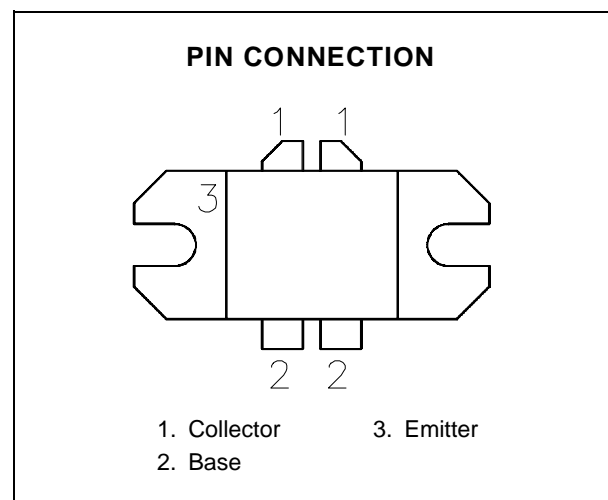
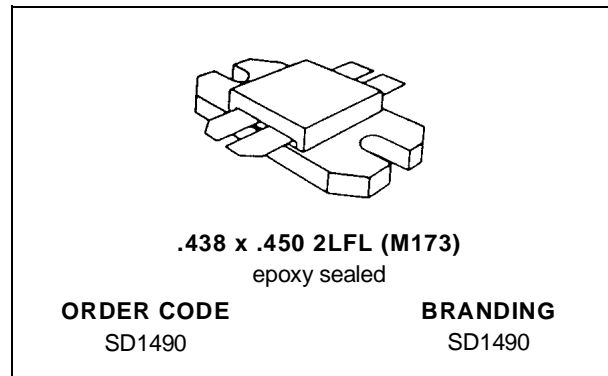


**RF & MICROWAVE TRANSISTORS  
TV/LINEAR APPLICATIONS**

- 470 - 860 MHz
- 28 VOLTS
- CLASS A PUSH PULL
- DESIGNED FOR HIGH POWER LINEAR OPERATION
- HIGH SATURATED POWER CAPABILITY
- GOLD METALLIZATION
- DIFFUSED EMITTER BALLAST RESISTORS
- COMMON EMITTER CONFIGURATION
- INTERNAL INPUT MATCHING
- $P_{OUT} = 25 \text{ W MIN. WITH } 9.0 \text{ dB GAIN}$


**DESCRIPTION**

The SD1490 is a gold metallized epitaxial silicon NPN planar transistor using diffused emitter ballast resistors for high linearity Class A operation in UHF and Band IV, V television transmitters and transposers.

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

Symbol	Parameter	Value	Unit
$V_{CBO}$	Collector-Base Voltage	45	V
$V_{CEO}$	Collector-Emitter Voltage	30	V
$V_{EBO}$	Emitter-Base Voltage	3.0	V
$I_C$	Device Current	8	A
$P_{DISS}$	Power Dissipation	135	W
$T_J$	Junction Temperature	+200	$^{\circ}\text{C}$
$T_{STG}$	Storage Temperature	- 50 to +150	$^{\circ}\text{C}$

**THERMAL DATA**

$R_{TH(j-c)}$	Junction-Case Thermal Resistance	1.3	$^{\circ}\text{C/W}$
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**SD1490****ELECTRICAL SPECIFICATIONS** ( $T_{case} = 25^{\circ}C$ )

## STATIC

Symbol	Test Conditions		Value			Unit
			Min.	Typ.	Max.	
$BV_{CBO}$	$I_C = 50mA$	$I_E = 0mA$	45	—	—	V
$BV_{CEO}$	$I_C = 200mA$	$I_B = 0mA$	30	—	—	V
$BV_{EBO}$	$I_E = 10mA$	$I_C = 0mA$	3.0	—	—	V
$I_{CEO}$	$V_{CE} = 25V$	$I_E = 0mA$	—	—	5	mA
$h_{FE}$	$V_{CE} = 5V$	$I_C = 3A$	10	—	80	—

