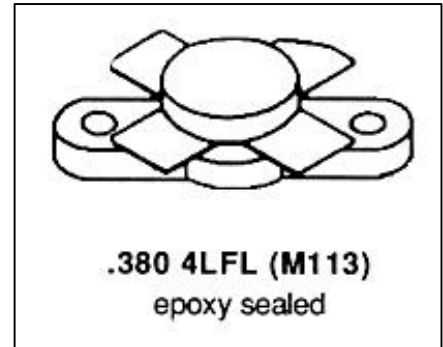


**SD1018-06**

**RF AND MICROWAVE TRANSISTORS  
VHF AND FM MOBILE APPLICATIONS**

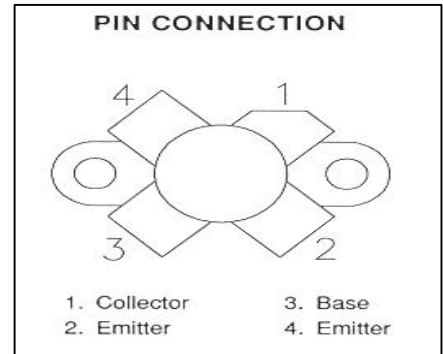
**Features**

- FM CLASS C TRANSISTOR
- 175 MHz
- 12.5 Volts
- P<sub>OUT</sub> = 40 W MIN.
- G<sub>P</sub> = 4.5 dB GAIN
- EFFICIENCY 70%
- COMMON EMITTER



**DESCRIPTION:**

The SD1018-06 is an epitaxial silicon NPN planar transistor designed primarily for VHF mobile and marine transmitters. The device utilizes ballasted emitter resistors and improved metallization systems to achieve extreme ruggedness under severe operating conditions.



**ABSOLUTE MAXIMUM RATINGS (T<sub>case</sub> = 25°C)**

Symbol	Parameter	Value	Unit
V <sub>CBO</sub>	Collector-Base Voltage	36.0	V
V <sub>CEO</sub>	Collector-Emitter Voltage	18.0	V
V <sub>ces</sub>	Collector-Emitter Voltage	36.0	V
V <sub>EBO</sub>	Emitter-Base Voltage	4.0	V
I <sub>C</sub>	Collector Current	6.0	A
P <sub>DISS</sub>	Power Dissipation	80.0	W
T <sub>J</sub>	Junction Temperature	+200	°C
T <sub>STG</sub>	Storage Temperature	-65 to +150	°C

**Thermal Data**

R <sub>TH(j-c)</sub>	Junction-Case Thermal Resistance	2.2	°C/W
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**ELECTRICAL SPECIFICATIONS (T<sub>case</sub> = 25°C)**
**STATIC**

Symbol	Test Conditions	Value			Units
		Min.	Typ.	Max.	
<b>BV<sub>CES</sub></b>	<b>I<sub>C</sub> = 20 mA    V<sub>BE</sub> = 0 V</b>	<b>36</b>			<b>V</b>
<b>BV<sub>CEO</sub></b>	<b>I<sub>C</sub> = 100 mA    I<sub>B</sub> = 0 mA</b>	<b>18</b>			<b>V</b>
<b>BV<sub>EBO</sub></b>	<b>I<sub>E</sub> = 10 mA    I<sub>C</sub> = 0 mA</b>	<b>4.0</b>			<b>V</b>
<b>I<sub>CBO</sub></b>	<b>V<sub>CB</sub> = 15 V    I<sub>E</sub> = 0 mA</b>			<b>2.5</b>	<b>mA</b>
<b>h<sub>FE</sub></b>	<b>V<sub>CE</sub> = 5 V    I<sub>C</sub> = 1 A</b>	<b>5</b>			

