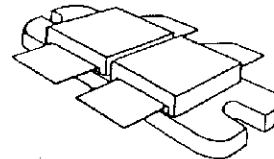


RF & MICROWAVE TRANSISTORS TV/LINEAR APPLICATIONS

- 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
- $P_{OUT} = 150 \text{ W MIN. WITH } 6.5 \text{ dB GAIN}$



2 x .437 x .450 2LFL (M175)
epoxy sealed

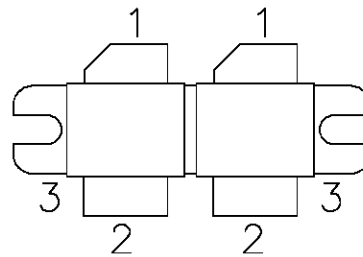
ORDER CODE
SD1492

BRANDING
SD1492

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.

PIN CONNECTION



1. Collector 3. Emitter
2. Base

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	318	W
T_J	Junction Temperature	+200	$^{\circ}\text{C}$
T_{STG}	Storage Temperature	- 65 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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SD1492

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

STATIC

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

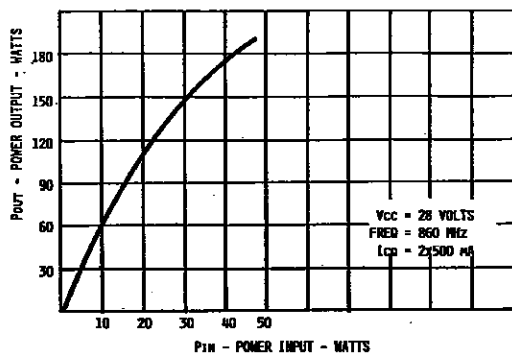
DYNAMIC

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

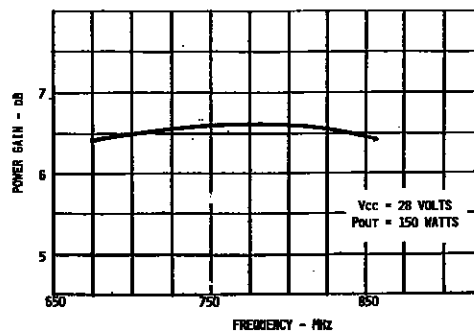
Note: * 1 dB Compression Point

TYPICAL PERFORMANCE

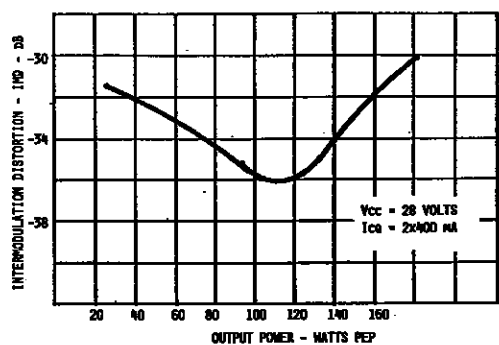
POWER OUTPUT vs POWER INPUT



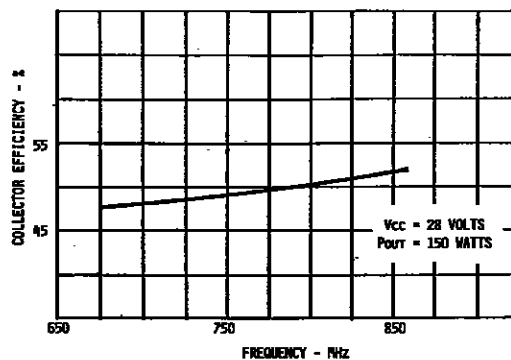
BROADBAND POWER GAIN vs FREQUENCY



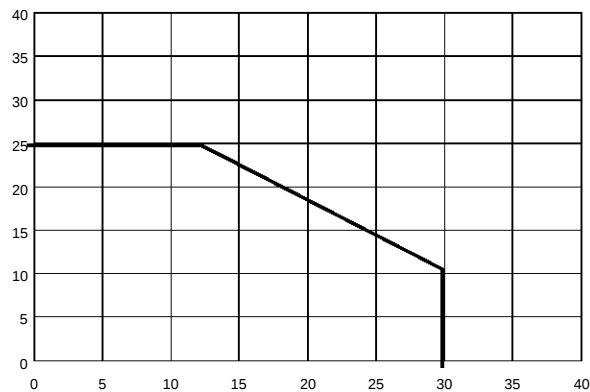
INTERMODULATION DISTORTION vs POWER OUTPUT