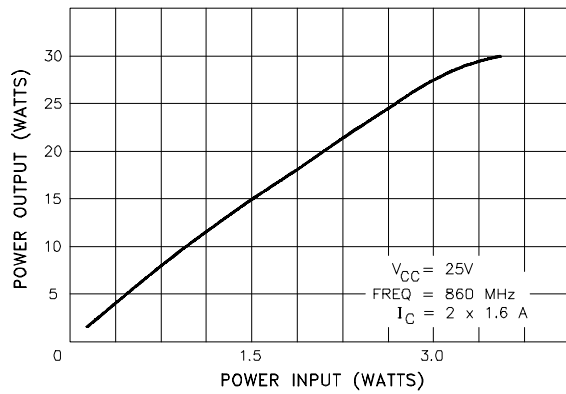
## DYNAMIC

Symbol	Test Conditions			Value			Unit
				Min.	Typ.	Max.	
$P_{OUT}$	$f = 860\text{ MHz}$	$V_{CE} = 25\text{ V}$	$I_C = 3.2\text{ A}$	25	—	—	W
$G_P$	$f = 860\text{ MHz}$	$V_{CE} = 25\text{ V}$	$I_C = 3.2\text{ A}$	8.0	—	—	dB
$CMOD$	$f = 860\text{ MHz}$	$V_{CE} = 25\text{ V}$	$P_{REF} = 25\text{ W}$	—	—	20	%
$IMD_3^*$	$f = 860\text{ MHz}$	$V_{CE} = 25\text{ V}$	$P_{REF} = 25\text{ W}$	—	—	-45	dB
$C_{OB}$	$f = 1\text{ MHz}$	$V_{CB} = 28\text{ V}$		—	70	—	pF

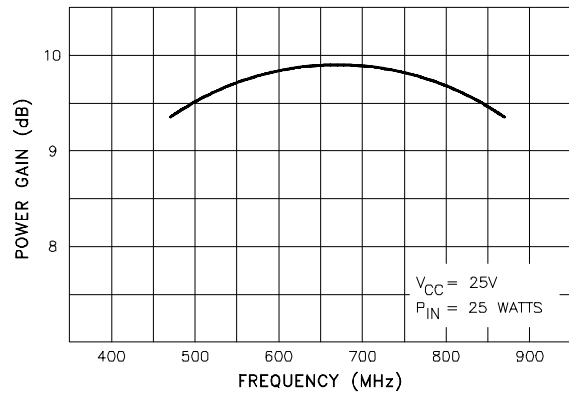
Note: \* 3 Tone Testing ( - 8, - 10, - 16 dB Relative to  $P_{REF}$ )

