

REVISIONS																			
LTR	DESCRIPTION	DATE (YR-MO-DA)	APPROVED																
A	Changes in accordance with NOR 5962-R252-94.	94-07-25	K. A. Cottongim																
B	Add case outlines T, U, Y, and Z.	98-02-23	K. A. Cottongim																

REV																			
SHEET																			
REV	B																		
SHEET	15																		

REV STATUS OF SHEETS	REV	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B
	SHEET	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17

PMIC N/A  <div style="text-align: center;"> <b>STANDARD MICROCIRCUIT DRAWING</b> </div> <p style="text-align: center; font-size: small;">THIS DRAWING IS AVAILABLE FOR USE BY ALL DEPARTMENTS AND AGENCIES OF THE DEPARTMENT OF DEFENSE</p> <p style="text-align: center; font-size: small;">AMSC N/A</p>	PREPARED BY Steve L. Duncan  CHECKED BY Michael Jones  APPROVED BY Kendall A. Cottongim  DRAWING APPROVAL DATE 94-05-27  REVISION LEVEL  B	<div style="text-align: center;"> <b>DEFENSE SUPPLY CENTER COLUMBUS</b>  <b>P. O. BOX 3990</b>  <b>COLUMBUS, OHIO 43216-5000</b> </div> <div style="text-align: center; margin-top: 20px;"> <b>MICROCIRCUIT, HYBRID, LINEAR, 15 VOLT, DUAL CHANNEL, DC/DC CONVERTER</b> </div> <table border="1" style="width: 100%; border-collapse: collapse; margin-top: 10px;"> <tr> <td style="width: 15%;">SIZE <b>A</b></td> <td style="width: 35%;">CAGE CODE <b>67268</b></td> <td style="width: 50%; text-align: center;"><b>5962-93193</b></td> </tr> <tr> <td colspan="3" style="text-align: center;">SHEET 1 OF 15</td> </tr> </table>	SIZE <b>A</b>	CAGE CODE <b>67268</b>	<b>5962-93193</b>	SHEET 1 OF 15		
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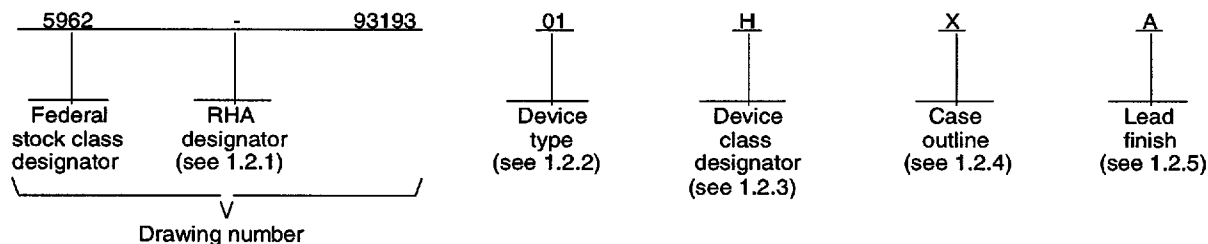
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## 1. SCOPE

1.1 **Scope.** This drawing documents five product assurance classes, class D (lowest reliability), class E, (exceptions), class G (lowest high reliability), class H (high reliability), and class K, (highest reliability) and a choice of case outlines and lead finishes are available and are reflected in the Part or Identifying Number (PIN). When available, a choice of radiation hardness assurance levels are reflected in the PIN.

1.2 **PIN.** The PIN shall be as shown in the following example:



1.2.1 **Radiation hardness assurance (RHA) designator.** Device classes H and K RHA marked devices shall meet the MIL-PRF-38534 specified RHA levels and shall be marked with the appropriate RHA designator. A dash (-) indicates a non-RHA device.

1.2.2 **Device type(s).** The device type(s) shall identify the circuit function as follows:

Device type	Generic number	Circuit function
01	MFL2815D	DC-DC Converter, 65 W, $\pm 15$ V outputs

1.2.3 **Device class designator.** This device class designator shall be a single letter identifying the product assurance level as follows:

Device class	Device performance documentation
D, E, G, H or K	Certification and qualification to MIL-PRF-38534

1.2.4 **Case outline(s).** The case outline(s) shall be as designated in MIL-STD-1835 and as follows:

Outline letter	Descriptive designator	Terminals	Package style
T	See figure 1	12	Tabbed flange mount, lead formed up
U	See figure 1	12	Flange mount, lead formed down
X	See figure 1	12	Flange mount, short lead
Y	See figure 1	12	Tabbed flange mount, short lead
Z	See figure 1	12	Tabbed flange mount, lead formed down

1.2.5 **Lead finish.** The lead finish shall be as specified in MIL-PRF-38534.

### 1.3 Absolute maximum ratings. 1/

Input voltage range ( $V_{IN}$ )	-0.5 V dc to +50 V dc
Power dissipation ( $P_D$ )	16 W
Lead soldering temperature (10 seconds)	+300°C
Storage temperature range	-65°C to +150°C

1/ Stresses above the absolute maximum rating may cause permanent damage to the device. Extended operation at the maximum levels may degrade performance and affect reliability.

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#### 1.4 Recommended operating conditions.

