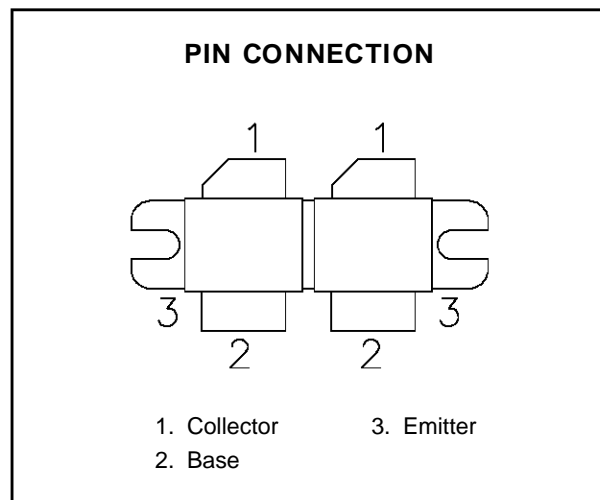
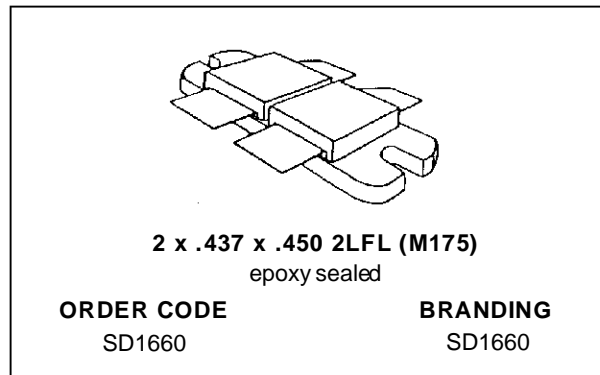


**RF & MICROWAVE TRANSISTORS  
800/900 MHz APPLICATIONS**

- 860 - 900 MHz
- 24 VOLTS
- CLASS AB PUSH PULL
- INTERNAL INPUT MATCHING
- DESIGNED FOR HIGH POWER LINEAR OPERATION
- HIGH SATURATED POWER CAPABILITY
- GOLD METALLIZATION FOR HIGH RELIABILITY
- DIFFUSED EMITTER BALLAST RESISTORS
- COMMON EMITTER CONFIGURATION
- $P_{OUT} = 120 \text{ W MIN. WITH } 6.0 \text{ dB GAIN}$


**DESCRIPTION**

The SD1660 is a gold metallized epitaxial silicon NPN planar transistor using diffused emitter ballast resistors for high linearity Class AB operation in cellular base station applications.

**ABSOLUTE MAXIMUM RATINGS** ( $T_{case} = 25^{\circ}\text{C}$ )

Symbol	Parameter	Value	Unit
$V_{CBO}$	Collector-Base Voltage	60	V
$V_{CEO}$	Collector-Emitter Voltage	30	V
$V_{EBO}$	Emitter-Base Voltage	3.0	V
$I_C$	Device Current	25	A
$P_{DISS}$	Power Dissipation	310	W
$T_J$	Junction Temperature	+200	$^{\circ}\text{C}$
$T_{STG}$	Storage Temperature	- 55 to +150	$^{\circ}\text{C}$

**THERMAL DATA**

$R_{TH(j-c)}$	Junction-Case Thermal Resistance	0.55	$^{\circ}\text{C/W}$
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# SD1660

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

### STATIC

Symbol	Test Conditions		Value			Unit
			Min.	Typ.	Max.	
BV <sub>CBO</sub>	I <sub>C</sub> = 100mA	I <sub>E</sub> = 0mA	60	—	—	V
BV <sub>CEO</sub>	I <sub>C</sub> = 100mA	I <sub>B</sub> = 0mA	30	—	—	V
BV <sub>EBO</sub>	I <sub>E</sub> = 50mA	I <sub>C</sub> = 0mA	3.0	—	—	V
I <sub>CES</sub>	V <sub>CE</sub> = 28V	I <sub>E</sub> = 0mA	—	—	10	mA
h <sub>FE</sub>	V <sub>CE</sub> = 5V	I <sub>C</sub> = 3A	15	—	70	—