## TYPICAL PERFORMANCE

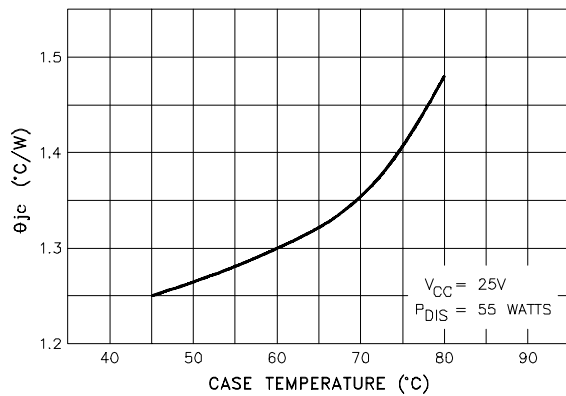
POWER OUTPUT vs POWER INPUT



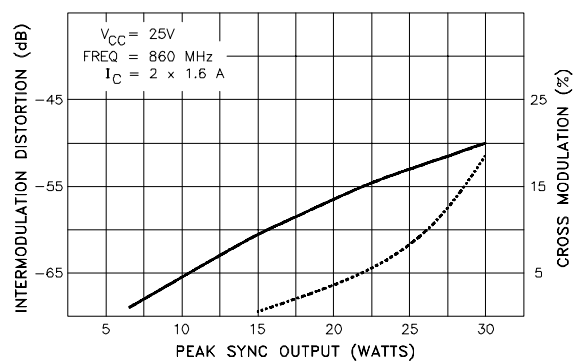
BROADBAND POWER GAIN vs FREQUENCY



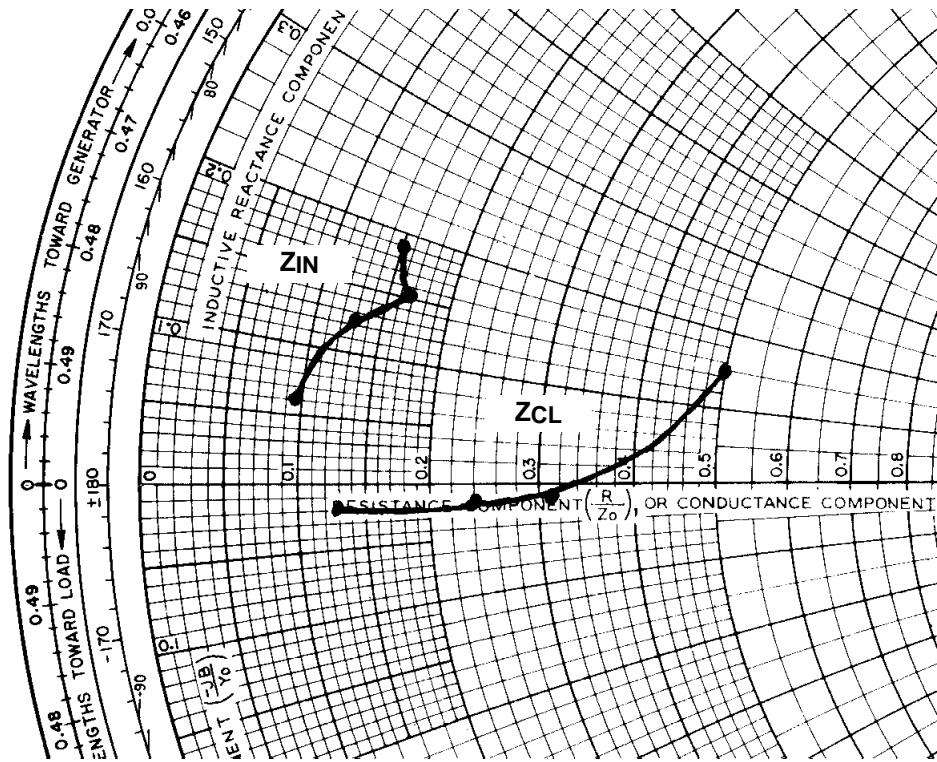
THERMAL RESISTANCE vs CASE TEMPERATURE



CROSS MODULATION &amp; INTERMODULATION vs PEAK SYNC OUTPUT



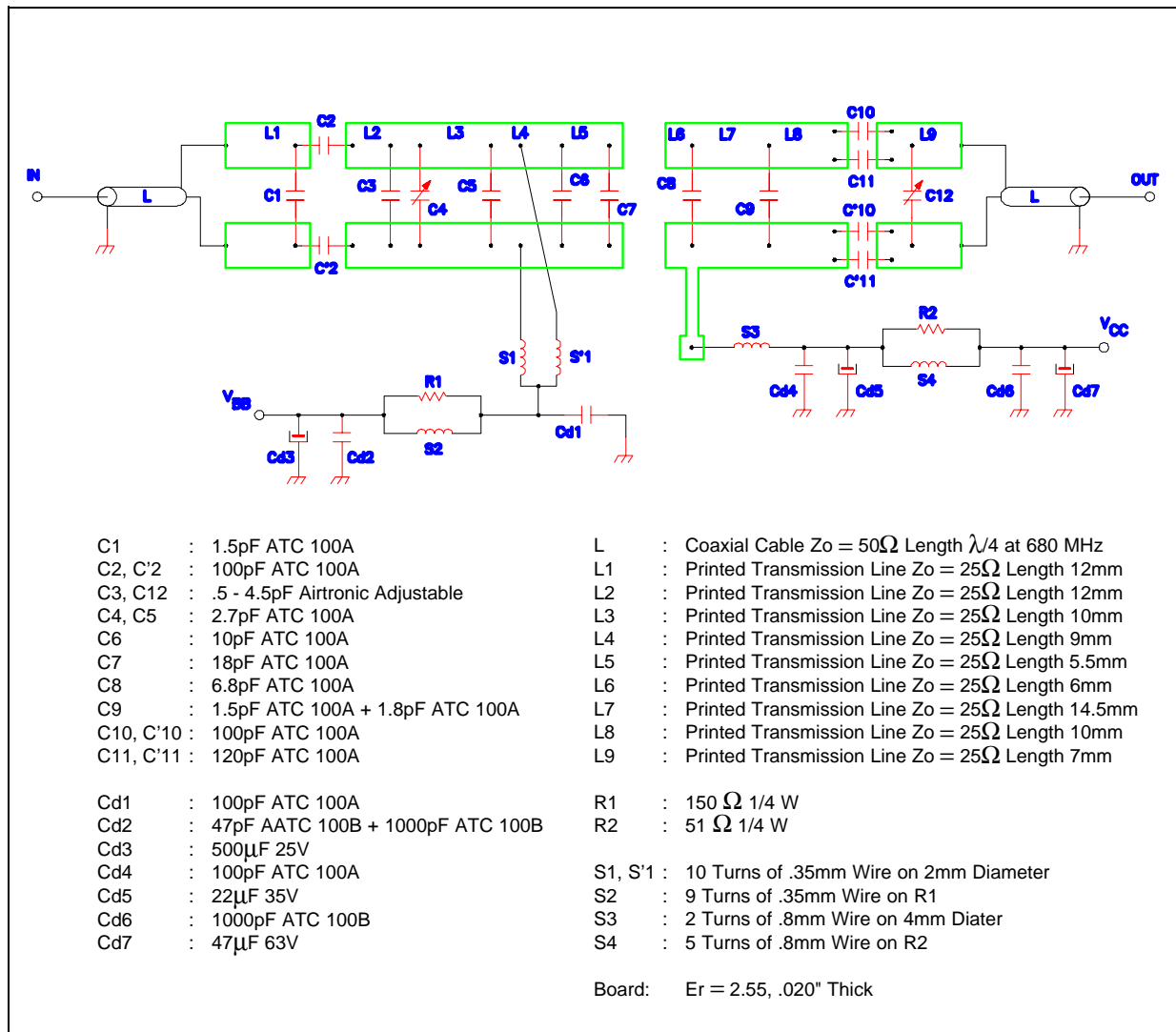
IMPEDANCE DATA



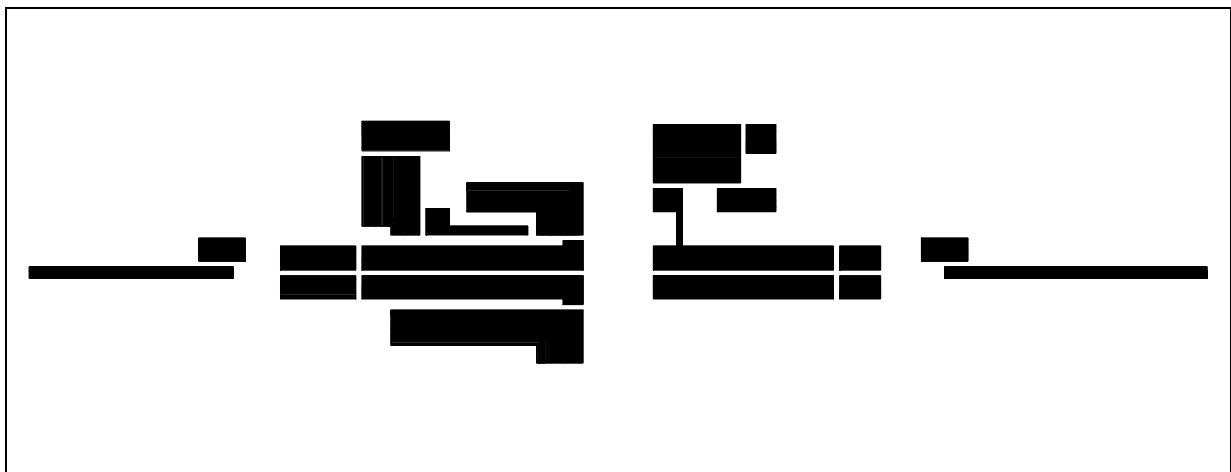
