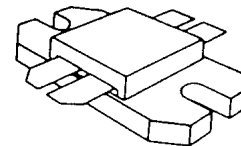


RF & MICROWAVE TRANSISTORS TV/LINEAR APPLICATIONS

- 470 - 860 MHz
- 28 VOLTS
- CLASS AB PUSH PULL
- DESIGNED FOR HIGH POWER LINEAR OPERATION
- HIGH SATURATED POWER CAPABILITY
- GOLD METALLIZATION
- DIFFUSED EMITTER BALLAST RESISTORS
- COMMON EMITTER CONFIGURATION
- INTERNAL INPUT MATCHING
- $P_{OUT} = 50 \text{ W MIN. WITH } 6.5 \text{ dB GAIN}$



.438 x .450 2LFL (M173)
epoxy sealed

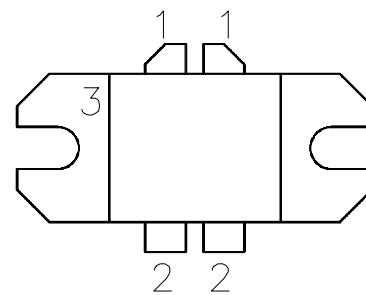
ORDER CODE
SD1489

BRANDING
SD1489

DESCRIPTION

The SD1489 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	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	175	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	1.0	$^{\circ}\text{C/W}$
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SD1489**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_{CER}	$I_C = 20mA$	$R_{BE} = 10\Omega$	40	—	—	V
BV_{CEO}	$I_C = 200mA$	$I_B = 0mA$	30	—	—	V
BV_{EBO}	$I_E = 10mA$	$I_C = 0mA$	3.0	—	—	V
I_{CEO}	$V_{CE} = 28V$	$I_E = 0mA$	—	—	5	mA
h_{FE}	$V_{CE} = 5V$	$I_C = 3A$	10	—	80	—

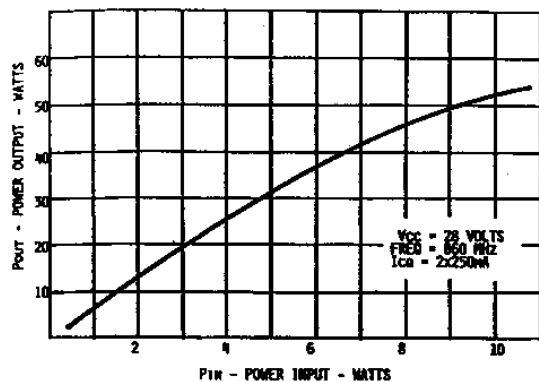
DYNAMIC

Symbol	Test Conditions			Value			Unit
				Min.	Typ.	Max.	
P_{OUT}	$f = 860\text{ MHz}$	$V_{CE} = 28\text{ V}$	$I_{CQ} = 2 \times 250\text{ mA}$	50	—	—	W
G_P	$f = 860\text{ MHz}$	$V_{CE} = 28\text{ V}$	$I_{CQ} = 2 \times 250\text{ mA}$	6.8	—	—	dB
η_C	$f = 860\text{ MHz}$	$V_{CE} = 28\text{ V}$	$I_{CQ} = 2 \times 250\text{ mA}$	—	45	—	%
C_{OB}	$f = 1\text{ MHz}$	$V_{CB} = 28\text{ V}$		—	70	—	pF

