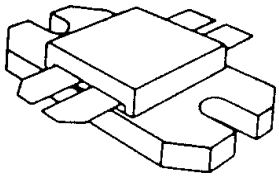
SGS-THOMSON MICROELECTRONICS

SD4600

RF & MICROWAVE TRANSISTORS CELLULAR BASE STATION APPLICATIONS

PRELIMINARY DATA

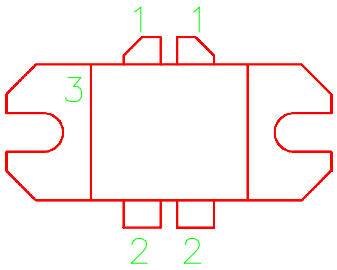
- GOLD METALLIZATION
- 860-960 MHz
- 26 VOLTS
- EFFICIENCY 50% MIN.
- P_{OUT} = 60 W MIN. WITH 7.5 dB GAIN



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

ORDER CODE	BRANDING
SD4600	SD4600

PIN CONNECTION



1. Collector
2. Base
3. Emitter

DESCRIPTION

The SD4600 is designed for 960MHz mobile base stations in both analog and digital applications. Including double input and output matching networks, the SD4600 features high impedances allowing operation over the full 860 to 960 MHz bandwidth.

ABSOLUTE MAXIMUM RATINGS (T_{case} = 25°C)

Symbol	Parameter	Value	Unit
V_{CBO}	Collector-Base Voltage	60	V
V_{CEO}	Collector-Emitter Voltage	28	V
V_{EBO}	Emitter-Base Voltage	3.5	V
I_C	Device Current	8	A
P_{DISS}	Power Dissipation	146	W
T_J	Junction Temperature	+200	°C
T_{STG}	Storage Temperature	– 65 to +150	°C

THERMAL DATA

$R_{TH(j-c)}$	Junction-Case Thermal Resistance	1.2	°C/W

*Applies only to rated RF amplifier operation

ELECTRICAL SPECIFICATIONS (T_{case} = 25°C)

STATIC (Total Device)

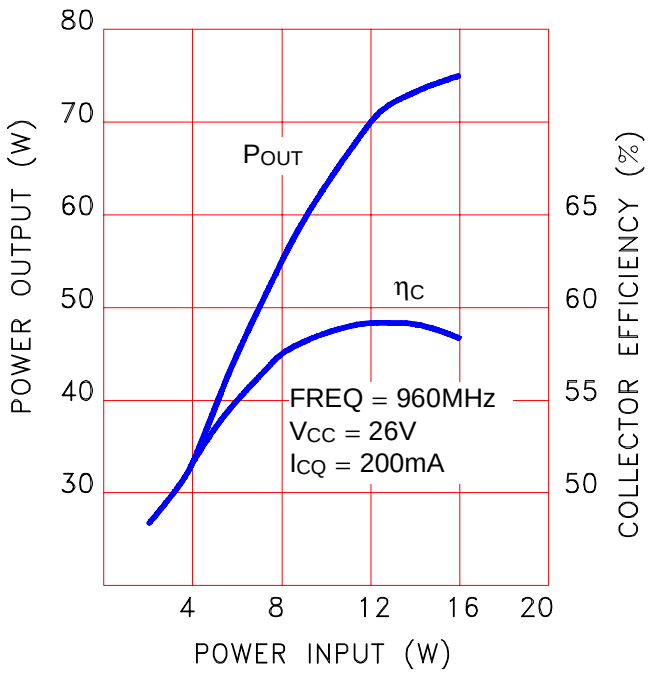
Symbol	Test Conditions	Value			Unit
		Min.	Typ.	Max.	
BV_{CBO}	I_C = 100mA	60	—	—	V
BV_{EBO}	I_E = 20mA	3.5	—	—	V
BV_{CEO}	I_C = 100mA	28	—	—	V
I_{CEO}	V_{CE} = 25V	—	—	30	mA
h_{FE}	V_{CE} = 5V I_C = 3A	25	—	80	—

DYNAMIC (Total Device)

Symbol	Test Conditions			Value			Unit
				Min.	Typ.	Max.	
P_{OUT}	f = 960MHz	V_{CC} = 26V	I_{CQ} = .200A	60	65	—	W
η_C	f = 960MHz	V_{CC} = 26V	I_{CQ} = .200A	50	58	—	%
G_P	f = 960MHz	V_{CC} = 26V	I_{CQ} = .200A	7.5	8.0	—	dB
VSWR	f = 960MHz	V_{CC} = 26V		5:1	—	—	—