Tested Per Side

### DYNAMIC

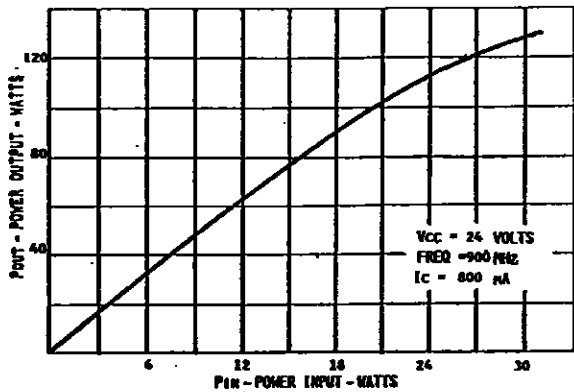
Symbol	Test Conditions			Value			Unit
				Min.	Typ.	Max.	
P <sub>OUT</sub> *	f = 900 MHz	V <sub>CE</sub> = 24 V	I <sub>CQ</sub> = 2 x 400mA	120	—	—	W
G <sub>P</sub> *	f = 900 MHz	V <sub>CE</sub> = 24 V	I <sub>CQ</sub> = 2 x 400mA	6.0	—	—	dB
IMD**	f = 900 MHz	V <sub>CE</sub> = 24 V	I <sub>CQ</sub> = 2 x 400mA	—	-32	—	dBc
η <sub>C</sub>	f = 900 MHz	V <sub>CE</sub> = 24 V	I <sub>CQ</sub> = 2 x 400mA	50	—	—	%
C <sub>OB</sub>	f = 1 MHz	V <sub>CB</sub> = 28 V		—	—	100	pF

Note: \* @ 1 dB Compression

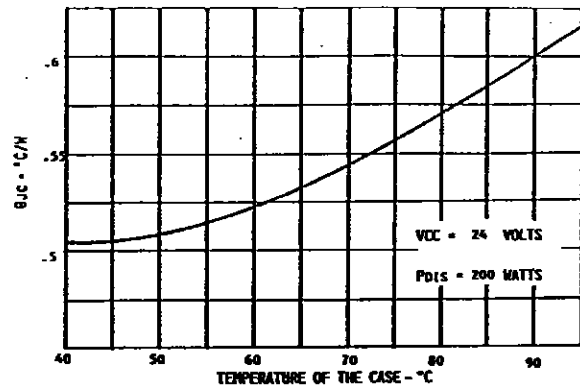
\*\* P<sub>OUT</sub> = 120W PEP, Δ F = 600KHz (2 tones)