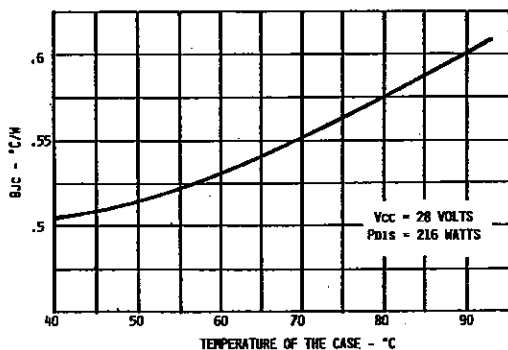
COLLECTOR EFFICIENCY vs FREQUENCY



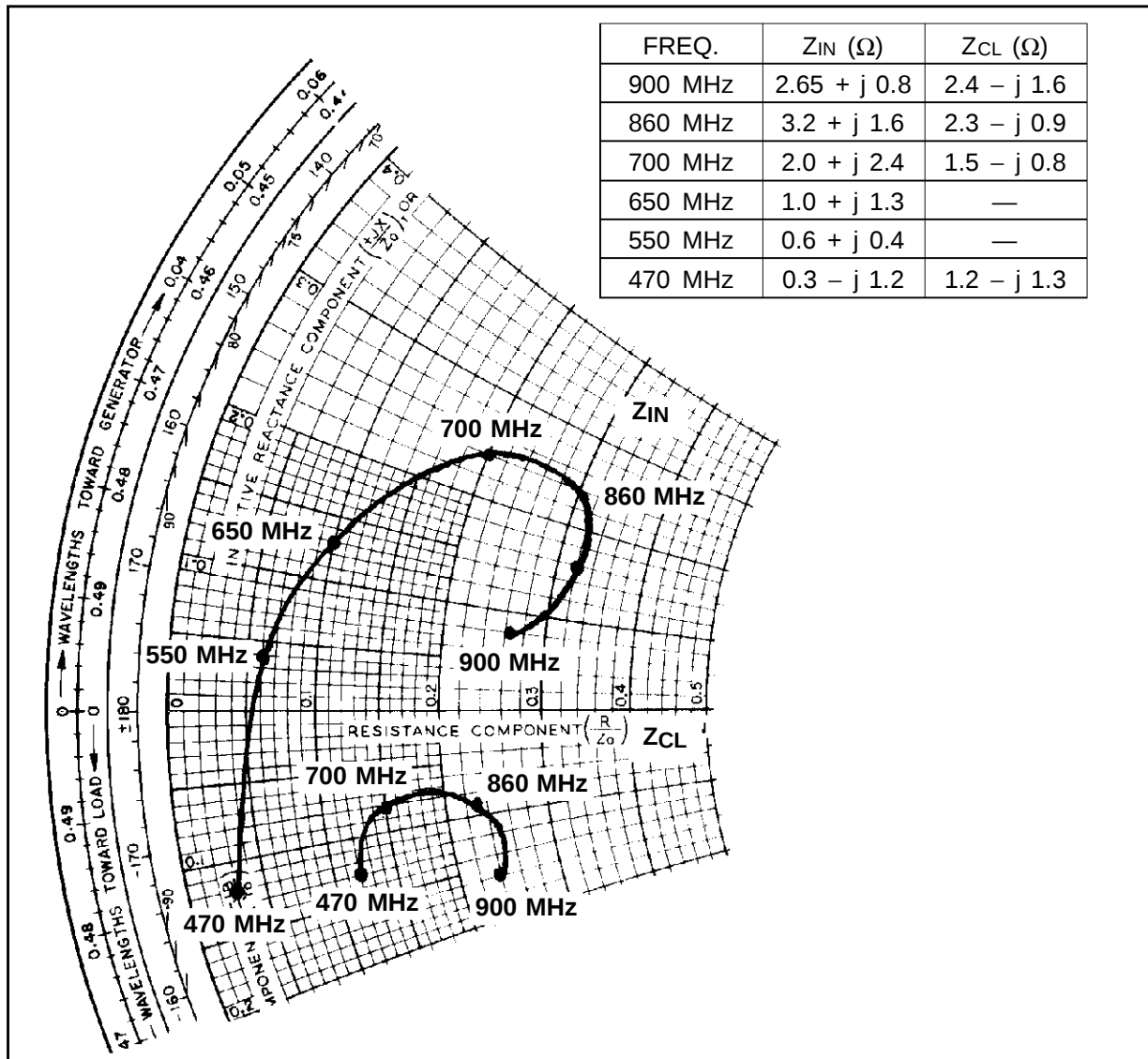
SAFE OPERATING AREA



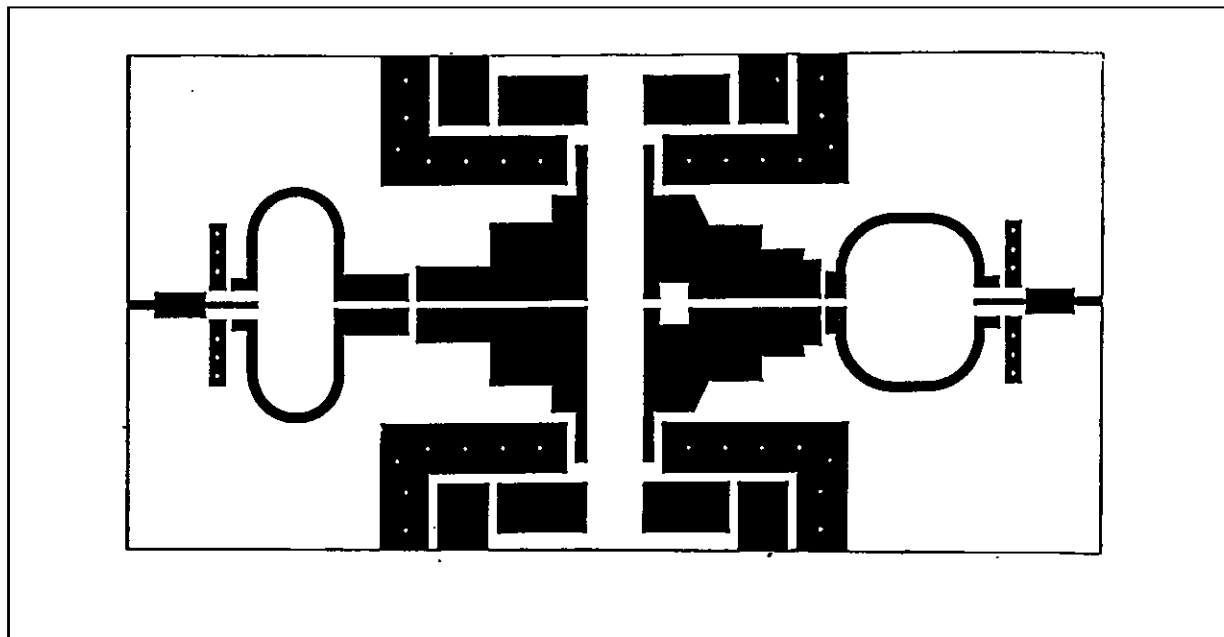
THERMAL RESISTANCE vs CASE TEMPERATURE



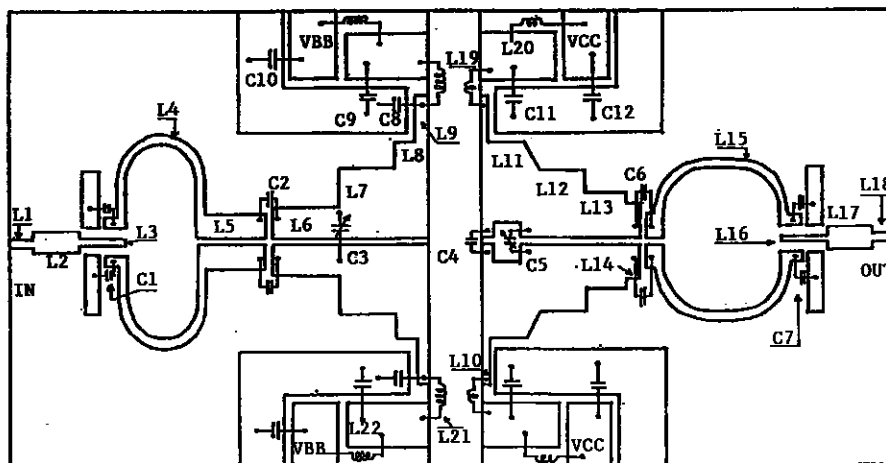
IMPEDANCE DATA



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 + 47μF, 63V

C11 : 1.5nF, ATC 100B + 10nF

C12 : 470pF + 1.5nF, ATC 100B + 100μF, 63V

Substrate: Teflon Glass Er = 2.55, 30Mils

L1, L18 : Printed Line 50Ω

L2, L17 : Printed Line 26.7Ω, 10mm