Input voltage range ( $V_{IN}$ ) ..... +16 V dc to +40 V dc  
Output power .....  $\leq 65W$   
Case operating temperature range ( $T_C$ ) ..... -55° C to +125° C

#### 2. APPLICABLE DOCUMENTS

2.1 Government specification, standards, and handbook. The following specification, standards, and handbook form a part of this drawing to the extent specified herein. Unless otherwise specified, the issues of these documents are those listed in the issue of the Department of Defense Index of Specifications and Standards (DoDISS) and supplement thereto, cited in the solicitation.

##### SPECIFICATION

###### DEPARTMENT OF DEFENSE

MIL-PRF-38534 - Hybrid Microcircuits, General Specification for.

##### STANDARDS

###### DEPARTMENT OF DEFENSE

MIL-STD-883 - Test Methods and Procedures for Microelectronics.  
MIL-STD-973 - Configuration Management.  
MIL-STD-1835 - Microcircuit Case Outlines.

##### HANDBOOK

###### DEPARTMENT OF DEFENSE

MIL-HDBK-780 - Standard Microcircuit Drawings.

(Unless otherwise indicated, copies of the specification, standards, and handbook are available from the Standardization Document Order Desk, 700 Robbins Avenue, Building 4D, Philadelphia, PA 19111-5094.)

2.2 Order of precedence. In the event of a conflict between the text of this drawing and the references cited herein, the text of this drawing takes precedence. Nothing in this document, however, supersedes applicable laws and regulations unless a specific exemption has been obtained.

#### 3. REQUIREMENTS

3.1 Item requirements. The individual item performance requirements for device classes D, E, G, H, and K shall be in accordance with MIL-PRF-38534. Compliance with MIL-PRF-38534 may include the performance of all tests herein or as designated in the device manufacturer's Quality Management (QM) plan or as designated for applicable device class. Therefore, the tests and inspections herein may not be performed for applicable device class (see MIL-PRF-38534). Furthermore, the manufacturers may take exceptions or use alternate methods to the tests and inspections herein and not perform them. However, the performance requirements as defined in MIL-PRF-38534 shall be met for the applicable device class. The modification in the QM plan shall not affect the form, fit, or function as described herein.

3.2 Design, construction, and physical dimensions. The design, construction, and physical dimensions shall be as specified in MIL-PRF-38534 and herein.

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3.2.1 Case outline(s). The case outline(s) shall be in accordance with 1.2.4 herein and figure 1.

3.2.2 Terminal connections. The terminal connections shall be as specified on figure 2.

3.3 Electrical performance characteristics. Unless otherwise specified herein, the electrical performance characteristics are as specified in table I and shall apply over the full specified operating temperature range.

3.4 Electrical test requirements. The electrical test requirements shall be the subgroups specified in table II. The electrical tests for each subgroup are defined in table I.

3.5 Marking of Device(s). Marking of device(s) shall be in accordance with MIL-PRF-38534. The device shall be marked with the PIN listed in 1.2 herein. In addition, the manufacturer's vendor similar PIN may also be marked as listed in QML-38534.

3.6 Data. In addition to the general performance requirements of MIL-PRF-38534, the manufacturer of the device described herein shall maintain the electrical test data (variables format) from the initial quality conformance inspection group A lot sample, for each device type listed herein. Also, the data should include a summary of all parameters manually tested, and for those which, if any, are guaranteed. This data shall be maintained under document revision level control by the manufacturer and be made available to the preparing activity (DSCC-VA) upon request.

3.7 Certificate of compliance. A certificate of compliance shall be required from a manufacturer in order to supply to this drawing. The certificate of compliance (original copy) submitted to DSCC-VA shall affirm that the manufacturer's product meets the performance requirements of MIL-PRF-38534 and herein.

3.8 Certificate of conformance. A certificate of conformance as required in MIL-PRF-38534 shall be provided with each lot of microcircuits delivered to this drawing.

#### 4. QUALITY ASSURANCE PROVISIONS

4.1 Sampling and inspection. Sampling and inspection procedures shall be in accordance with MIL-PRF-38534 or as modified in the device manufacturer's Quality Management (QM) plan. The modification in the QM plan shall not affect the form, fit, or function as described herein.

4.2 Screening. Screening shall be in accordance with MIL-PRF-38534. The following additional criteria shall apply:

a. Burn-in test, method 1015 of MIL-STD-883.

(1) Test condition A, B, C, or D. The test circuit shall be maintained by the manufacturer under document revision level control and shall be made available to either DSCC-VA or the acquiring activity upon request. Also, the test circuit shall specify the inputs, outputs, biases, and power dissipation, as applicable, in accordance with the intent specified in test method 1015 of MIL-STD-883.

(2)  $T_A$  as specified in accordance with table I of method 1015 of MIL-STD-883.

b. Interim and final electrical test parameters shall be as specified in table II herein, except interim electrical parameter tests prior to burn-in are optional at the discretion of the manufacturer.

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TABLE I. Electrical performance characteristics.