Note: Pulse Width = 10 μ Sec, Duty Cycle = 1%

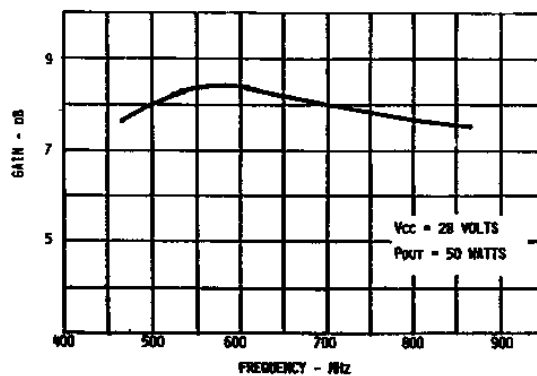
TYPICAL PERFORMANCE

OUTPUT POWER vs POWER INPUT



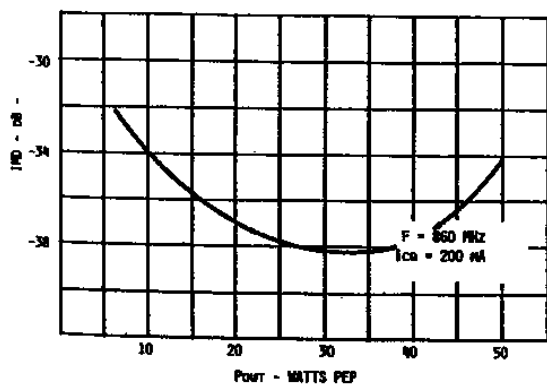
S88-SD1489-02

BROADBAND POWER GAIN vs FREQUENCY



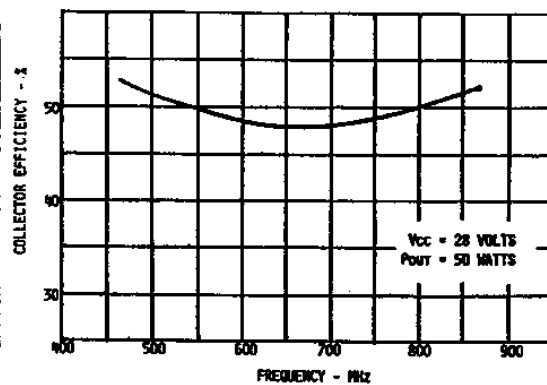
S88-SD1489-03

INTERMODULATION DISTORTION vs OUTPUT POWER



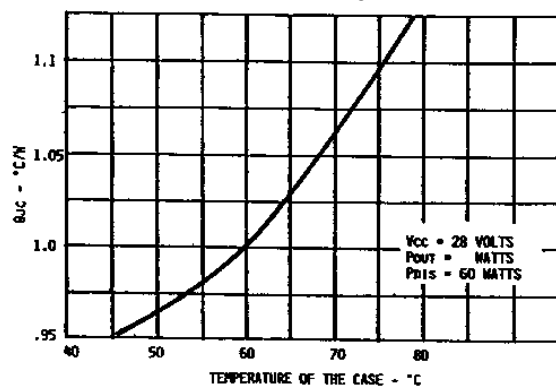
S88-SD1489-04

COLLECTOR EFFICIENCY vs FREQUENCY



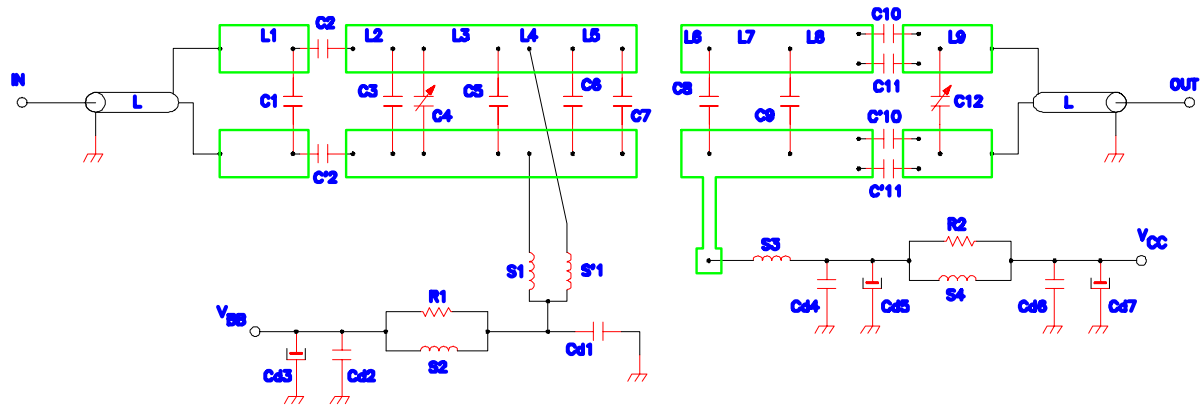
S88-SD1489-05

THERMAL RESISTANCE vs CASE TEMPERATURE



S88-SD1489-06

TEST CIRCUIT



C1	: 1.5pF ATC 100A
C2, C'2	: 100pF ATC 100A
C3, C12	: .5 - 4.5pF Airtronic Adjustable
C4, C5	: 2.7pF ATC 100A
C6	: 10pF ATC 100A
C7	: 18pF ATC 100A
C8	: 6.8pF ATC 100A
C9	: 1.5pF ATC 100A + 1.8pF ATC 100A
C10, C'10	: 100pF ATC 100A
C11, C'11	: 120pF ATC 100A
Cd1	: 100pF ATC 100A
Cd2	: 47pF AATC 100B + 1000pF ATC 100B
Cd3	: 500μF 25V
Cd4	: 100pF ATC 100A
Cd5	: 22μF 35V
Cd6	: 1000pF ATC 100B
Cd7	: 47μF 63V