### TYPICAL PERFORMANCE

POWER OUTPUT vs POWER INPUT

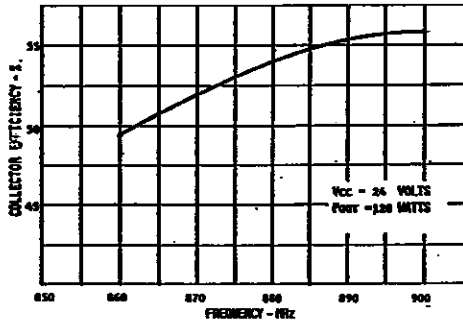


THERMAL RESISTANCE vs CASE TEMPERATURE

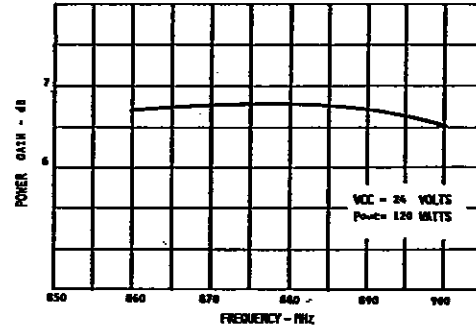


## TYPICAL PERFORMANCE (cont'd)

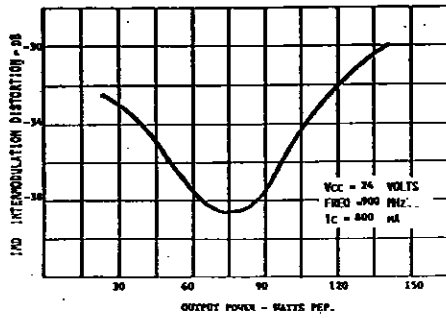