Test	Symbol	Conditions -55°C ≤ T <sub>C</sub> ≤ +125°C V <sub>IN</sub> = 28 V dc ±0.5 V dc no external sync, C <sub>L</sub> = 0 unless otherwise specified	Group A subgroups	Device type	Limits		Unit
					Min	Max	
Output voltage	V <sub>OUT</sub>	I <sub>OUT</sub> = ±2.17 A dc, (main)	1	01	+14.85	+15.15	V
			2, 3		+14.55	+15.45	
		I <sub>OUT</sub> = ±2.17 A dc, (dual)	1		-14.77	-15.23	
			2, 3		-14.47	-15.53	
Output current 1/	I <sub>OUT</sub>	V <sub>IN</sub> = 16 V, 28 V, and 40 V dc, sum of both outputs	1, 2, 3	01	0.0	4.34	A
Output ripple voltage	V <sub>RIP</sub>	I <sub>OUT</sub> = ±2.17 A, (main) BW = 10 kHz to 2 MHz	1	01		100	mV p-p
			2, 3			150	
		I <sub>OUT</sub> = ±2.17 A, (dual) BW = 10 kHz to 2 MHz	1			100	
			2, 3			150	
Line regulation	V <sub>RLINE</sub>	I <sub>OUT</sub> = ±2.17 A, (main) V <sub>IN</sub> = 16 V dc to 40 V dc	1, 2, 3	01		50	mV
		I <sub>OUT</sub> = ±2.17 A, (dual) V <sub>IN</sub> = 16 V dc to 40 V dc				100	
Load regulation	V <sub>RLOAD</sub>	I <sub>OUT</sub> = 0 to ±2.17 A, (main)	1, 2, 3	01		50	mV
		I <sub>OUT</sub> = 0 to ±2.17 A, (dual)				150	
Input current	I <sub>IN</sub>	I <sub>OUT</sub> = 0 A, inhibit 1 (pin 4) = 0	1, 2, 3	01		14	mA
		I <sub>OUT</sub> = 0 A, inhibit 2 (pin 12) = 0				70	
		I <sub>OUT</sub> = 0 A, inhibit 1 (pin 4) = open and inhibit 2 (pin 12) = open				100	

See footnotes at end of table.

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TABLE I. Electrical performance characteristics - Continued.

Test	Symbol	Conditions -55°C ≤ T <sub>C</sub> ≤ +125°C V <sub>IN</sub> = 28 V dc ±0.5 V dc no external sync, C <sub>L</sub> = 0 unless otherwise specified	Group A subgroups	Device type	Limits		Unit
					Min	Max	
Input ripple current	I <sub>RIP</sub>	I <sub>OUT</sub> = ±2.17 A, BW = 10 kHz to 10 MHz	1	01		45	mA p-p
			2, 3			50	
Efficiency	Eff	I <sub>OUT</sub> = ±2.17 A	1	01	84		%
			2, 3		82		
Isolation	ISO	Input to output or any pin to case at 500 V dc	1	01	100		MΩ
Capacitive load 2/ 3/ (each output)	C <sub>L</sub>	No effect on dc performance	4	01		500	μF
Power dissipation load fault	P <sub>D</sub>	Short circuit	1	01		14	W
			2, 3			16	
Switching frequency	F <sub>S</sub>	I <sub>OUT</sub> = ±2.17 A	4, 5, 6	01	525	675	kHz
External sync range 4/	F <sub>SYNC</sub>	I <sub>OUT</sub> = ±2.17 A, TTL level to pin 6	4, 5, 6	01	525	675	kHz
Output response to step transient load changes 5/	V <sub>TLOAD</sub>	50 percent load to/from 100 percent load	4, 5, 6	01	-600	+600	mV pk
Recovery time step transient load changes 3/ 5/ 6/	T <sub>TLOAD</sub>	50 percent load to/from 100 percent load	4, 5, 6	01		3.0	ms

See footnotes at end of table.

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TABLE I. Electrical performance characteristics - Continued.

Test	Symbol	Conditions -55°C ≤ T <sub>C</sub> ≤ +125°C V <sub>IN</sub> = 28 V dc ±0.5 V dc no external sync, C <sub>L</sub> = 0 unless otherwise specified	Group A subgroups	Device type	Limits		Unit
					Min	Max	
Output response to transient step line changes 3/ 7/	V <sub>TLINE</sub>	I <sub>OUT</sub> = ±2.17 A, Input step from 16 V dc to 40 V dc	4, 5, 6	01	-400	+400	mV pk
		I <sub>OUT</sub> = ±2.17 A, Input step from 40 V dc to 16 V dc			-400	+400	
Recovery time, transient step line changes 3/ 6/	T <sub>TLINE</sub>	I <sub>OUT</sub> = ±2.17 A, Input step from 16 V dc to 40 V dc	4, 5, 6	01		300	μs
		I <sub>OUT</sub> = ±2.17 A, Input step from 40 V dc to 16 V dc				300	
Turn-on overshoot 3/	V <sub>tonOS</sub>	I <sub>OUT</sub> = ±2.17 A, V <sub>IN</sub> = 0 to 28 V dc	4, 5, 6	01		±50	mV pk
Turn-on delay time 8/	T <sub>onD</sub>	I <sub>OUT</sub> = ±2.17 A, V <sub>IN</sub> = 0 to 28 V dc	4, 5, 6	01		6	ms
Load fault recovery 3/	T <sub>rLF</sub>	I <sub>OUT</sub> = ±2.17 A	4, 5, 6	01		4	ms

