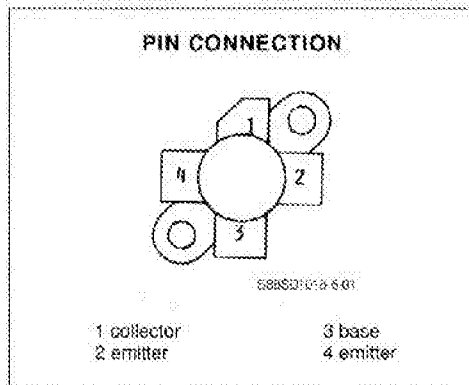
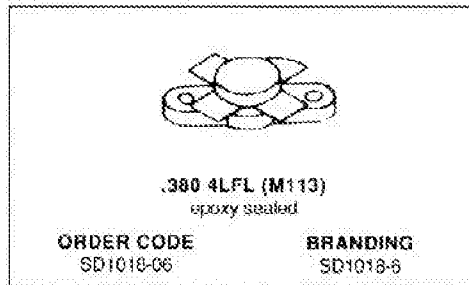


**RF & MICROWAVE TRANSISTORS**  
**130...230MHz FM MOBILE APPLICATIONS**

- FM CLASS C TRANSISTOR
- FREQUENCY 175MHz
- VOLTAGE 12.5V
- POWER OUT 40W
- POWER GAIN 4.5dB
- EFFICIENCY 70%
- COMMON EMITTER



**DESCRIPTION**

The SD1018-6 is an epitaxial silicon NPN planar transistor designed primarily for VHF mobile and marine transmitters. This 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>CE0</sub>	Collector - Base Voltage	36.0	V
V <sub>CE0</sub>	Collector - Emitter Voltage	18.0	V
V <sub>CEB</sub>	Collector - Emitter Voltage	36.0	V
V <sub>EB0</sub>	Emitter - Base Voltage	4.0	V
I <sub>c</sub>	Collector Current	6.0	A
P <sub>tot</sub>	Total Power Dissipation	80.0	W
T <sub>stg</sub>	Storage Temperature	- 65 to + 150	°C
T <sub>j</sub>	Junction Temperature	200	°C

**THERMAL DATA**

R <sub>th(j-c)</sub>	Junction case Thermal Resistance	2.2	°C/W
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SD1018-6

ELECTRICAL CHARACTERISTICS (T<sub>case</sub> = 25°C)

STATIC

Symbol	Test Conditions	Value			Unit
		Min.	Typ.	Max.	
BV <sub>ces</sub>	I <sub>C</sub> = 20mA V <sub>BE</sub> = 0	36.0			V
BV <sub>ceo</sub>	I <sub>C</sub> = 100mA I <sub>B</sub> = 0	18.0			V
BV <sub>ebo</sub>	I <sub>E</sub> = 10mA I <sub>C</sub> = 0	4.0			V
I <sub>ceo</sub>	V <sub>CE</sub> = 15.0V I <sub>B</sub> = 0			2.5	mA
h <sub>FE</sub>	V <sub>CE</sub> = 5.0V I <sub>C</sub> = 1A	5.0			

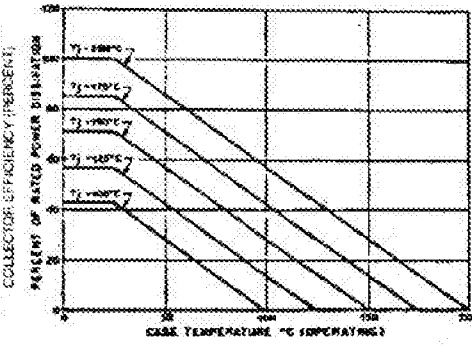
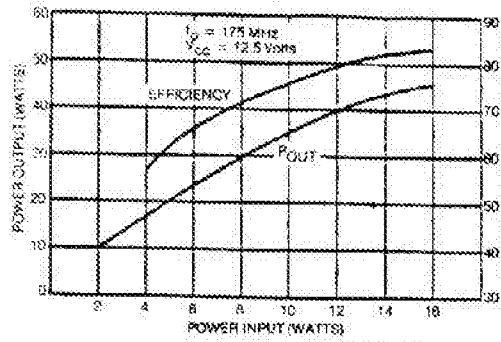
DYNAMIC

Symbol	Test Conditions	Value			Unit
		Min.	Typ.	Max.	
P <sub>o</sub>	f = 175MHz V <sub>CE</sub> = 12.5V	40.0			W
G <sub>p</sub>	f = 175MHz V <sub>CE</sub> = 12.5V	4.5			dB
η <sub>c</sub>	f = 175MHz V <sub>CE</sub> = 12.5V	70.0			%
C <sub>cb</sub>	f = 1MHz V <sub>CE</sub> = 15V I <sub>C</sub> = 0			200.0	pF

APPLICATION INFORMATION (typical curves)

POWER OUTPUT VS. POWER INPUT

POWER DERATING CHART

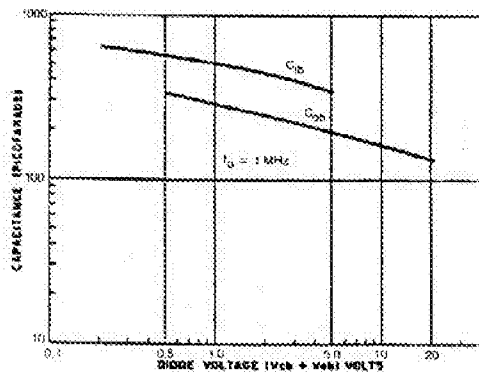


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## APPLICATION INFORMATION (typical curves) (continued)