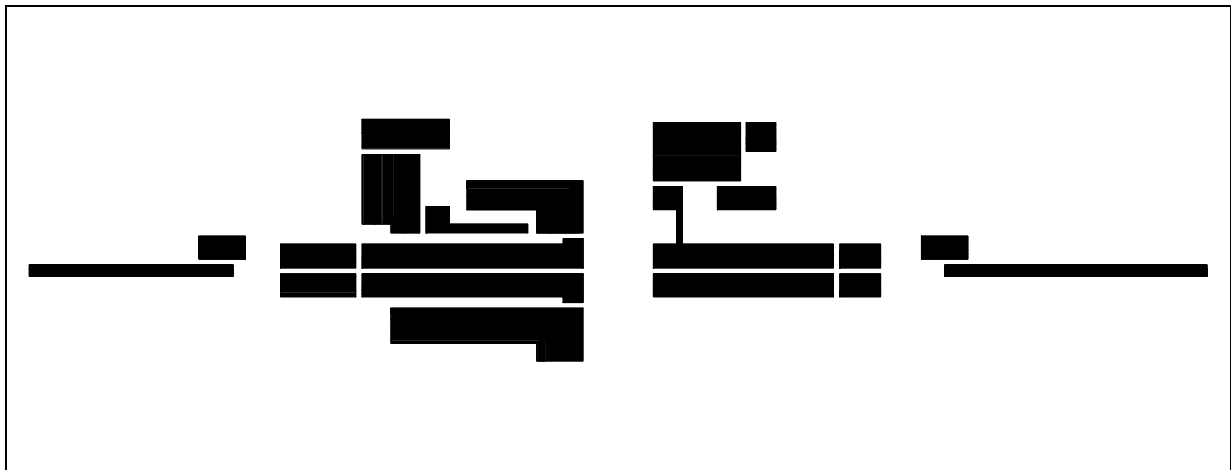
L	: Coaxial Cable $Z_0 = 50\Omega$ Length $\lambda/4$ at 680 MHz
L1	: Printed Transmission Line $Z_0 = 25\Omega$ Length 12mm
L2	: Printed Transmission Line $Z_0 = 25\Omega$ Length 12mm
L3	: Printed Transmission Line $Z_0 = 25\Omega$ Length 10mm
L4	: Printed Transmission Line $Z_0 = 25\Omega$ Length 9mm
L5	: Printed Transmission Line $Z_0 = 25\Omega$ Length 5.5mm
L6	: Printed Transmission Line $Z_0 = 25\Omega$ Length 6mm
L7	: Printed Transmission Line $Z_0 = 25\Omega$ Length 14.5mm
L8	: Printed Transmission Line $Z_0 = 25\Omega$ Length 12mm
L9	: Printed Transmission Line $Z_0 = 25\Omega$ Length 7mm

R1	: 150 Ω 1/4 W
R2	: 51 Ω 1/4W

S1, S'1	: 10 Turns of .35mm Wire on 2mm Diameter
S2	: 9 Turns of .35mm Wire on R1
S3	: 2 Turns of .8mm Wire on 4mm Diameter
S4	: 5 Turns of .8mm Wire on R2

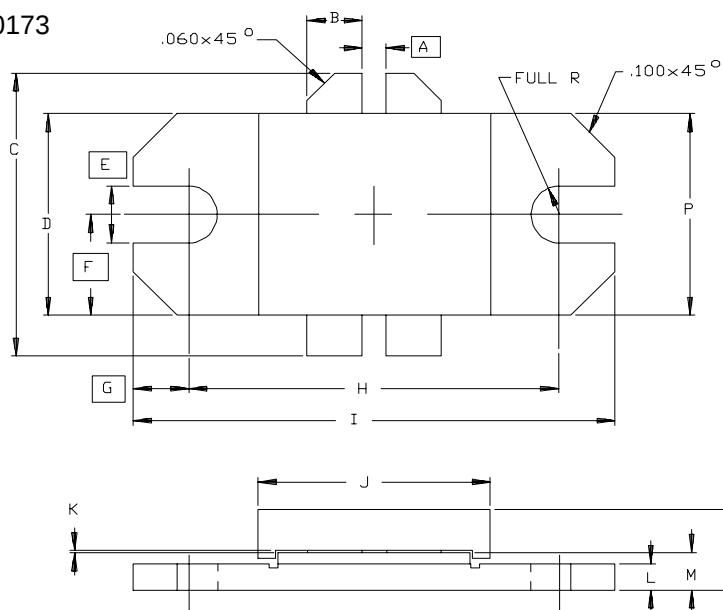
Board: Er = 2.55, .020" Thick

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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