- 1/ The output power available from either output is limited to 45.5 watts (i.e. 70 percent of the total output power).
- 2/ Capacitive load may be any value from 0 to the maximum limit without compromising dc performance.
- 3/ Parameter shall be tested as part of design characterization and after design or process changes; therefore, the parameter shall be guaranteed to limits specified in table I.
- 4/ A TTL level waveform (V<sub>IH</sub> = 4.5 V minimum, V<sub>IL</sub> = 0.8 V maximum) with a 50 percent ±10 percent duty cycle applied to the sync input pin (pin 6) within the the sync range frequency shall cause the converter's switching frequency to become synchronous with the frequency applied to the sync input pin (pin 6).
- 5/ Load step transition time is 10 microseconds minimum.
- 6/ Recovery time is measured from the initiation of the transient until V<sub>OUT</sub> has returned to within ±1 percent of its final value.
- 7/ Input step transition time greater than 10 microseconds.
- 8/ Turn-on delay time measurement is either for a step application of power at the input or the removal of a ground signal from the inhibit 1 pin (pin 4) or inhibit 2 pin (pin 12) while power is applied to the input

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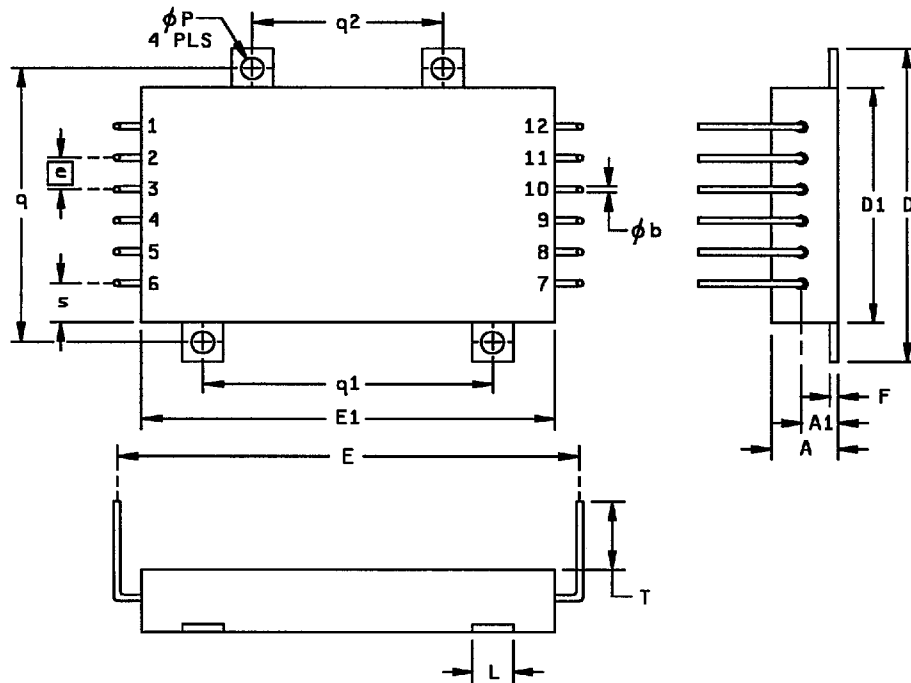
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Case outline T.



Symbol	Millimeters		Inches	
	Min	Max	Min	Max
A		10.16		0.400
A1	5.33	5.84	0.210	0.230
$\phi b$	0.89	1.14	0.035	0.045
D	50.55	51.05	1.990	2.010
D1	37.85	38.35	1.490	1.510
e	5.08 BSC		0.200 BSC	
E	69.85	72.39	2.750	2.850
E1	63.25	63.75	2.490	2.510
F	1.14	1.40	0.045	0.055
L	6.10	6.60	0.240	0.260
$\phi P$	3.43	3.68	0.135	0.145
$q/q1$	44.20	44.70	1.740	1.760
$q2$	28.96	29.46	1.140	1.160
s	6.10	6.60	0.240	0.260
T	10.92	11.43	0.430	0.450

NOTES:

1. The U. S. preferred system of measurement is the metric SI. This case outline was originally designed using inch-pound units of measurement, in the event of conflict between the metric and inch-pound units, the inch-pound shall take precedence.
2. Device weight: 86 grams maximum.

FIGURE 1. Case outline(s).

