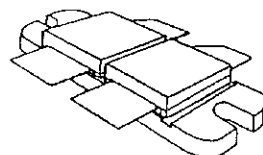


RF & MICROWAVE TRANSISTORS TV/LINEAR APPLICATIONS

- 55 - 88 MHz
- 32 VOLTS
- COMMON EMITTER
- GOLD METALLIZATION
- INTERNAL INPUT MATCHING
- CLASS AB PUSH PULL
- HIGH SATURATED POWER CAPABILITY
- DIFFUSED EMITTER BALLAST RESISTORS
- DESIGNED FOR HIGH POWER LINEAR OPERATION
- $P_{OUT} = 240 \text{ W MIN. WITH } 12.0 \text{ dB GAIN}$



2 x .437 x .450 2LFL (M165)
epoxy sealed

ORDER CODE

SD1476

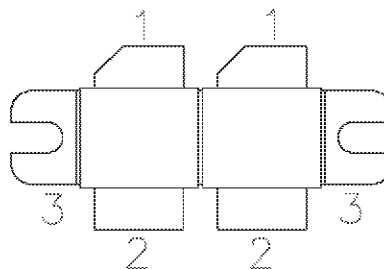
BRANDING

SD1476

DESCRIPTION

The SD1476 is a gold metallized epitaxial silicon NPN planar transistor using diffused emitter ballast resistors for high linearity Class AB operation in VHF and Band I television transmitters and transposers.

PIN CONNECTION



1. Collector

2. Base

3. Emitter

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

Symbol	Parameter	Value	Unit
V_{CBO}	Collector-Base Voltage	70	V
V_{CEO}	Collector-Emitter Voltage	40	V
V_{EBO}	Emitter-Base Voltage	4.0	V
I_C	Device Current	25	A
P_{DISS}	Power Dissipation	430	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	0.4	$^{\circ}\text{C/W}$
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SD1476

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

STATIC

Symbol	Test Conditions		Value			Unit
			Min.	Typ.	Max.	
BV_{CBO}	$I_C = 50mA$	$I_E = 0mA$	70	—	—	V
BV_{CER}	$I_C = 50mA$	$R_{BE} = 51\Omega$	68	—	—	V
BV_{CEO}	$I_C = 100mA$	$I_B = 0mA$	40	—	—	V
BV_{EBO}	$I_E = 20mA$	$I_C = 0mA$	4.0	—	—	V
I_{CEO}	$V_{CE} = 30V$	$I_E = 0mA$	—	—	10	mA
I_{CBO}	$V_{CB} = 30V$	$I_E = 0mA$	—	—	10	mA
h_{FE}	$V_{CE} = 5V$	$I_C = 7A$	10	—	50	—

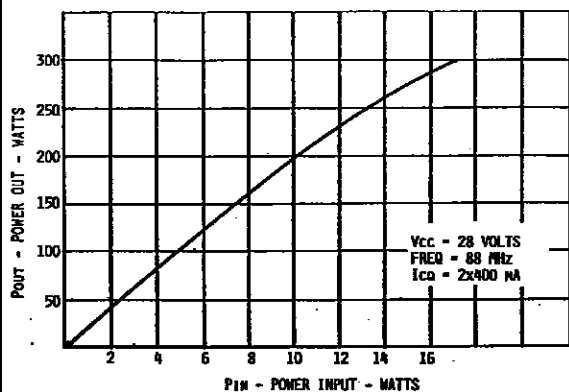
DYNAMIC

Symbol	Test Conditions			Value			Unit
				Min.	Typ.	Max.	
P_{OUT}^*	$f = 88\text{ MHz}$	$V_{CE} = 32\text{ V}$	$I_{CQ} = 2 \times 400mA$	240	—	—	W
G_P	$f = 88\text{ MHz}$	$V_{CE} = 32\text{ V}$	$I_{CQ} = 2 \times 400mA$	12	—	—	dB
η_C	$f = 88\text{ MHz}$	$V_{CE} = 32\text{ V}$	$I_{CQ} = 2 \times 400mA$	50	—	—	%
C_{OB}	$f = 1\text{ MHz}$	$V_{CB} = 28\text{ V}$		—	—	220	pF

