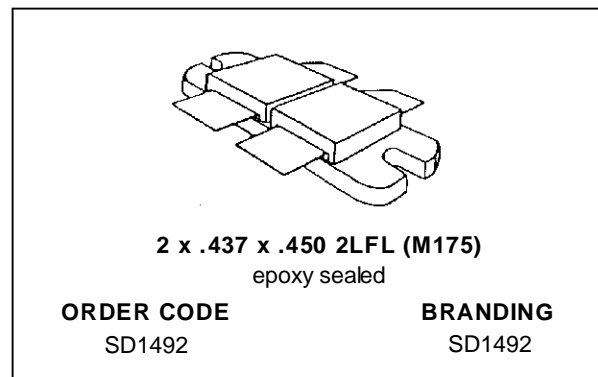
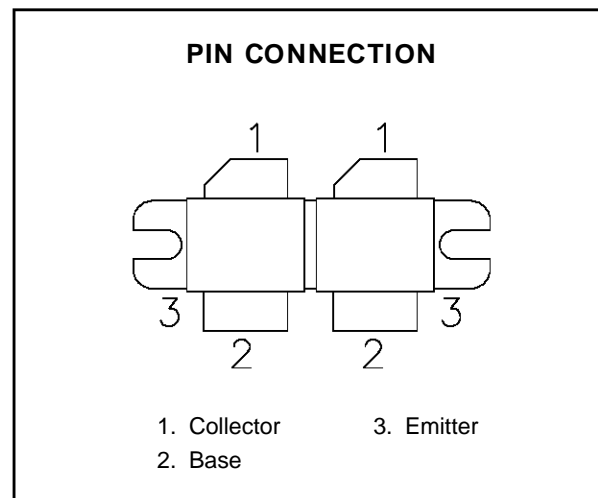


**RF & MICROWAVE TRANSISTORS  
TV/LINEAR APPLICATIONS**

- 470 - 860 MHz
- 28 VOLTS
- CLASS AB PUSH PULL
- DESIGNED FOR HIGH POWER CAPABILITY
- GOLD METALLIZATION
- DIFFUSED EMITTER BALLAST RESISTORS
- COMMON EMITTER CONFIGURATION
- INTERNAL INPUT MATCHING
- P<sub>OUT</sub> = 150 W MIN. WITH 6.5 dB GAIN


**DESCRIPTION**

The SD1492 is a gold metallized epitaxial silicon NPN planar transistor using diffused emitter ballast resistors for high linearity Class AB operation in UHF and Band IV, V television transmitters and transposers.


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

Symbol	Parameter	Value	Unit
V <sub>CBO</sub>	Collector-Base Voltage	60	V
V <sub>CEO</sub>	Collector-Emitter Voltage	30	V
V <sub>EBO</sub>	Emitter-Base Voltage	3.0	V
I <sub>C</sub>	Device Current	25	A
P <sub>DISS</sub>	Power Dissipation	318	W
T <sub>J</sub>	Junction Temperature	+200	°C
T <sub>STG</sub>	Storage Temperature	- 65 to +150	°C

**THERMAL DATA**

R <sub>TH(j-c)</sub>	Junction-Case Thermal Resistance	0.55	°C/W
----------------------	----------------------------------	------	------

**SD1492****ELECTRICAL SPECIFICATIONS** ( $T_{\text{case}} = 25^{\circ}\text{C}$ )

## STATIC

Symbol	Test Conditions		Value			Unit
			Min.	Typ.	Max.	
$BV_{\text{CBO}}$	$I_{\text{C}} = 100\text{mA}$	$I_{\text{E}} = 0\text{mA}$	60	—	—	V
$BV_{\text{CEO}}$	$I_{\text{C}} = 100\text{mA}$	$I_{\text{B}} = 0\text{mA}$	30	—	—	V
$BV_{\text{EBO}}$	$I_{\text{E}} = 50\text{mA}$	$I_{\text{C}} = 0\text{mA}$	3.0	—	—	V
$I_{\text{CES}}$	$V_{\text{CE}} = 28\text{V}$	$I_{\text{E}} = 0\text{mA}$	—	—	10	mA
$h_{\text{FE}}$	$V_{\text{CE}} = 5\text{V}$	$I_{\text{C}} = 3\text{A}$	15	—	70	—