COLLECTOR EFFICIENCY vs FREQUENCY



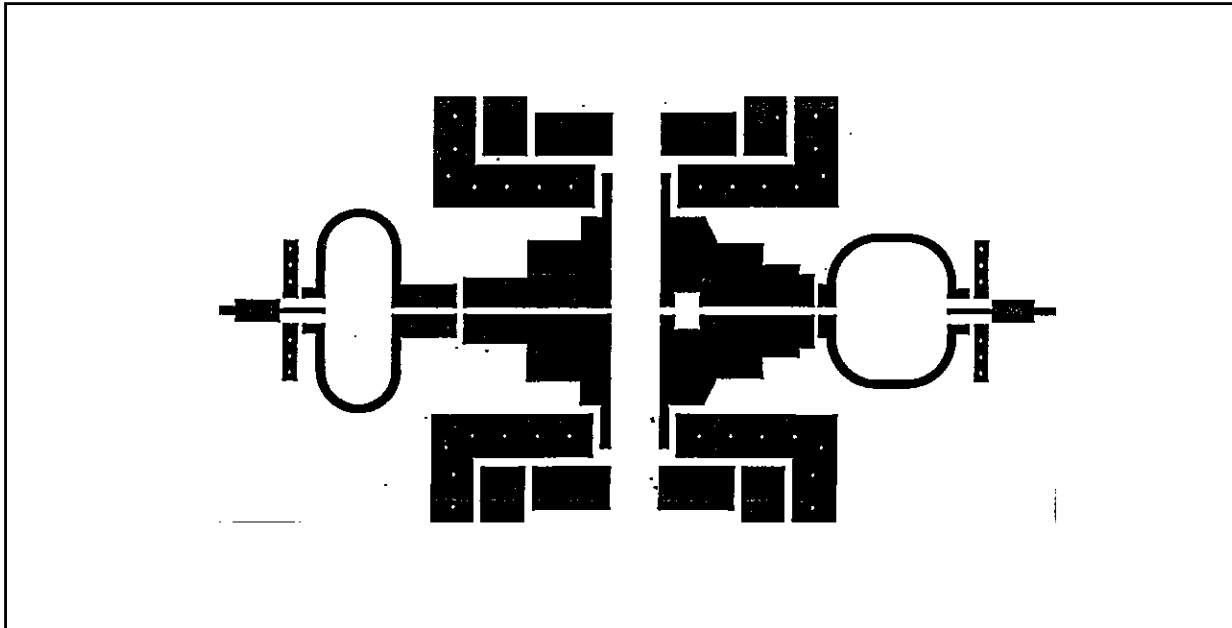
BROADBAND POWER GAIN vs FREQUENCY



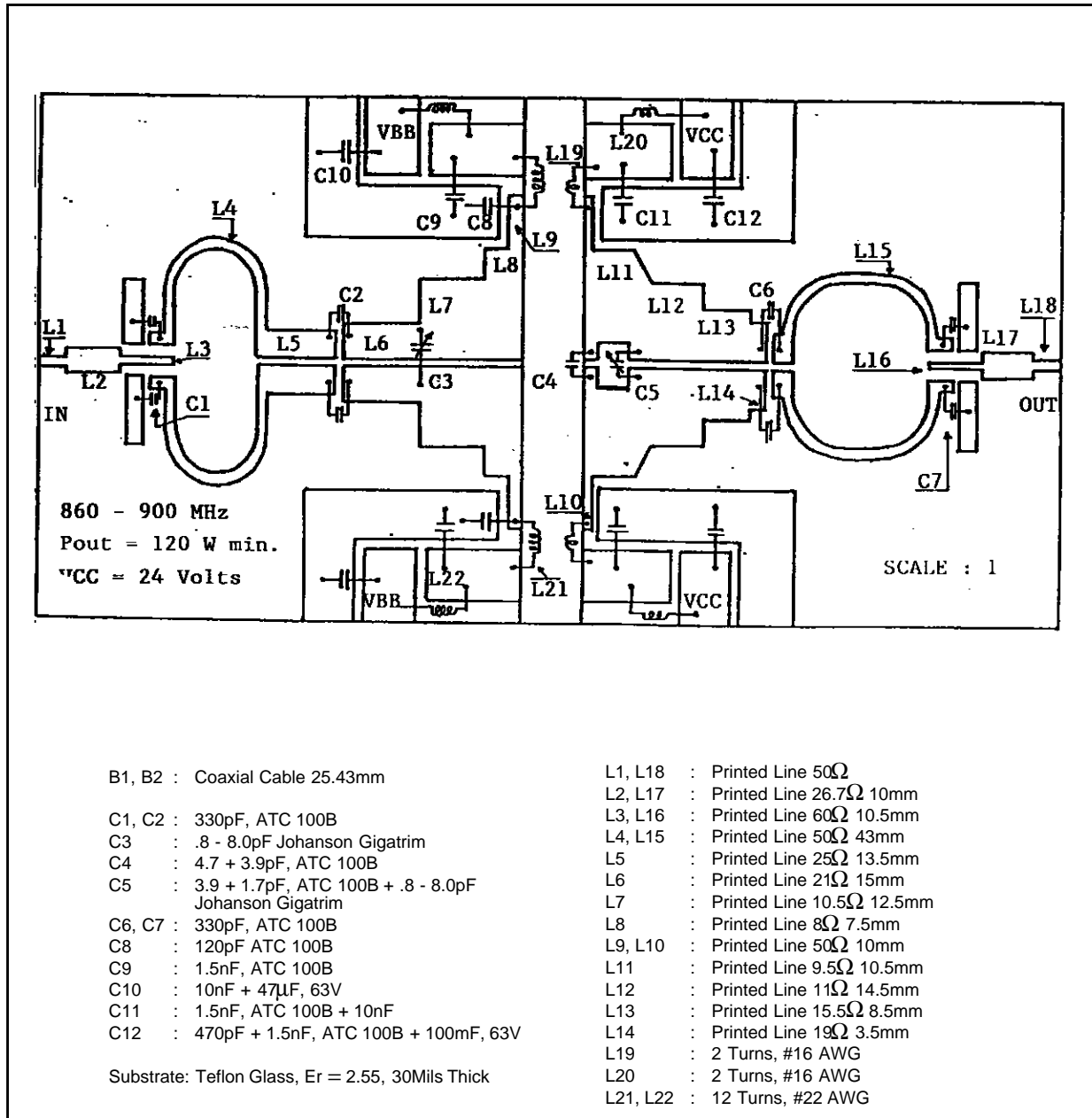
INTERMODULATION DISTORTION vs POWER OUTPUT