**DYNAMIC**

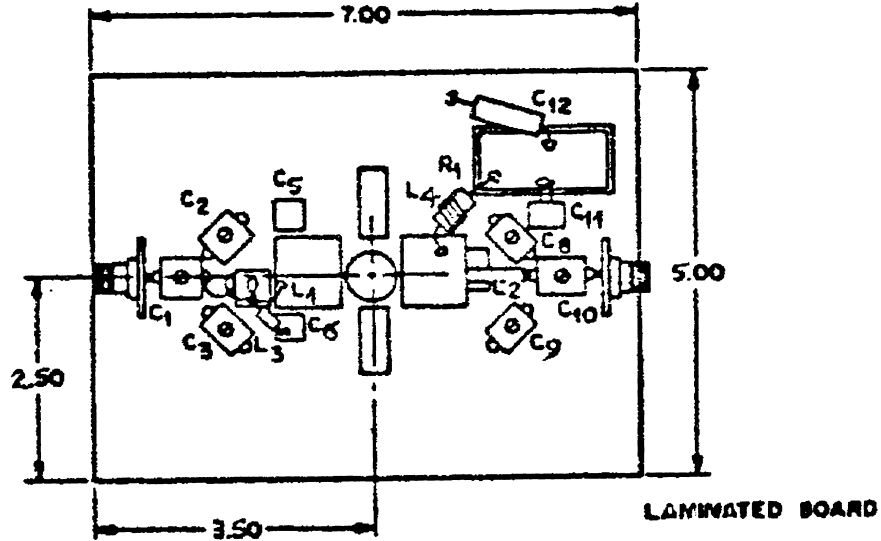
Symbol	Test Conditions	Value			Units
		Min.	Typ.	Max.	
<b>P<sub>OUT</sub></b>	<b>f = 175 MHz    V<sub>CE</sub> = 12.5 V</b>	<b>40</b>			<b>W</b>
<b>G<sub>P</sub></b>	<b>f = 175 MHz    V<sub>CE</sub> = 12.5 V</b>	<b>4.5</b>			<b>dB</b>
<b>η<sub>C</sub></b>	<b>f = 175 MHz    V<sub>CE</sub> = 12.5 V</b>	<b>70</b>			<b>%</b>
<b>C<sub>OB</sub></b>	<b>f = 1 MHz    V<sub>CB</sub> = 15 V    I<sub>E</sub> = 0</b>			<b>200</b>	<b>pF</b>

**IMPEDANCE DATA**

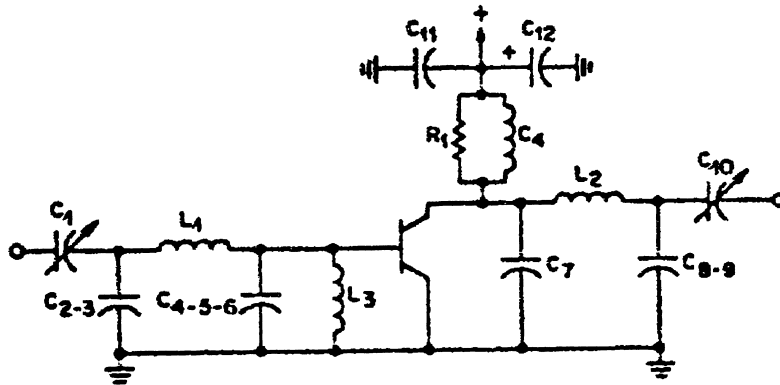
<b>P<sub>IN</sub> (W)</b>	<b>P<sub>OUT</sub> (W)</b>	<b>Z<sub>IN</sub> (Ω)</b>	<b>Z<sub>CL</sub> (Ω)</b>
<b>4</b>	<b>21.7</b>	<b>0.8 – j 1.1</b>	<b>2.2 – j 0.3</b>
<b>8</b>	<b>37.1</b>	<b>0.8 – j 1.3</b>	<b>1.7 – j 0.5</b>
<b>12</b>	<b>46.5</b>	<b>0.8 – j 1.6</b>	<b>1.6 – j 0.3</b>