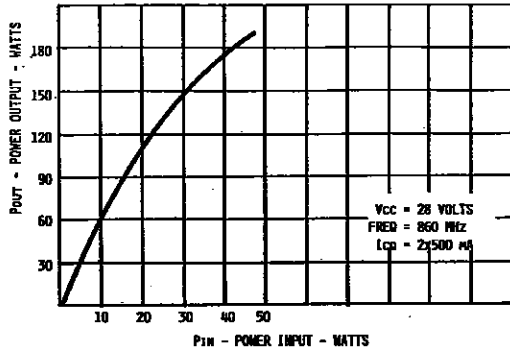
## DYNAMIC

Symbol	Test Conditions			Value			Unit
				Min.	Typ.	Max.	
$P_{\text{OUT}}^*$	$f = 860\text{ MHz}$	$V_{\text{CE}} = 28\text{ V}$	$I_{\text{CQ}} = 2 \times 500\text{ mA}$	150	—	—	W
$P_{\text{G}}^*$	$P_{\text{OUT}} = 150\text{ W}$	$V_{\text{CE}} = 28\text{ V}$	$I_{\text{CQ}} = 2 \times 500\text{ mA}$	6.5	—	—	dB
$\eta_{\text{c}}^*$	$P_{\text{OUT}} = 150\text{ W}$	$V_{\text{CE}} = 28\text{ V}$	$I_{\text{CQ}} = 2 \times 500\text{ mA}$	45	—	—	%
$C_{\text{OB}}$	$f = 1\text{ MHz}$	$V_{\text{CB}} = 28\text{ V}$		—	—	100	pF

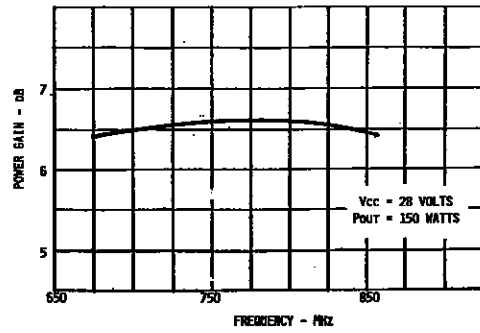
Note: \* 1 dB Compression Point

TYPICAL PERFORMANCE

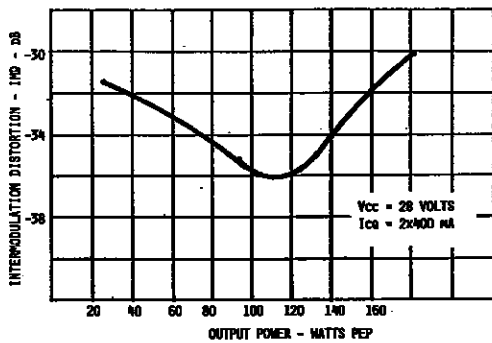
POWER OUTPUT vs POWER INPUT



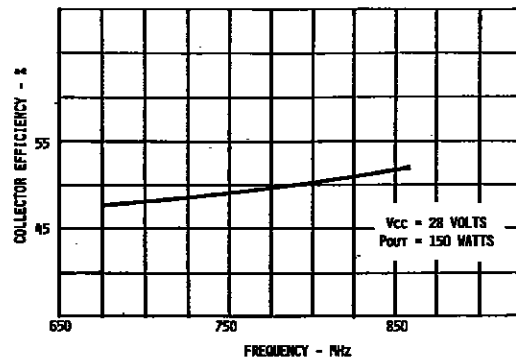
BROADBAND POWER GAIN vs FREQUENCY



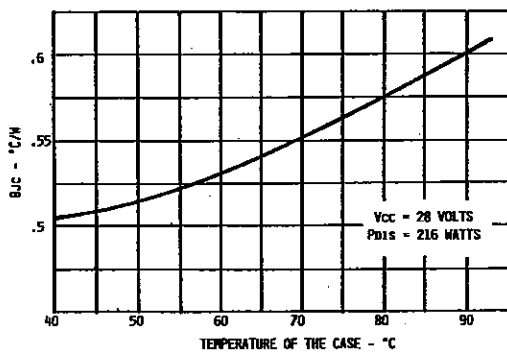
INTERMODULATION DISTORTION vs POWER OUTPUT