L3, L16 : Printed Line 60Ω, 10.5mm

L4, L15 : Printed Line 50Ω, 43mm

L5 : Printed Line 25Ω, 13.5mm

L6 : Printed Line 21Ω, 15mm

L7 : Printed Line 10.5Ω, 12.5mm

L8 : Printed Line 8Ω, 7.5mm

L9, L10 : Printed Line 50Ω, 10mm

L11 : Printed Line 9.5Ω, 10.5mm

L12 : Printed Line 11Ω, 14.5mm

L13 : Printed Line 15.5Ω, 8.5mm

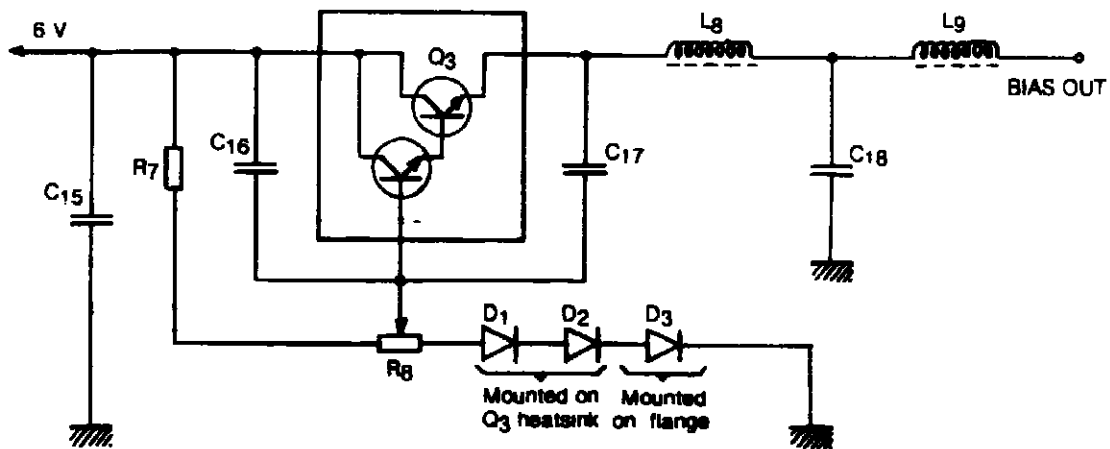
L14 : Printed Line 19Ω, 3.5mm

L19 : 2 Turns, #16 AWG

L20 : 8 Turns, #16 AWG

L21, L22 : 12 Turns, #22 AWG

BIAS VOLTAGE SOURCE