F<sub>o</sub> = 175 MHz  
V<sub>CC</sub> = 12.5 V

**TEST CIRCUIT**



1. Material: Epoxy Glass Board with Copper Lands for Base and Collector Contacts
2. Clamp: DE-STA-CO No. 205S

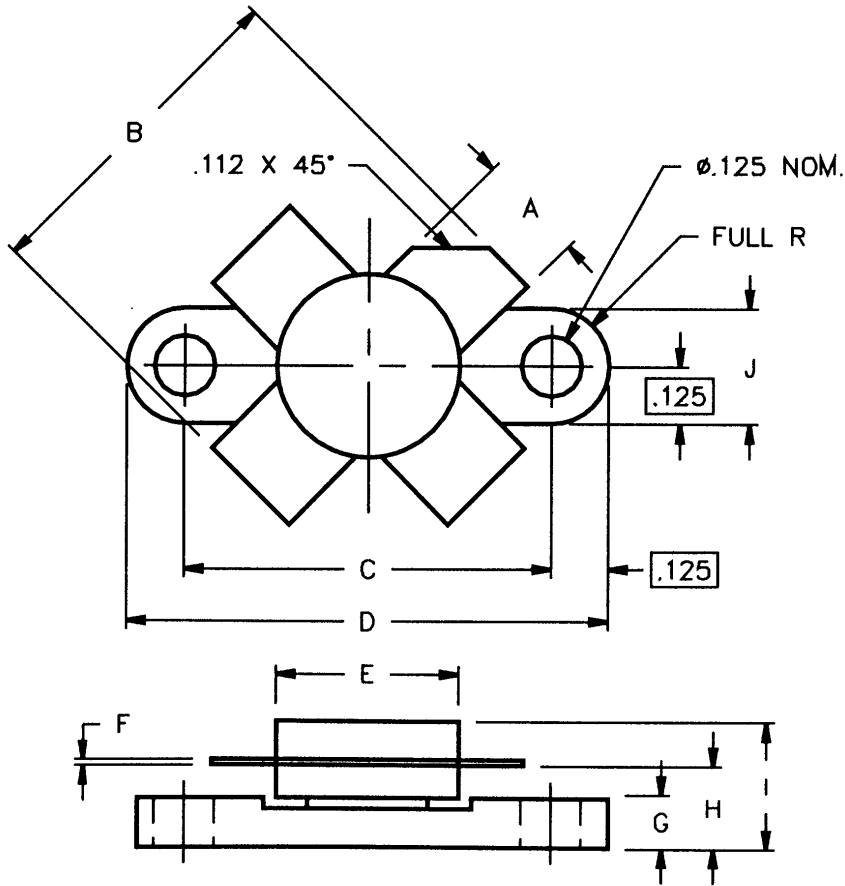


- |                         |  |
|-------------------------|--|
| C1 : ARCO 462           | L1 : 1 1/2 Turns #14 AWG,<br>1/4" I.D. x 1/2" Long |
| C2,C3,C4 : ARCO 403     | L2* : 1/8" Wide Brass Strap x 1 1/2" Long          |
| C4,C5,C6 : Unelco 100pF | L3 : Ferrite Bead 48                               |
| C7 : Unelco 200pF       | L4 : 4 Turns, #16 AWG, 3/4" Long<br>Wound on R1    |
| C8,C9,C10: ARCO 404     | R1 : 510Ω  |
| C11 : Unelco 500pF      |  |
| C12 : 33μF 15V          |  |

L2\*



**PACKAGE MECHANICAL DATA**



	MINIMUM INCHES/MM	MAXIMUM INCHES/MM		MINIMUM INCHES/MM	MAXIMUM INCHES/MM
A	.220/5,59	.230/5,84	I		.260/7,11
B	.785/19,94		J	.240/6,10	.255/6,48
C	.720/18,29	.730/18,54			
D	.970/24,64	.980/24,89			
E		.385/9,78			
F	.004/0,10	.006/0,15			
G	.085/2,16	.105/2,67			
H	.160/4,06	.180/4,57			