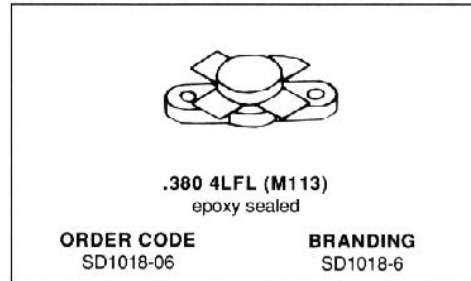


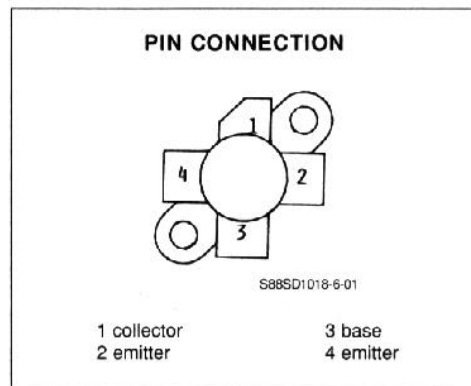
**RF & MICROWAVE TRANSISTORS**  
**130...230MHz FM MOBILE APPLICATIONS**

- 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** ( $T_{case} = 25^{\circ}C$ )

Symbol	Parameter	Value	Unit
$V_{CBO}$	Collector - Base Voltage	36.0	V
$V_{CEO}$	Collector - Emitter Voltage	18.0	V
$V_{CES}$	Collector - Emitter Voltage	36.0	V
$V_{EBO}$	Emitter - Base Voltage	4.0	V
$I_C$	Collector Current	6.0	A
$P_{Tot}$	Total Power Dissipation	80.0	W
$T_{stg}$	Storage Temperature	- 65 to + 150	$^{\circ}C$
$T_J$	Junction Temperature	200	$^{\circ}C$

**THERMAL DATA**

$R_{th(j-c)}$	Junction-case Thermal Resistance	2.2	$^{\circ}C/W$
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**SD1018-6**

**ELECTRICAL CHARACTERISTICS** ( $T_{case} = 25^{\circ}C$ )

STATIC

Symbol	Test Conditions		Value			Unit
			Min.	Typ.	Max.	
$BV_{CES}$	$I_C = 20mA$	$V_{BE} = 0$	36.0			V
$BV_{CLO}$	$I_C = 100mA$	$I_B = 0$	18.0			V
$BV_{EBO}$	$I_E = 10mA$	$I_C = 0$	4.0			V
$I_{CBO}$	$V_{CB} = 15.0V$	$I_L = 0$			2.5	mA
$h_{FE}$	$V_{CE} = 5.0V$	$I_C = 1A$	5.0			

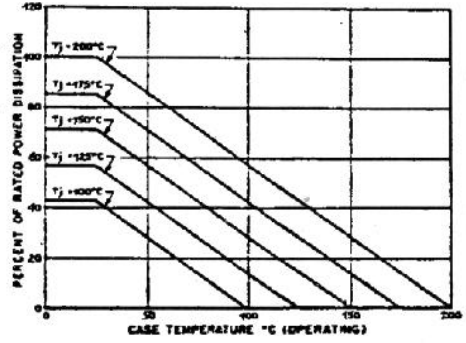
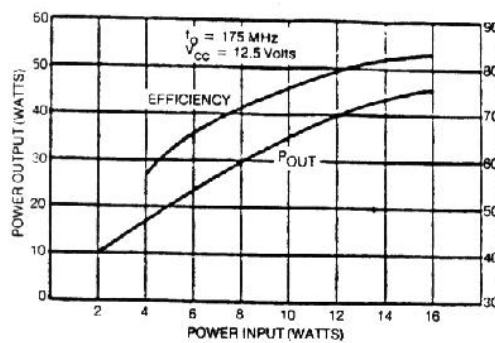
DYNAMIC

Symbol	Test Conditions		Value			Unit
			Min.	Typ.	Max.	
$P_D$	$f = 175MHz$	$V_{CE} = 12.5V$	40.0			W
$G_P$	$f = 175MHz$	$V_{CE} = 12.5V$	4.5			dB
$\eta_C$	$f = 175MHz$	$V_{CE} = 12.5V$	70.0			%
$C_{OB}$	$f = 1MHz$	$V_{CB} = 15V$			200.0	pF