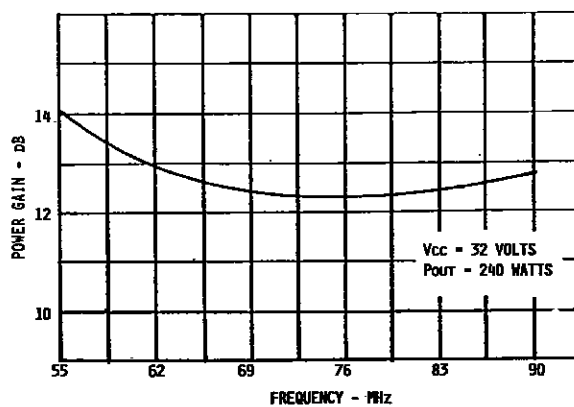
Note: *1 dB Compression

TYPICAL PERFORMANCE

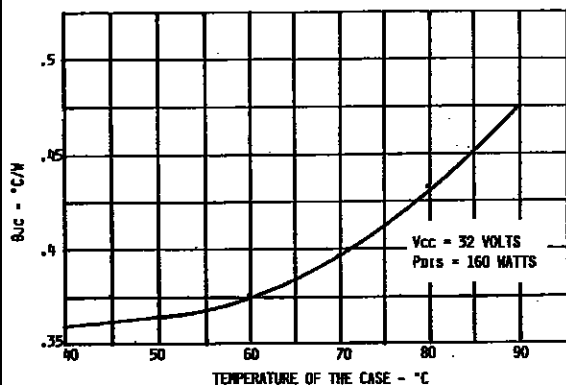
POWER OUTPUT vs POWER INPUT



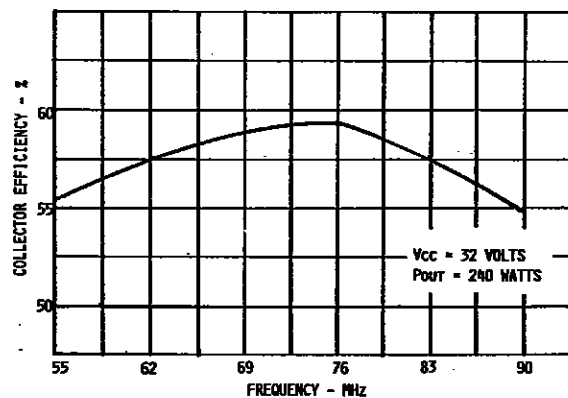
POWER GAIN vs FREQUENCY



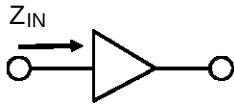
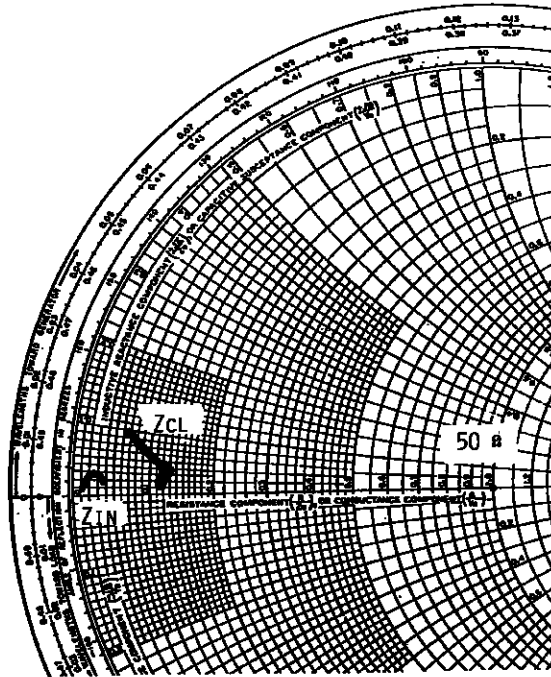
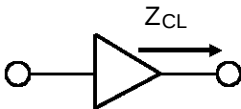
THERMAL RESISTANCE vs CASE TEMPERATURE