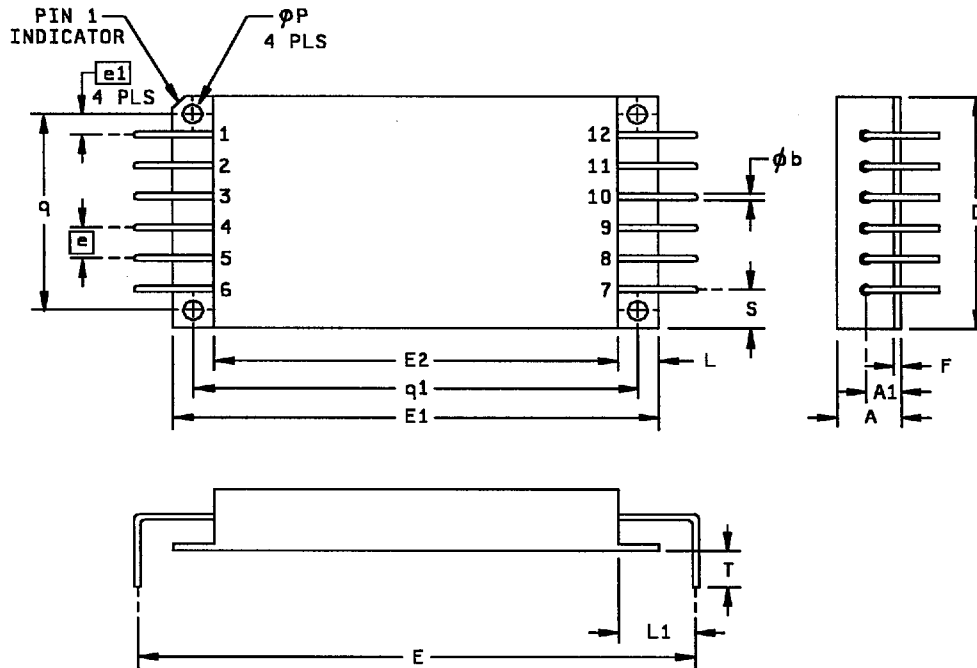
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Case outline U.



Symbol	Millimeters		Inches	
	Min	Max	Min	Max
A		10.16		0.400
A1	5.46	5.72	0.215	0.225
$\phi b$	0.89	1.14	0.035	0.045
D	37.97	38.23	1.495	1.505
e	5.08 BSC		0.200 BSC	
e1	3.30 BSC		0.130 BSC	
E	87.38	87.88	3.440	3.460
E1	75.95	76.45	2.990	3.010
E2	63.37	63.63	2.495	2.505
F	1.14	1.40	0.045	0.055
L	6.10	6.60	0.240	0.260
L1	11.94	12.19	0.470	0.480
$\phi P$	3.12	3.38	0.123	0.133
q	31.88	32.13	1.255	1.265
q1	69.85	70.36	2.750	2.770
S	6.22	6.48	0.245	0.255
T	5.84	6.86	0.230	0.270

## NOTES:

1. The U. S. preferred system of measurement is the metric SI. This case outline was originally designed using inch-pound units of measurement, in the event of conflict between the metric and inch-pound units, the inch-pound shall take precedence.
2. Device weight: 86 grams maximum.

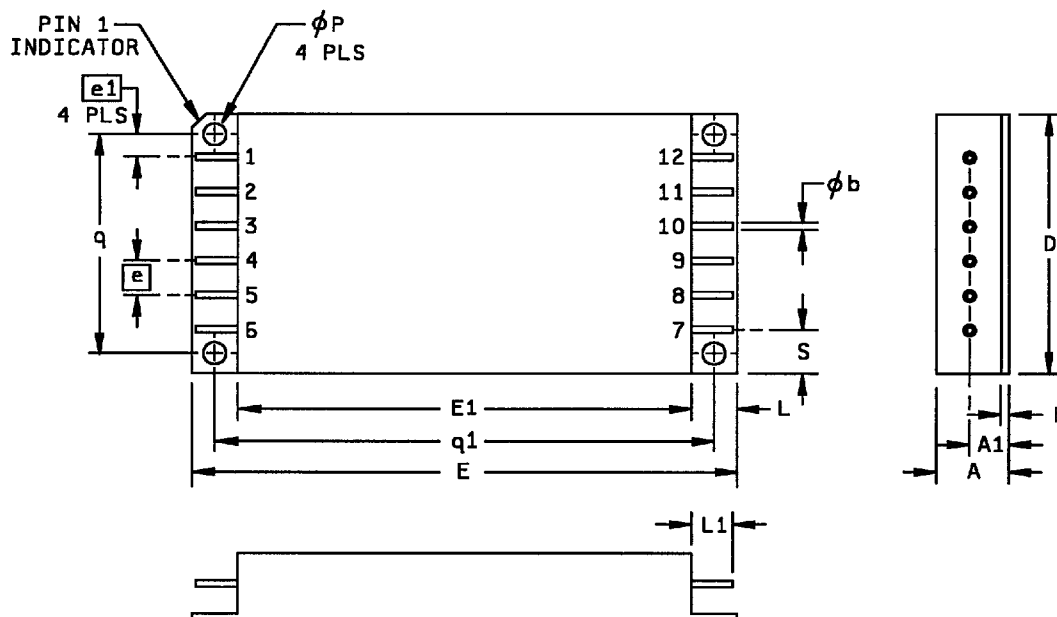
FIGURE 1. Case outline(s) - Continued.

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Case outline X.