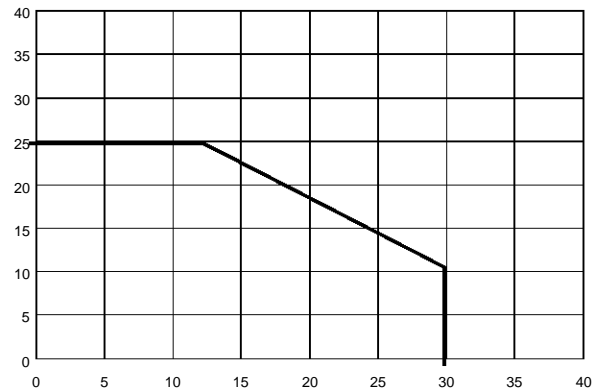
COLLECTOR EFFICIENCY vs FREQUENCY



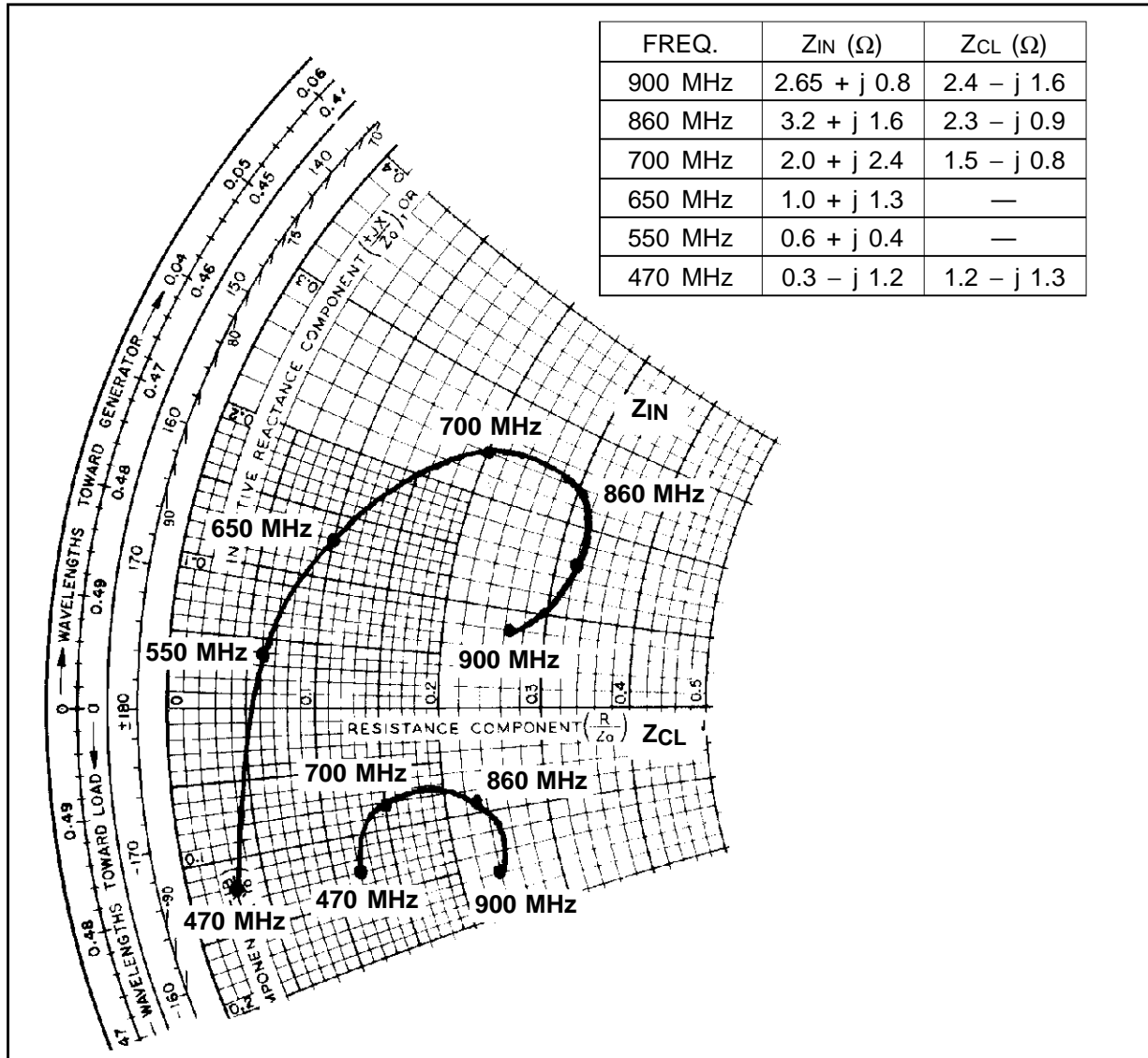
THERMAL RESISTANCE vs CASE TEMPERATURE



SAFE OPERATING AREA

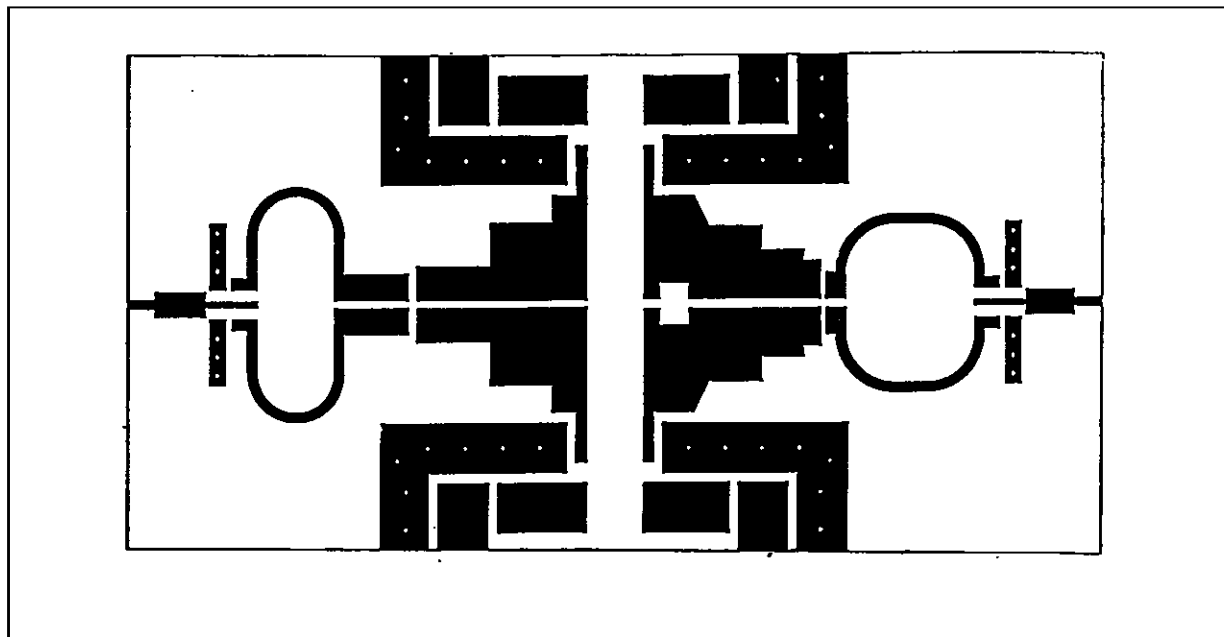


IMPEDANCE DATA

