

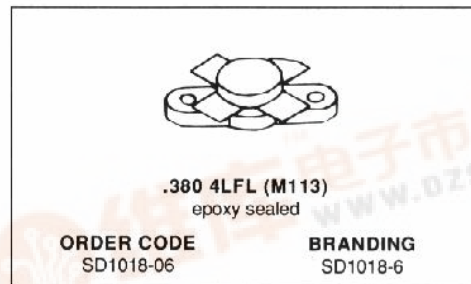
Microsemi
RF Products
Progress Powered by Technology

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SD1018-6

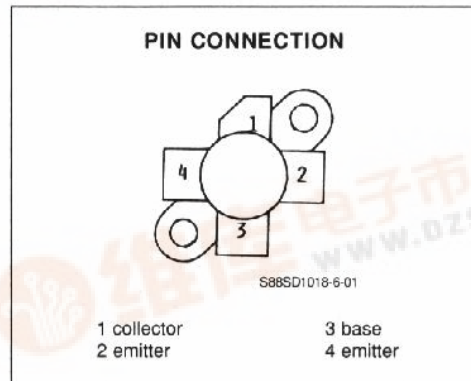
RF & MICROWAVE TRANSISTORS
130...230MHz FM MOBILE APPLICATIONS

- 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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March 1989

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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}	$V_{CB} = 15.0V$	$I_E = 0$			2.5	mA
h_{FE}	$V_{CE} = 5.0V$	$I_C = 1A$	5.0			

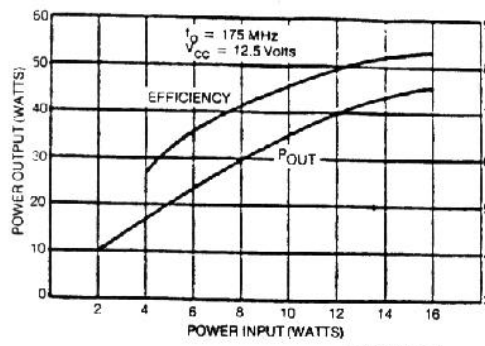
DYNAMIC

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
η_C	$f = 175MHz$	$V_{CE} = 12.5V$	70.0			%
C_{OB}	$f = 1MHz$	$V_{CB} = 15V$			200.0	pF

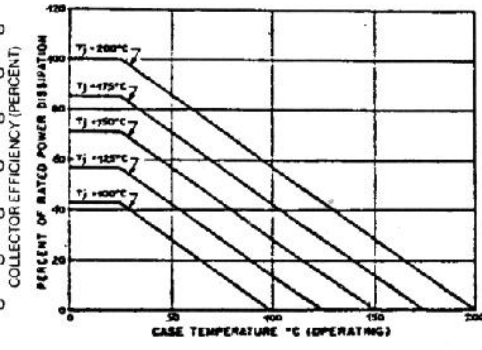
APPLICATION INFORMATION (typical curves)

POWER OUTPUT VS. POWER INPUT

POWER DERATING CHART



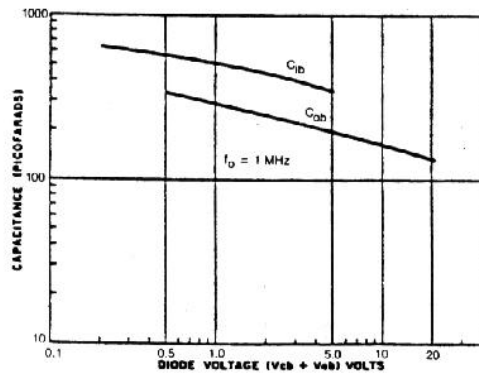
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APPLICATION INFORMATION (typical curves) (continued)

CAPACITANCE VS. VOLTAGE



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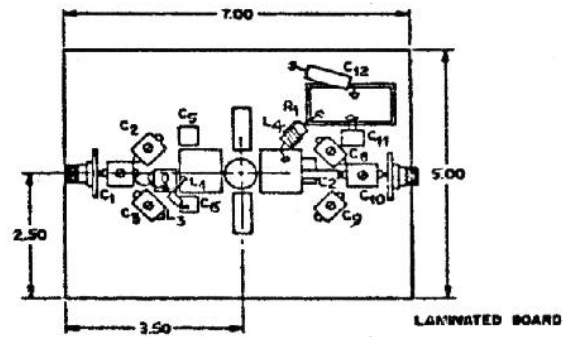
IMPEDANCE DATA (typical)