Symbol	Millimeters		Inches	
	Min	Max	Min	Max
A		10.16		0.400
A1	5.46	5.72	0.215	0.225
$\phi b$	0.89	1.14	0.035	0.045
D	37.97	38.23	1.495	1.505
e	5.08 BSC		0.200 BSC	
e1	3.30 BSC		0.130 BSC	
E	75.95	76.45	2.990	3.010
E1	63.37	63.63	2.495	2.505
F	1.14	1.40	0.045	0.055
L	6.10	6.60	0.240	0.260
L1	5.58	6.10	0.220	0.240
$\phi P$	3.12	3.38	0.123	0.133
q	31.88	32.13	1.255	1.265
q1	69.85	70.36	2.750	2.770
s	6.22	6.48	0.245	0.255

NOTES:

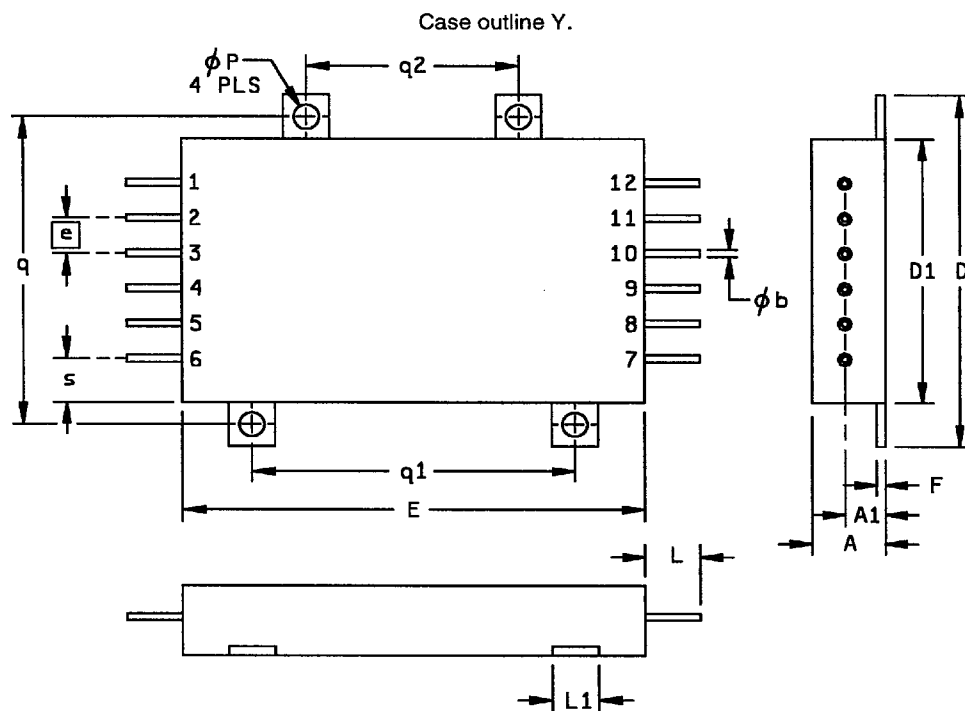
1. The U. S. preferred system of measurement is the metric SI. This case outline was originally designed using inch-pound units of measurement, in the event of conflict between the metric and inch-pound units, the inch-pound shall take precedence.
2. Device weight: 86 grams maximum.

FIGURE 1. Case outline(s) - Continued.

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Symbol	Millimeters		Inches	
	Min	Max	Min	Max
A		10.16		0.400
A1	5.33	5.84	0.210	0.230
$\phi b$	0.89	1.14	0.035	0.045
D	50.55	51.05	1.990	2.010
D1	37.85	38.35	1.490	1.510
e	5.08 BSC		0.200 BSC	
E	63.25	63.75	2.490	2.510
F	1.14	1.40	0.045	0.055
L	6.99	8.26	0.275	0.325
L1	6.10	6.60	0.240	0.260
$\phi P$	3.43	3.68	0.135	0.145
q/q1	44.20	44.70	1.740	1.760
q2	28.96	29.46	1.140	1.160
s	6.10	6.60	0.240	0.260

**NOTES:**

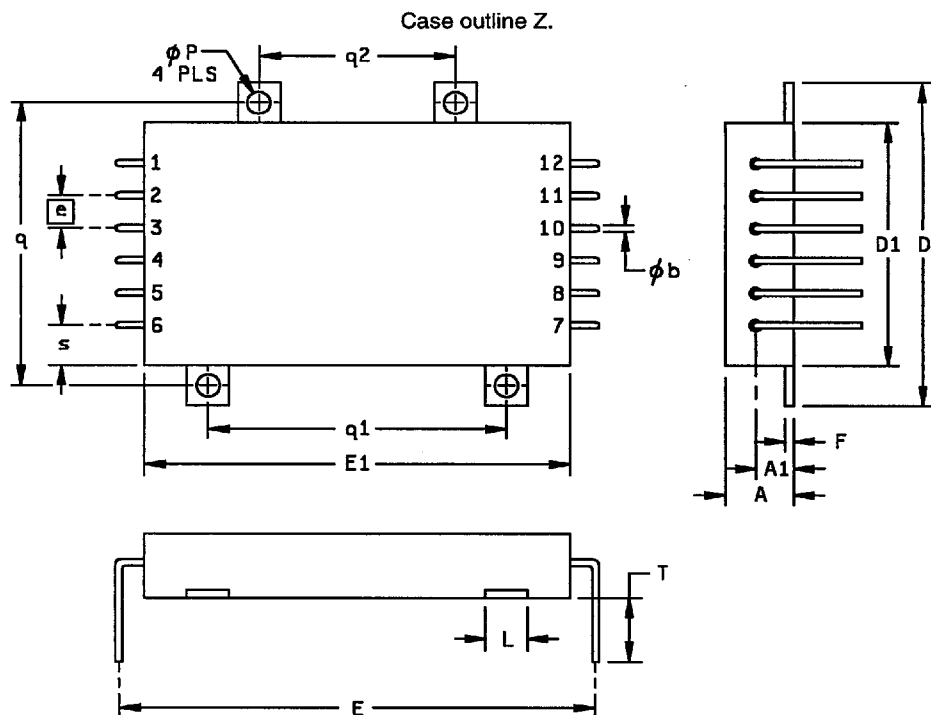
1. The U. S. preferred system of measurement is the metric SI. This case outline was originally designed using inch-pound units of measurement, in the event of conflict between the metric and inch-pound units, the inch-pound shall take precedence.
2. Device weight: 86 grams maximum.