**APPLICATION INFORMATION** (typical curves)

POWER OUTPUT VS. POWER INPUT

POWER DERATING CHART

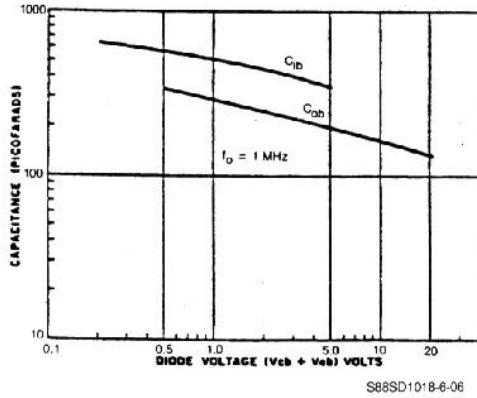


SB8SD1018-6-02

SB8S1018-6-03

## APPLICATION INFORMATION (typical curves) (continued)

## CAPACITANCE VS. VOLTAGE



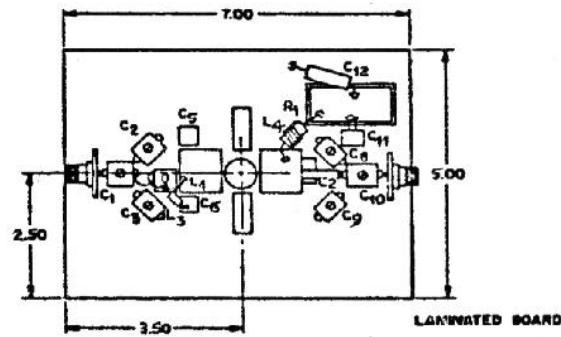
## IMPEDANCE DATA (typical)

## NETWORK IMPEDANCE AT TRANSISTOR TERMINALS

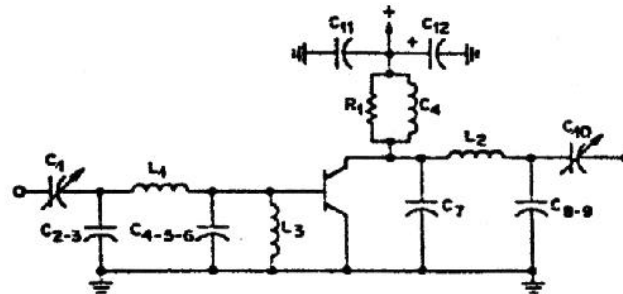
$f_o = 175\text{MHz}$ ,		$V_{CC} = 12.5\text{V}$	
$P_{IN}$ WATTS	$P_{OUT}$ WATTS	INPUT OHMS	OUTPUT OHMS
4	21.7	$0.8 - j1.1$	$2.2 - j0.3$
8	37.1	$0.8 - j1.3$	$1.7 - j0.5$
12	46.5	$0.8 - j1.6$	$1.6 - j0.3$

SD1018-6

TEST CIRCUIT (175MHz)



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



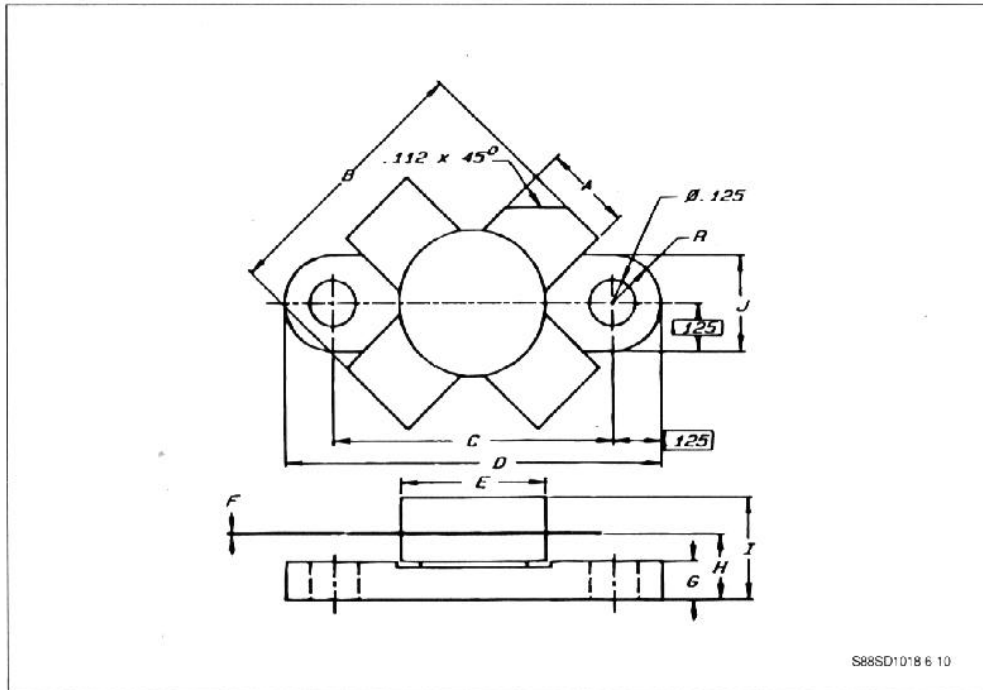
C1	ARCO 462	L1	1 1/2 turns, No. 14 awg.	* L2
C2, C3, C4	ARCO 408	L2*	1/4" ID x 1 1/2" long	
C4, C5, C6	UNELCO 100pF	L3	1/8 wide brass strap x 1 1/2" long	
C7	UNELCO 200pF	L4	FERRITE BEAD 48	
C8, C9, C10	ARCO 404		4 turns, No. 16 awg, 3/4 long	
C11	UNELCO 500pF	R1	wound on R1	
C12	33µF 15V		510Ω	



SBIS1048-6-09

## PACKAGE MECHANICAL DATA

.380 4LFL



	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	.160/4.06	.180/4.57
I		.280/7.11
J	.240/6.10	.255/6.48