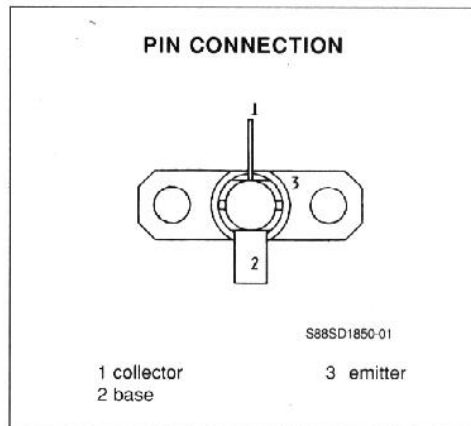
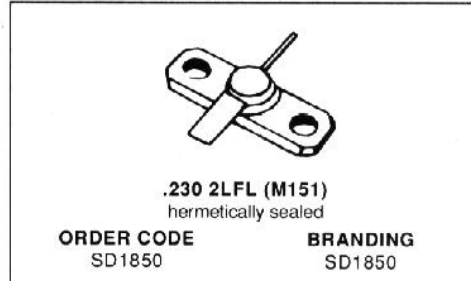


**RF & MICROWAVE TRANSISTORS  
CLASS A MICROWAVE**

- FREQUENCY 2.3GHz
- POWER OUT .2W
- POWER GAIN 11dB
- VOLTAGE 15V
- I<sub>c</sub> 80mA
- GOLD METALLIZED DIE
- OVERLAY GEOMETRY
- HERMETIC STRIPLINE PACKAGE
- COMMON EMITTER CONFIGURATION



**DESCRIPTION**

The SD1850 is an NPN silicon transistor designed for high gain linear performance at 2.0GHz. This part uses gold metallized die and polysilicon site ballasting to achieve high reliability and ruggedness. The part can be used for applications such as Telecommunications, Radar, ECM, Space and other commercial and military systems.

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

Symbol	Parameter	Value	Unit
V <sub>CB0</sub>	Collector - Base Voltage	30	V
V <sub>CE5</sub>	Collector - Emitter Voltage	15	V
V <sub>EB0</sub>	Emitter - Base Voltage	2	V
I <sub>c</sub>	Collector Current (max.)	0.1	A
P <sub>DISS</sub>	Total Device Dissipation at + 25°C	3.9	W
T <sub>STG</sub>	Storage Temperature	- 65 to + 200	°C
T <sub>J</sub>	Junction Temperature	+ 200	°C

**THERMAL DATA**

R <sub>TH(J-C)</sub>	Junction-case Thermal Resistance	45	°C/W
----------------------	----------------------------------	----	------

**SD1850**

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

**STATIC**

Symbol	Test Conditions	Value			Unit
		Min.	Typ.	Max.	
$BV_{CBO}$	$I_C = 5mA$	30	35		V
$BV_{CEO}$	$I_C = 5mA$	15	20		V
$BV_{EBO}$	$I_E = 1mA$	2	3		V
$h_{FE}$	$V_{CE} = 3V$ $I_C = 50mA$	20	75	150	

**DYNAMIC**

Symbol	Test Conditions	Value			Unit
		Min.	Typ.	Max.	
$P_O^*$	$f = 2.3GHz$ $V_{CE} = 15V$ $I_C = 80mA$	0.2	0.3		W
$P_G$	$f = 2.3GHz$ $V_{CE} = 15V$ $I_C = 80mA$	11	12		dB

\*\* 1db compression point.