## CAPACITANCE VS. VOLTAGE



S88801018-6-06

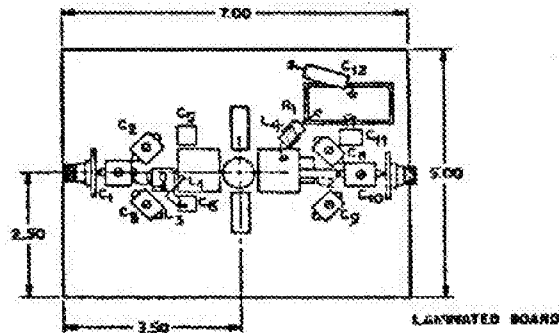
## IMPEDANCE DATA (typical)

## NETWORK IMPEDANCE AT TRANSISTOR TERMINALS

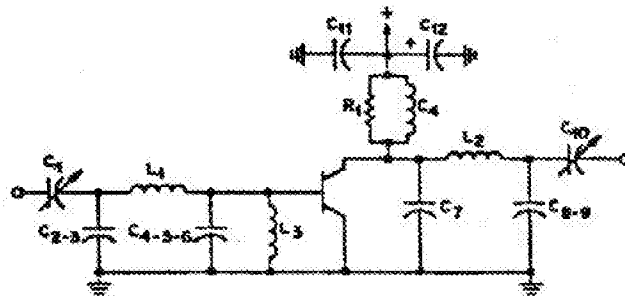
$f_0 = 175 \text{ MHz}$		$V_{CC} = 12.5 \text{ V}$	
$P_{IN}$ WATTS	$P_{out}$ WATTS	INPUT OHMS	OUTPUT OHMS
4	21.7	$0.8 - j1.1$	$2.2 - j0.3$
8	37.1	$0.8 - j1.3$	$1.7 - j0.5$
12	46.5	$0.8 - j1.6$	$1.6 - j0.3$

SD1018-6

TEST CIRCUIT (175MHz)



1. MATERIAL : Epoxy Glass Board with Copper Lands for Base and Collector Contacts  
 2. CLAMP : DE STA-DO No. 2055



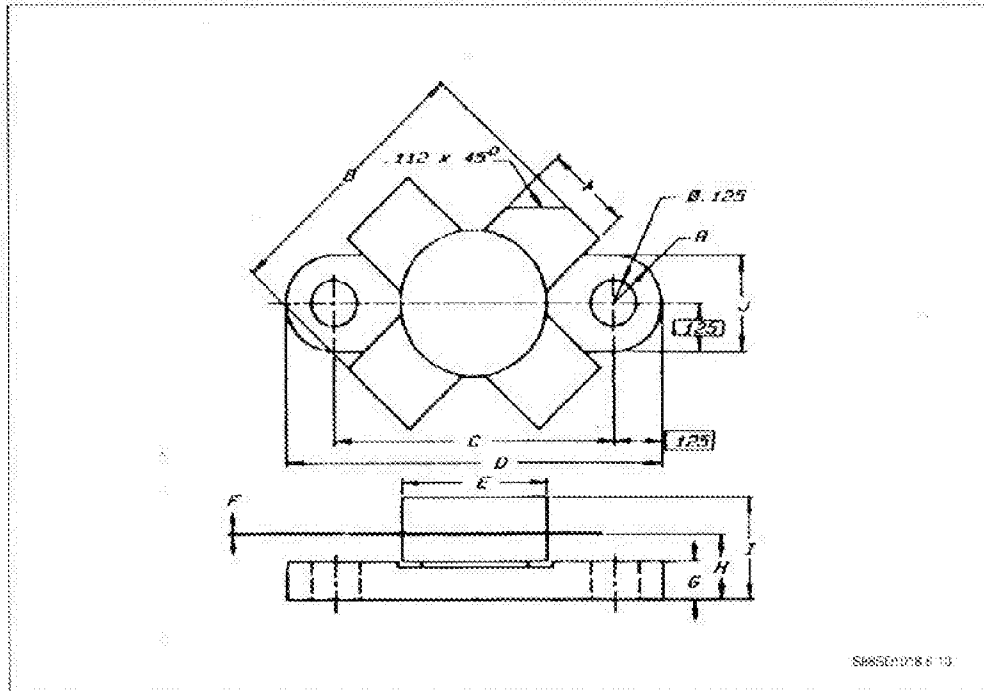
- |             |              |    |                                    |
|-------------|--------------|----|------------------------------------|
| C1          | ARGO 462     | L1 | 11/2 turns, No. 14 awg.            |
| C2, C3, C4  | ARGO 403     | L2 | 14" 10x1.2" long                   |
| C4, C5, C6  | UNELCO 100pF | L3 | 1/8" wide brass strap x 11/2" long |
| C7          | UNELCO 200pF | L4 | FERRITE BEAD 4B                    |
| C8, C9, C10 | ARGO 404     | L4 | 4 turns, No. 16 awg, 3/4" long     |
| C11         | UNELCO 500pF | R1 | wound on R1                        |
| C12         | 33pF 15V     |    | 510Ω                               |



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## PACKAGE MECHANICAL DATA

380 4LFL



SD1018-6 10

	Minimum Inches/mm	Maximum Inches/mm
A	.220/5.59	.230/5.84
B	.785/19.94	
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	.180/4.06	.183/4.57
I		.280/7.11
J	.240/6.10	.255/6.48