COLLECTOR EFFICIENCY vs FREQUENCY



IMPEDANCE DATA

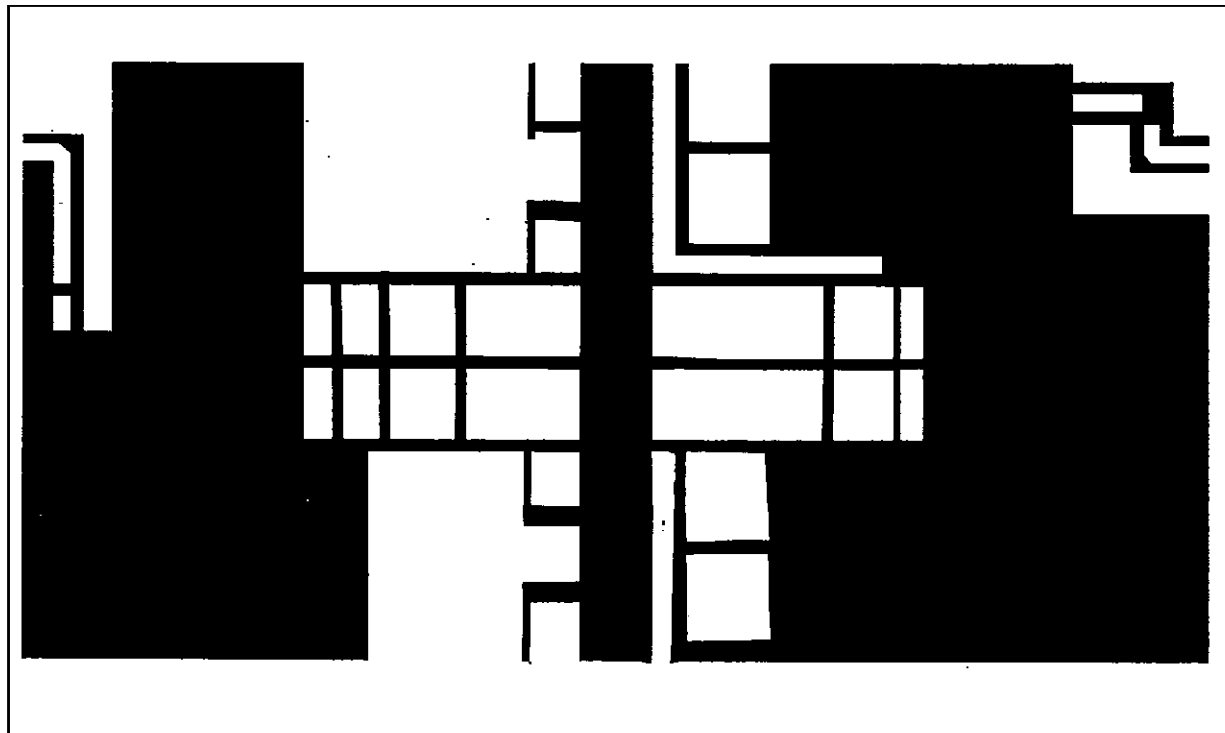
TYPICAL INPUT
IMPEDANCETYPICAL COLLECTOR
LOAD IMPEDANCE

FREQ.	$Z_{IN} (\Omega)$	$Z_{CL} (\Omega)$
55 MHz	$1.7 - j 1.0$	$6.1 + j 1.0$
65 MHz	$1.5 + j 1.3$	$7.0 + j 2.1$
75 MHz	$1.0 + j 1.1$	$6.2 + j 2.0$
90 MHz	$0.8 + j 0.4$	$3.4 + j 4.4$