C15 : 10nF + 100nF + 10 μ F

C16 : 10nF

C17 : 1 μ F

C18 : 1.2nF + 27nF + 10 μ F

D1 : AAY 49 Ge Diode Thermally Connected with Q3 heatsink

D2 : 1N 400S - Si Diode Thermally Connected with Q3 heatsink

D3 : 1n 400S - Si Diode Thermally Connected with SD1492 (RF Transistors) Flange

L6, L9 : Ferrite Choice

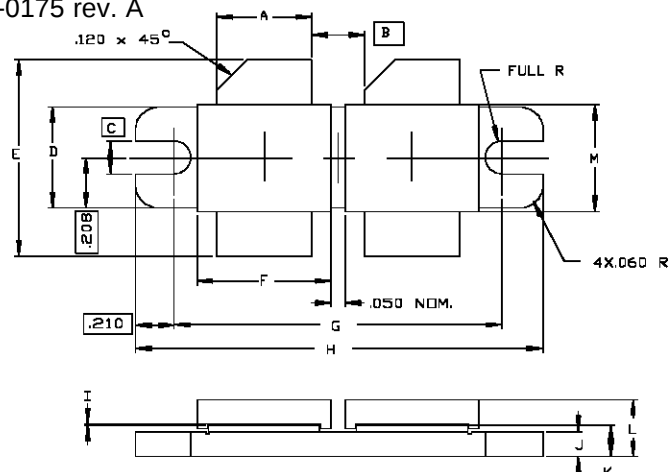
Q : Box 63B

R6 : 100 Ω Trimpot

R7 : 470 Ω , 1/2W

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			

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