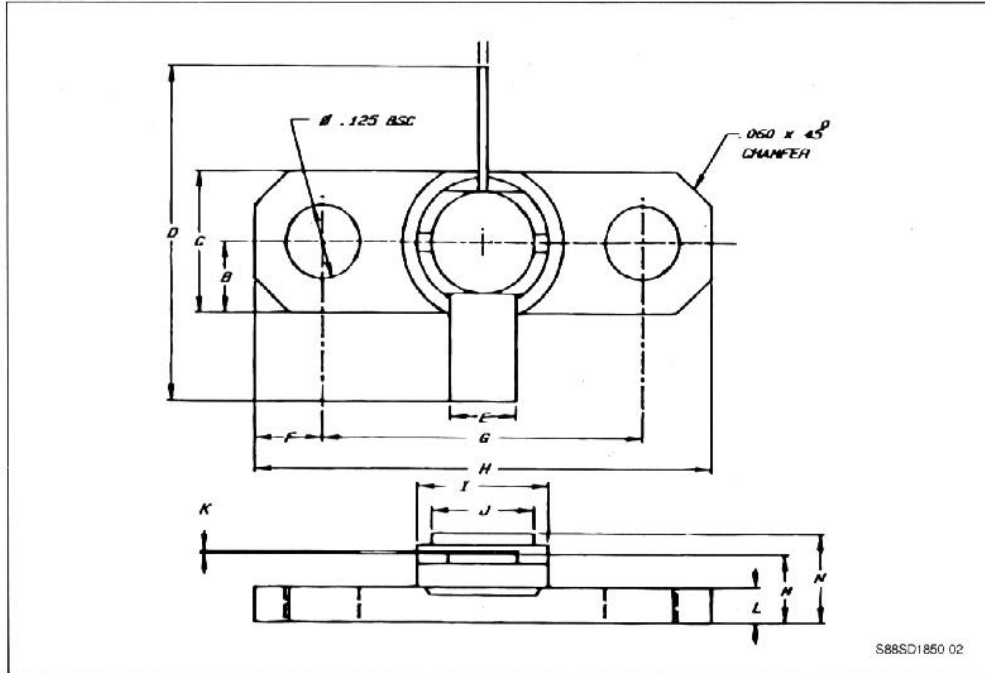
**S-PARAMETER DATA**

Bias : CURRENT = 60mA  
VOLTAGE = 15.000V

Frequency	Return Loss-in		Gain Forward			Hfe	Loss-reverse		Return Loss-out	
	S11		S21				S12		S22	
	DB	ANG	DB	MAG	ANG		DB	ANG	DB	ANG
500	2.35	- 173.8	+ 18.80	6.76	78.1	- 10.9389	29.59	31.4	9.70	- 141.8
1000	2.32	172.5	+ 11.10	3.59	53.6	- 6.8204	25.67	40.1	7.88	- 184.5
1500	2.54	160.2	+ 7.54	2.38	31.2	- 5.2930	23.35	41.5	6.02	179.7
2000	2.93	147.7	+ 5.82	1.98	11.0	- 4.5951	20.70	37.4	4.34	166.2
2500	3.9	129.0	+ 4.3	1.64	- 10.0	- 3.2462	18.6	32.0	3.3	148.0
3000	5.3	98.0	+ 2.9	1.40	- 35.0	- 2.6655	17.1	17.0	1.9	133.0
3500	7.4	51.0	+ 1.8	1.20	- 58.0	- 3.0508	15.9	- 2.0	1.0	120.0
4000	8.3	- 22.0	+ 0.1	1.01	- 83.0	- 3.1661	15.7	- 22.0	0.6	108.0

## PACKAGE MECHANICAL DATA

.230 2LFL



	Minimum Inches/mm	Maximum Inches/mm
A	.025/0.64	.035/0.89
B	.115/2.92 BSC	
C	.225/5.72	.235/5.97
D	.720/18.29	.750/19.05
E	.110/2.79	.120/3.05
F	.120/3.05 BSC	
G	.555/14.10	.565/14.35

	Minimum Inches/mm	Maximum Inches/mm
H	.795/20.19	.805/20.45
I	.222/5.64	.236/5.99
J	.165/4.19	.180/4.57
K	.002/0.05	.007/0.18
L	.055/1.40	.067/1.70
M	.120/3.18	.140/3.56
N		.170/4.32