NETWORK IMPEDANCE AT TRANSISTOR TERMINALS

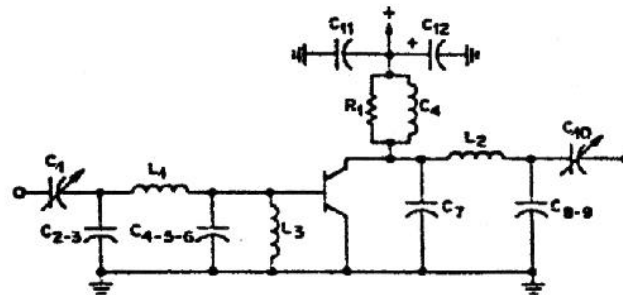
$f_0 = 175\text{MHz,}$		$V_{CC} = 12.5\text{V}$	
P_{IN} WATTS	P_{OUT} WATTS	INPUT OHMS	OUTPUT OHMS
4	21.7	$0.8 - j1.1$	$2.2 - j0.3$
8	37.1	$0.8 - j1.3$	$1.7 - j0.5$
12	46.5	$0.8 - j1.6$	$1.6 - j0.3$

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TEST CIRCUIT (175MHz)



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



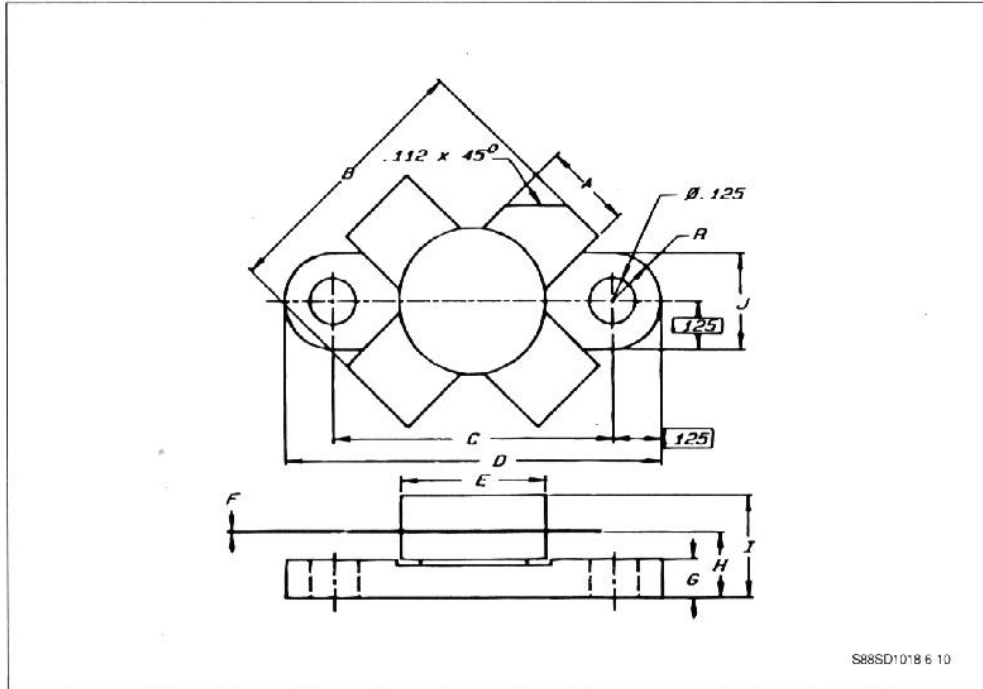
C1	ARCO 462	L1	1 1/2 turns, No. 14 awg.
C2, C3, C4	ARCO 403	L2	1/4" ID x 1/2" long
C4, C5, C6	UNELCO 100pF	L2'	1/8" wide brass strap x 1 1/2" long
C7	UNELCO 200pF	L3	FERRITE BEAD 48
C8, C9, C10	ARCO 404	L4	4 turns, No. 16 awg, 3/4" long
C11	UNELCO 500pF		wound on R1
C12	33µF 15V	R1	510Ω



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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