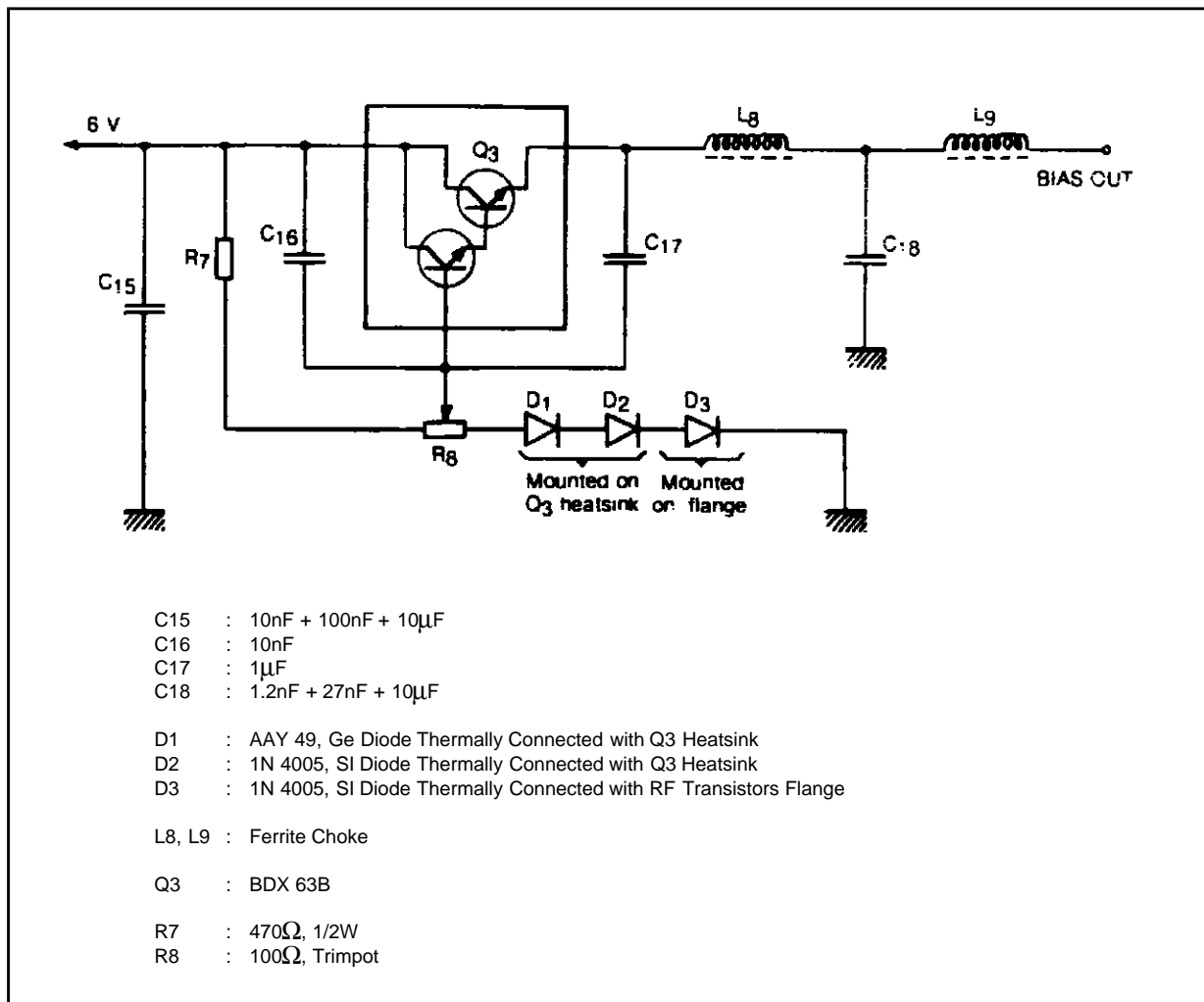
## PHOTOMASTER OF TEST CIRCUIT



## TEST CIRCUIT

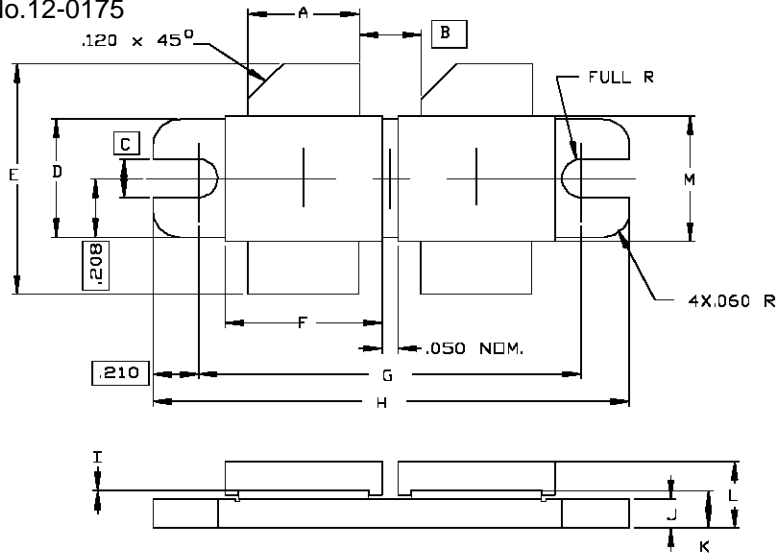


## BIAS VOLTAGE SOURCE



PACKAGE MECHANICAL DATA

Ref.: Dwg. No.12-0175



SGS-THOMSON MICROELECTRONICS		CONT'D			
	MINIMUM Inches/mm	MAXIMUM Inches/mm		MINIMUM Inches/mm	MAXIMUM Inches/mm
A	.373/9,47	.385/9,78	K	.115/2,92	.135/3,43
B	.190/4,83		L		.250/6,35
C	.130/3,30		M	.445/11,30	.455/11,56
D	.411/10,44	.421/10,69			
E	.825/20,96	.865/21,97			
F	.525/13,34	.535/13,59			
G	1.255/31,88	1.265/32,13			
H	1.675/42,55	1.685/42,80			
I	.002/0,05	.006/0,15			
J	.095/2,41	.105/2,67			

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