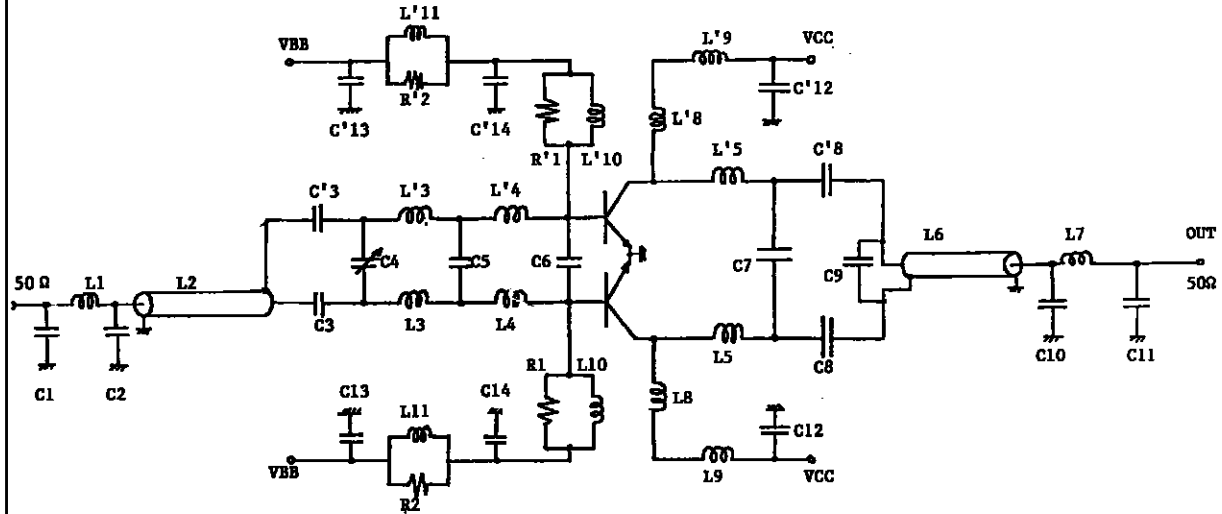
$P_{OUT} = 240 \text{ W}$

$V_{CC} = 32 \text{ V}$

PRINTED CIRCUIT BOARD LAYOUT



TEST CIRCUIT



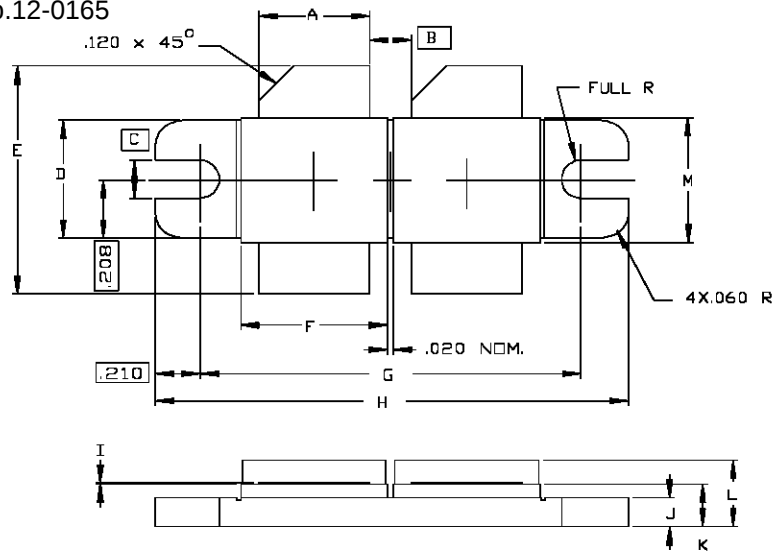
C1 : 10pF + 33pF, ATC 100B
 C2 : 47pF, ATC 100B
 C3, C'3 : 1.5nF + 2.2nF, ATC 100B
 C4 : 4 - 60pF, Arco 404
 C5 : 2 x 100pF + 47pF, ATC 100B
 C6 : 2 x 330pF + 3 x 180pF + 270pF, ATC 100B
 C7 : 150pF + 10pF, ATC 100B
 C8, C'8 : 4.7nF, ATC 100B
 C9 : 4 - 40pF, Arco 403
 C10 : 10pF, ATC 100B
 C11 : 43pF, ATC 100B
 C12, C'12 : 1μF 63V, LCC CPM13B
 C13, C'13 : 82nF 100V, LCC 745
 C14, C'14 : 270nF 63V, LCC7950

L1, L7 : 4 Turns Diameter 7mm, Wire Diameter 1.5mm
 L2 : 7 Turns Diameter 25mm, Coaxial Cable $Z_c = 25\Omega$
 L3, L'3 : 2 Turns Diameter 2.5mm, Wire Diameter 0.8mm
 L4, L'4 : Length 15mm, Wire Diameter 1.5mm
 L5, L'5 : Length 30mm, Wire Diameter 1.5mm
 L6 : 6 Turns Diameter 25mm, Coaxial Cable $Z_c = 25\Omega$
 L8, L'8 : 16 Turns Diameter, Wire Diameter 1.5mm
 L9, L'9 : 1 Turn, Wire Diameter 1.5mm in Ferrite (stackpole 57 33 12)
 L10, L'10 : 14 Turns, Wire Diameter 0.6mm Around Resistor 1W
 L11, L'11 : 14 Turns, Wire Diameter 0.6mm Around Resistor 1W
 R1, R'1 : 180Ω, 1W
 R2, R'2 : 180Ω, 1W

Material : Epoxy 63 mil, $E_r = 2.55$

PACKAGE MECHANICAL DATA

Ref.: Dwg. No.12-0165



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	.135/3,43	.155/3,94
B	.122/3,10		L		.250/6,35
C	.125/3,18		M	.425/10,80	.435/11,05
D	.411/10,44	.421/10,69			
E	.825/20,96	.865/21,97			
F	.495/12,57	.505/12,83			
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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