FIGURE 1. Case outline(s) - Continued.

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Symbol	Millimeters		Inches	
	Min	Max	Min	Max
A		10.16	0.210	0.400
A1	5.33	5.84	0.210	0.230
$\phi b$	0.89	1.14	0.035	0.045
D	50.55	51.05	1.990	2.010
D1	37.85	38.35	1.490	1.510
e	5.08 BSC		0.200 BSC	
E	69.85	72.39	2.750	2.850
E1	63.25	63.75	2.490	2.510
F	1.14	1.40	0.045	0.055
L	6.10	6.60	0.240	0.260
$\phi P$	3.43	3.68	0.135	0.145
$q/q1$	44.20	44.70	1.740	1.760
$q2$	28.96	29.46	1.140	1.160
s	6.10	6.60	0.240	0.260
T	8.64	9.65	0.340	0.380

**NOTES:**

1. The U. S. preferred system of measurement is the metric SI. This case outline was originally designed using inch-pound units of measurement, in the event of conflict between the metric and inch-pound units, the inch-pound shall take precedence.
2. Device weight: 86 grams maximum.

FIGURE 1. Case outline(s) - Continued.

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Device type	01
Case outline	T, U, X, Y, and Z
Terminal number	Terminal symbol
1	Input
2	Input common
3	Tri
4	Inhibit 1
5	Sync output
6	Sync input
7	Positive output
8	Output common
9	Negative output
10	No connection
11	Slave to master
12	Master to slave/ Inhibit 2

**NOTES:**

1. Multiple devices may be used in parallel to drive a common load. When using this mode of operation the load current is shared by two or three devices. In the current sharing mode, one device is designated as the master. The slave to master pin (pin 11) of the master device is not connected and the master to slave/inhibit 2 pin (pin 12) of the master is connected to the slave to master pin (pin 11) of the slave device(s). The device(s) designated as slave(s) have the master to slave/inhibit 2 pin (pin 11) connected to the output common pin (pin 8).
2. A second slave device may be placed in parallel with a master and slave device, this requires the Tri pin (pin 3) of the master device to be connected to the output common pin (pin 8). When paralleled, 95 percent of the sum of the power of the devices is available at the load. This means that 185 watts at 15 volts is available for three devices in parallel.
3. The device has a sync input pin (pin 6) and a sync output pin (pin 5) which allows multiple devices, whether their in a single unit or master/slave configurations to be synchronized to a system clock or each other. Two or more devices may be synchronized to each other by connecting the sync output pin (pin 5) of one to the sync input pin (pin 6) of another.
4. The device has two inhibit options, one is ground referenced to the input common and the other is referenced to the output common. The output referred inhibit pin uses the master to slave/inhibit 2 pin (pin 12). This pin is normally used to parallel devices, and a TTL compatible open collector low will inhibit the device when applied to this pin.

FIGURE 2. Terminal connections.

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TABLE II. Electrical test requirements.

MIL-PRF-38534 test requirements	Subgroups (in accordance with MIL-PRF-38534, group A test table)
Interim electrical parameters	---
Final electrical parameters	1*, 2, 3, 4, 5, 6
Group A test requirements	1, 2, 3, 4, 5, 6
Group C end-point electrical parameters	1
MIL-STD-883, group E end-point electrical parameters for RHA devices	Subgroups** (in accordance with method 5005, group A test table)

\* PDA applies to subgroup 1.

\*\* When applicable to this standard microcircuit drawing,  
the subgroups shall be defined.

4.3 Conformance and periodic inspections. Conformance inspection (CI) and periodic inspection (PI) shall be in accordance with MIL-PRF-38534 and as specified herein.

4.3.1 Group A inspection (CI). Group A inspection shall be in accordance with MIL-PRF-38534 and as follows:

- a. Tests shall be as specified in table II herein.
- b. Subgroups 7, 8, 9, 10, and 11 shall be omitted.

