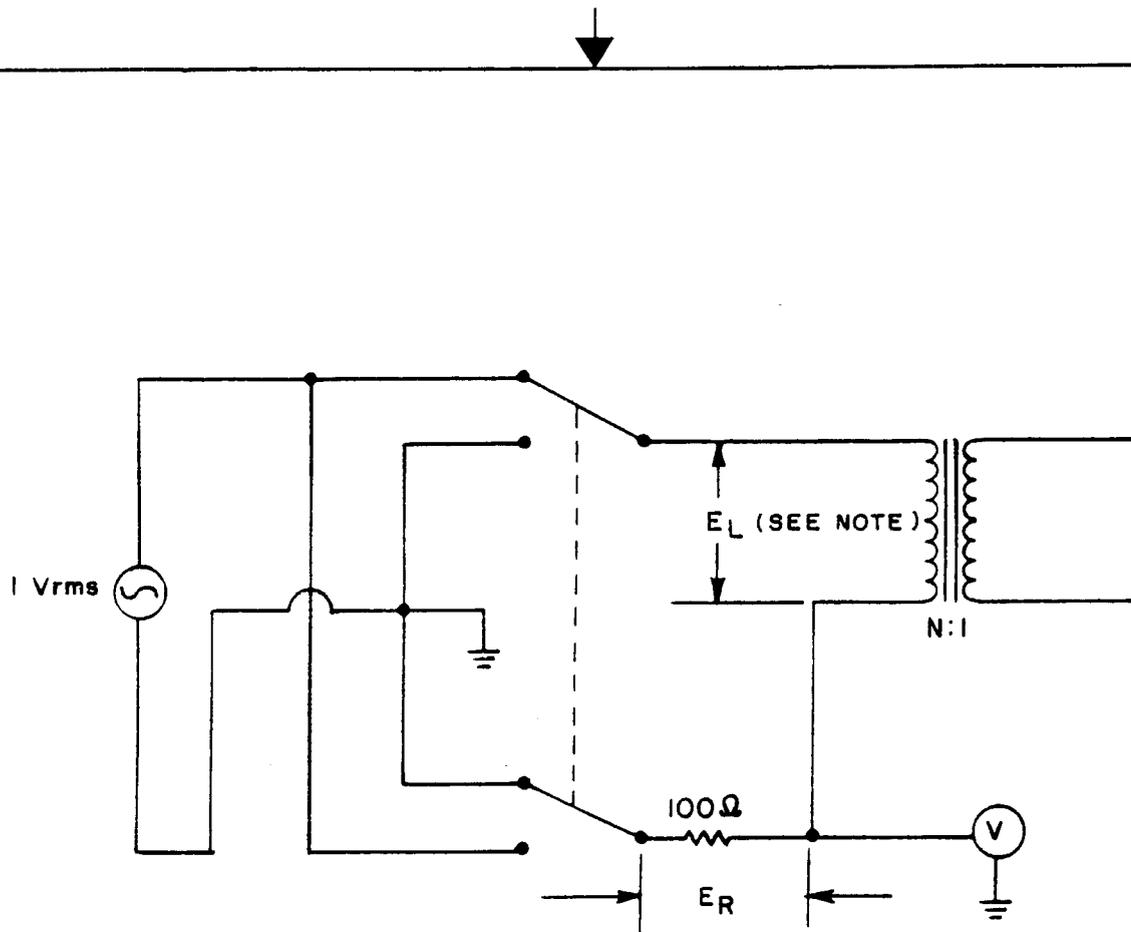


FIGURE 4. Output waveform for test circuit on figure 3.

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$$\text{Input Impedance } Z = \frac{E_L \times 100 \Omega}{E_R}$$

NOTE: Input to be applied to the high turn side for all dash numbers. Self impedance may also be measured using a HP4277A LCZ meter.

FIGURE 5. Test circuit for input impedance.

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6.4 Suggested sources of supply. Suggested sources of supply are listed herein. Additional suggested sources of supply will be added as they become available. For assistance in the use of this drawing, contact DESC-E, 1507 Wilmington Pike, Dayton, OH 45444, or telephone (513)296-6511.

DESC drawing	Vendor CAGE number	Similar vendor <u>1/</u> type	DESC drawing	Vendor CAGE number	Similar vendor <u>1/</u> type
82030-01	90095	X-1264	82030-06	90095	T1553-20
82030-01	08116	42601647	82030-06	08116	4260-1647-05
82030-01	5R384	B-2201	82030-06	5R384	B2206
82030-02	90095	T1553-1	82030-07	90095	T1553-21
82030-02	08116	4260-1647-01	82030-07	08116	4260-1647-06
82030-02	5R384	B-2202	82030-07	5R384	B-2207
82030-03	90095	T1553-2	82030-08	90095	T1553-22
82030-03	08116	4260-1647-02	82030-08	08116	4260-1647-07
82030-03	5R384	B-2203	82030-08	5R384	B-2208
82030-04	90095	T1553-3	82030-09	90095	T1553-23
82030-04	08116	4260-1647-03	82030-09	08116	4260-1647-08
82030-04	5R384	B-2204	82030-09	5R384	B-2209
82030-05	90095	T1553-4	82030-10	90095	T1553-24
82030-05	08116	4260-1647-04	82030-10	08116	4260-1647-09
82030-05	5R384	B-2205	82030-10	5R384	B-2210

1/ CAUTION: Do not use this number for item acquisition and marking. The similar vendor type may not satisfy the performance requirements of this drawing.

Vendor CAGE number

Vendor name and address

5R384

Beta Transformer
Technology Corporation
1 Comac Loop
Ronkonkoma, NY 11779

08116

Bourns, Incorporated
Magnetics Division
28151 Hwy 74
Romoland, CA 92380

90095

Technitrol, Incorporated
Transformer Division
1952 E. Allegheny Avenue
Philadelphia, PA 19134

**DEFENSE ELECTRONICS SUPPLY CENTER
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SIZE

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C

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