FREQ.	Z <sub>IN</sub> (Ω)	Z <sub>CL</sub> (Ω)
470 MHz	7.5 + j 9.5	25 + j 7.5
590 MHz	8.2 + j 7.5	15.6 - j 0.13
710 MHz	6.6 + j 6.2	11.9 - j 0.28
860 MHz	4.7 + j 3.0	6.7 - j 0.38

$P_{OUT} = 25 \text{ W}$   
 $V_{CC} = 25 \text{ V}$   
 $I_C = 3.2 \text{ A}$   
 Normalized to 50 Ohms

## TEST CIRCUIT

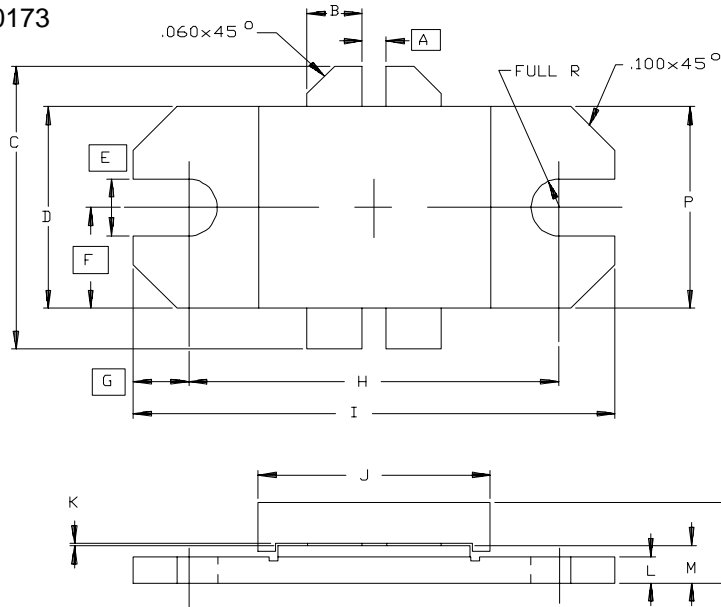


## TEST CIRCUIT LAYOUT



PACKAGE MECHANICAL DATA

Ref.: Dwg. No.12-0173



SGS-THOMSON MICROELECTRONICS		CONT'D			
	MINIMUM Inches/mm	MAXIMUM Inches/mm		MINIMUM Inches/mm	MAXIMUM Inches/mm
A	.055/1,40		K	.002/0,05	.006/0,15
B	.120/3,05	.130/3,30	L	.055/1,40	.065/1,65
C	.785/19,94		M	.080/2,03	.095/2,41
D	.455/11,56	.465/11,81	N	.195/4,95	
E	.125/3,18		P	.455/11,56	.465/11,81
F	.230/5,84				
G	.128/3,25				
H	.838/21,28	.850/21,59			
I	1.095/27,81	1.105/28,07			
J	.525/13,34	.535/13,59			

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