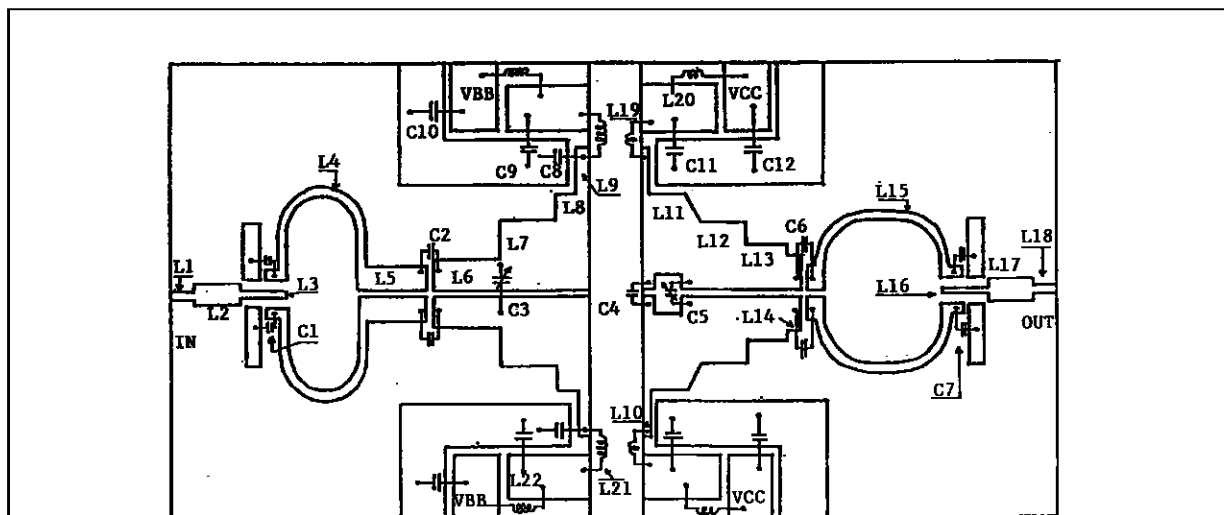


FREQ.	$Z_{IN} (\Omega)$	$Z_{CL} (\Omega)$
900 MHz	$2.65 + j 0.8$	$2.4 - j 1.6$
860 MHz	$3.2 + j 1.6$	$2.3 - j 0.9$
700 MHz	$2.0 + j 2.4$	$1.5 - j 0.8$
650 MHz	$1.0 + j 1.3$	—
550 MHz	$0.6 + j 0.4$	—
470 MHz	$0.3 - j 1.2$	$1.2 - j 1.3$