4.3.2 Group B inspection (PI). Group B inspection shall be in accordance with MIL-PRF-38534.

4.3.3 Group C inspection (PI). Group C inspection shall be in accordance with MIL-PRF-38534 and as follows:

- a. End-point electrical parameters shall be as specified in table II herein.
- b. Steady-state life test, method 1005 of MIL-STD-883.
  - (1) Test condition A, B, C, or D. The test circuit shall be maintained by the manufacturer under document revision level control and shall be made available to either DSCC-VA or the acquiring activity upon request. Also, the test circuit shall specify the inputs, outputs, biases, and power dissipation, as applicable, in accordance with the intent specified in test method 1005 of MIL-STD-883.
  - (2)  $T_A$  as specified in accordance with table I of method 1005 of MIL-STD-883.
  - (3) Test duration: 1,000 hours, except as permitted by method 1005 of MIL-STD-883.

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4.3.4 Group D inspection (PI). Group D inspection shall be in accordance with MIL-PRF-38534.

4.3.5 Group E inspection. Group E inspection is required only for parts intended to be marked as radiation hardness assured (see 3.5 herein). RHA levels for device classes H and K shall be M, D, R, and H. RHA quality conformance inspection sample tests shall be performed at the RHA level specified in the acquisition document.

- a. RHA tests for device classes H and K for levels M, D, R, and H shall be performed through each level to determine at what levels the devices meet the RHA requirements. These RHA tests shall be performed for initial qualification and after design or process changes which may affect the RHA performance of the device.
- b. End-point electrical parameters shall be as specified in table II herein.
- c. Prior to total dose irradiation, each selected sample shall be assembled in its qualified package. It shall pass the specified group A electrical parameters in table I for subgroups specified in table II herein.
- d. For device classes H and K, the devices shall be subjected to radiation hardness assured tests as specified in MIL-PRF-38534 for RHA level being tested, and meet the postirradiation end-point electrical parameter limits as defined in table I at  $T_A = +25^\circ\text{C} \pm 5\text{ percent}$ , after exposure.
- e. Prior to and during total dose irradiation testing, the devices shall be biased to establish a worst case condition as specified in the radiation exposure circuit.
- f. For device classes H and K, subgroups 1 and 2 in table V, method 5005 of MIL-STD-883 shall be tested as appropriate for device construction.
- g. When specified in the purchase order or contract, a copy of the RHA delta limits shall be supplied.

## 5. PACKAGING

5.1 Packaging requirements. The requirements for packaging shall be in accordance with MIL-PRF-38534.

## 6. NOTES

6.1 Intended use. Microcircuits conforming to this drawing are intended for use for Government microcircuit applications (original equipment), design applications, and logistics purposes.

6.2 Replaceability. Microcircuits covered by this drawing will replace the same generic device covered by a contractor-prepared specification or drawing.

6.3 Configuration control of SMD's. All proposed changes to existing SMD's will be coordinated with the users of record for the individual documents. This coordination will be accomplished in accordance with MIL-STD-973 using DD Form 1692, Engineering Change Proposal.

6.4 Record of users. Military and industrial users shall inform Defense Supply Center Columbus when a system application requires configuration control and the applicable SMD. DSCC will maintain a record of users and this list will be used for coordination and distribution of changes to the drawings. Users of drawings covering microelectronic devices (FSC 5962) should contact DSCC-VA, telephone (614) 692-7603.

6.5 Comments. Comments on this drawing should be directed to DSCC-VA, P. O. Box 3990, Columbus, Ohio 43216-5000, or telephone (614) 692-0676.

6.6 Sources of supply. Sources of supply are listed in QML-38534. The vendors listed in QML-38534 have submitted a certificate of compliance (see 3.7 herein) to DSCC-VA and have agreed to this drawing.

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## STANDARD MICROCIRCUIT DRAWING SOURCE APPROVAL BULLETIN

DATE: 98-02-23

Approved sources of supply for SMD 5962-93192 are listed below for immediate acquisition only and shall be added to QML-38534 during the next revision. QML-38534 will be revised to include the addition or deletion of sources. The vendors listed below have agreed to this drawing and a certificate of compliance has been submitted to and accepted by DSCC-VA. This bulletin is superseded by the next dated revision of QML-38534.

Standard microcircuit drawing PIN 1/	Vendor CAGE number	Vendor similar PIN 2/
5962-9319301HTA 5962-9319301HTC	50821 50821	MFL2815DW/883 MFL2815DW/883
5962-9319301HUA 5962-9319301HUC	50821 50821	MFL2815DV/883 MFL2815DV/883
5962-9319301HXA 5962-9319301HXC	50821 50821	MFL2815D/883 MFL2815D/883
5962-9319301HYA 5962-9319301HYC	50821 50821	MFL2815DY/883 MFL2815DY/883
5962-9319301HZA 5962-9319301HZC	50821 50821	MFL2815DZ/883 MFL2815DZ/883

- 1/ The lead finish shown for each PIN, representing a hermetic package, is the most readily available from the manufacturer listed for that part. If the desired lead finish is not listed contact the Vendor to determine availability.
- 2/ Caution. Do not use this number for item acquisition. Items acquired to this number may not satisfy the performance requirements of this drawing.

Vendor CAGE  
number

50821

Vendor name  
and address

Interpoint Corporation  
10301 Willows Road  
Redmond, WA 98073-9705

The information contained herein is disseminated for convenience only and the Government assumes no liability whatsoever for any inaccuracies in this information bulletin.

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