## PHOTOMASTER OF TEST CIRCUIT



## TEST CIRCUIT



B1, B2 : Coaxial Cable 25, 43mm

C1, C2

C6, C7 : 330pF, ATC 100B

C3 : .8 - 8pF Johanson Gigatrim

C4 : 4.7pF + 3.9pF, ATC 100B

C5 : 3.9pF + 1.7pF, ATC 100B + .8 - 8pF Johanson Gigatrim

C8 : 120pF, ATC 100B

C9 : 1.5nF, ATC 100B

C10 : 10nF + 47 $\mu$ F, 63V

C11 : 1.5nF, ATC 100B + 10nF

C12 : 470pF + 1.5nF, ATC 100B + 100 $\mu$ F, 63V

Substrate: Teflon Glass Er = 2.55, 30Mils

L1, L18 : Printed Line 50 $\Omega$

L2, L17 : Printed Line 26.7 $\Omega$ , 10mm

L3, L16 : Printed Line 60 $\Omega$ , 10.5mm

L4, L15 : Printed Line 50 $\Omega$ , 43mm

L5 : Printed Line 25 $\Omega$ , 13.5mm

L6 : Printed Line 21 $\Omega$ , 15mm

L7 : Printed Line 10.5 $\Omega$ , 12.5mm

L8 : Printed Line 8 $\Omega$ , 7.5mm

L9, L10 : Printed Line 50 $\Omega$ , 10mm

L11 : Printed Line 9.5 $\Omega$ , 10.5mm

L12 : Printed Line 11 $\Omega$ , 14.5mm

L13 : Printed Line 15.5 $\Omega$ , 8.5mm

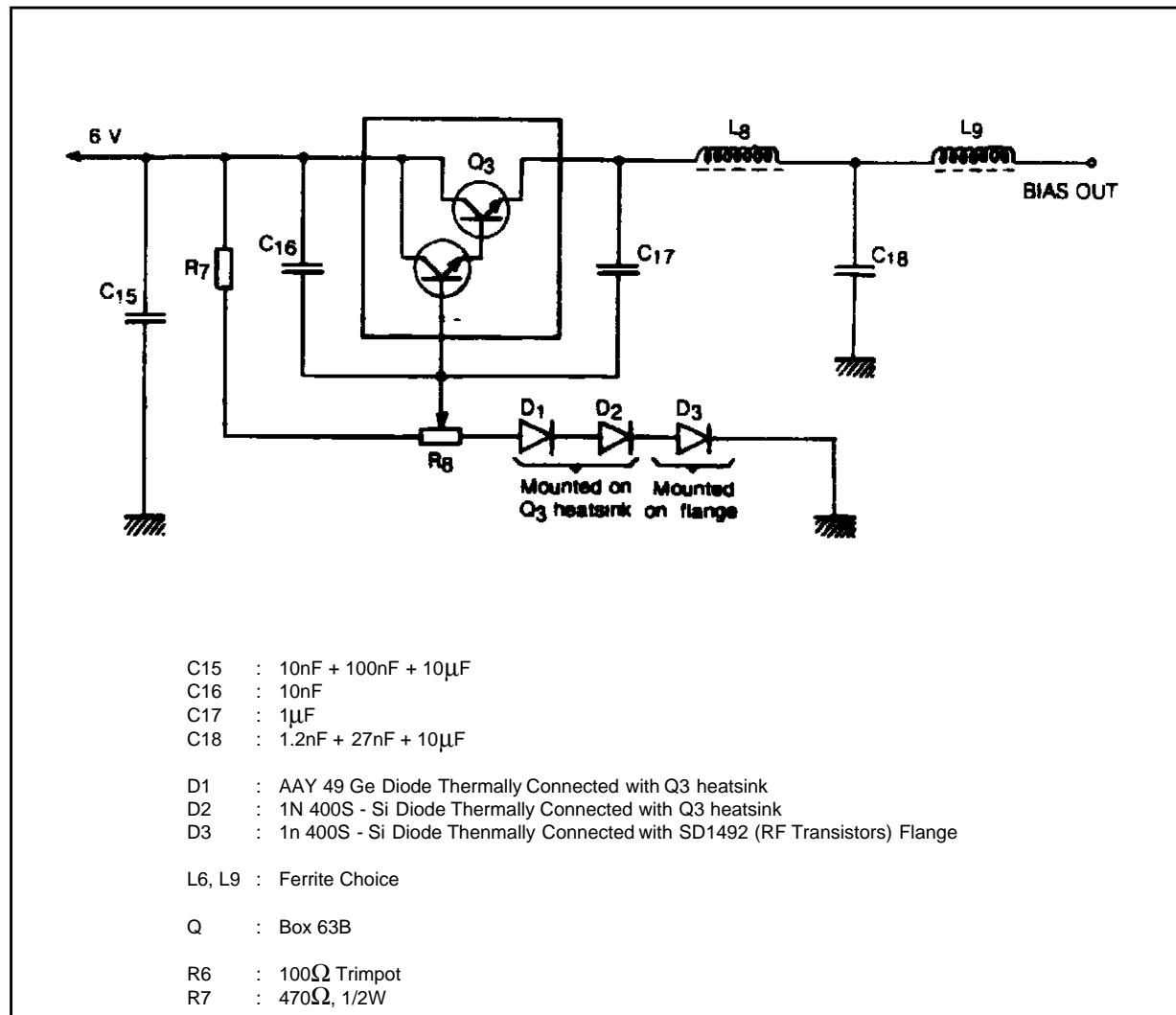
L14 : Printed Line 19 $\Omega$ , 3.5mm

L19 : 2 Turns, #16 AWG

L20 : 8 Turns, #16 AWG

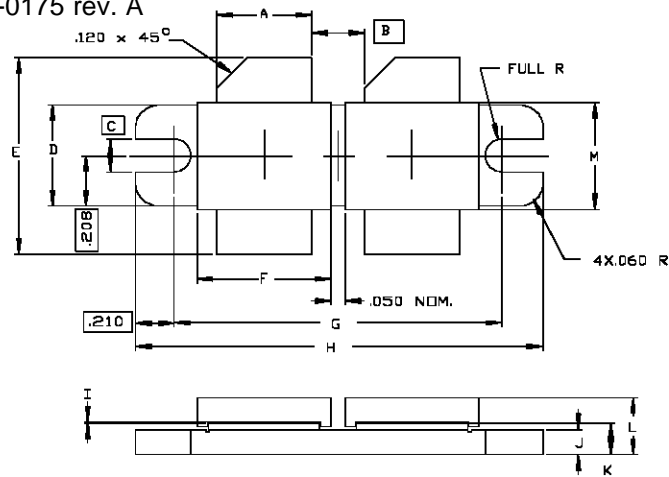
L21, L22 : 12 Turns, #22 AWG

## BIAS VOLTAGE SOURCE



## PACKAGE MECHANICAL DATA

Ref.: Dwg. No.12-0175 rev. A



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			

Information furnished is believed to be accurate and reliable. However, SGS-THOMSON Microelectronics assumes no responsibility for the consequences of use of such information nor for any infringement of patents or other rights of third parties which may result from its use. No license is granted by implication or otherwise under any patent or patent rights of SGS-THOMSON Microelectronics. Specifications mentioned in this publication are subject to change without notice. This publication supersedes and replaces all information previously supplied. SGS-THOMSON Microelectronics products are not authorized for use as critical components in life support devices or systems without express written approval of SGS-THOMSON Microelectronics.

©1994 SGS-THOMSON Microelectronics - All Rights Reserved

SGS-THOMSON Microelectronics GROUP OF COMPANIES

Australia - Brazil - France - Germany - Hong Kong - Italy - Japan - Korea - Malaysia - Malta - Morocco - The Netherlands - Singapore - Spain - Sweden - Switzerland - Taiwan - Thailand - United Kingdom - U.S.A.