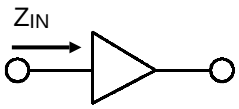
TYPICAL PERFORMANCE

POWER OUTPUT & COLLECTOR EFFICIENCY vs POWER INPUT

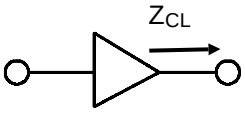


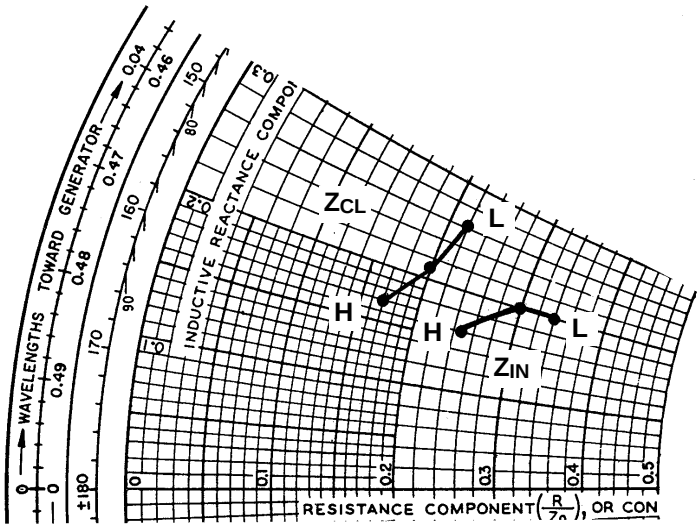
IMPEDANCE DATA

TYPICAL INPUT IMPEDANCE



TYPICAL COLLECTOR LOAD IMPEDANCE

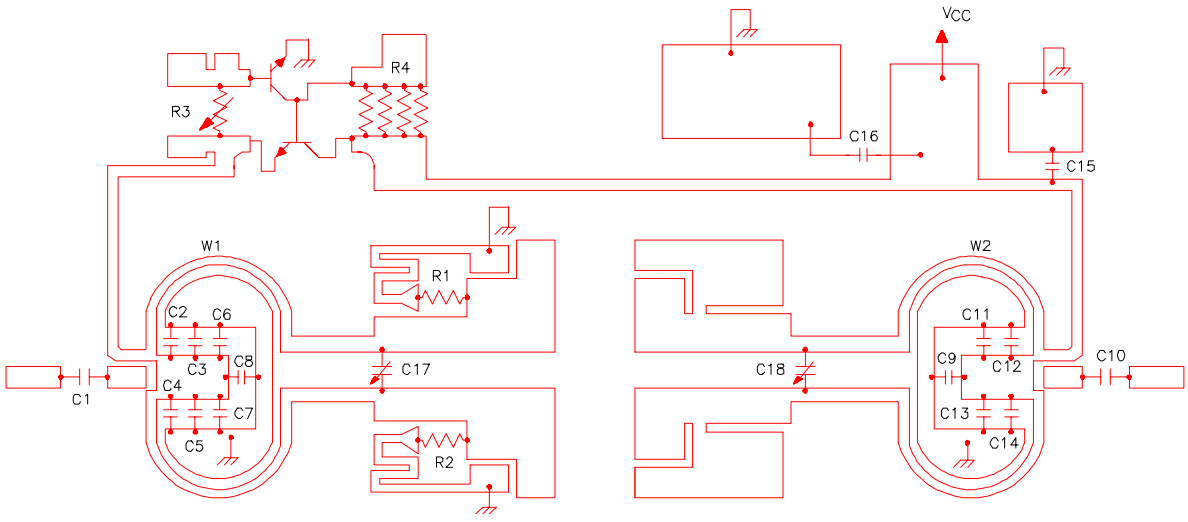




FREQ.	ZIN (Ω)	ZCL (Ω)
860 MHz	17 + j 10	11 + j 12
900 MHz	14 + j 10	10 + j 10.5
960 MHz	12.5 + j 8	8.5 + j 8.5

POUT = 60W
VCC = 26V
Normalized to 50ohms

TEST CIRCUIT

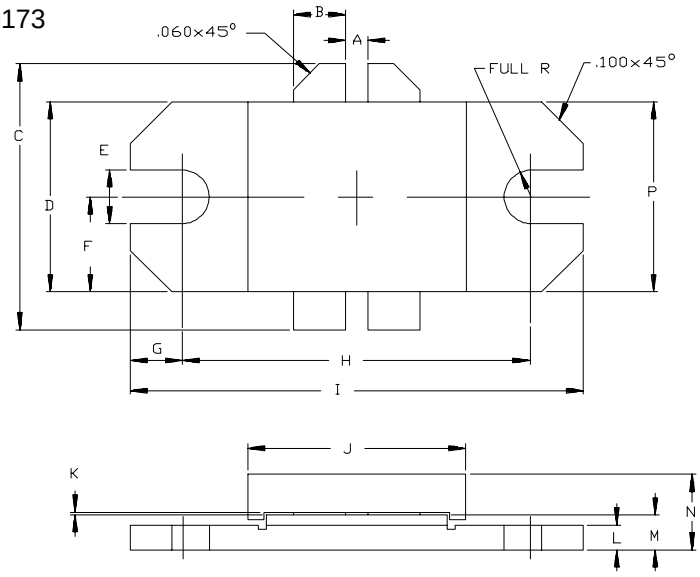


C1,C10 : 120pF Chip Capacitor B Size
C2,C5
C11,C14: 470pF Chip Capacitor B Size
C6,C7 : 100µF Electrolytic Capacitor
C8 : 4.7µF Electrolytic Capacitor
C9 : 10µF Electrolytic Capacitor
C15 : 39,000pF Chip Capacitor

C16 : 63µF Capacitor
C17 : .6 - 4.5pF Johanson Variable Capacitor
C18 : .8 - 8.0pF Johanson Variable Capacitor
R1, R2 : 20Ω (.5W) Chip Resistor
R3 : 10K Potentiometer
R4 : 4 3.17KΩ (.25W) Chip Resistor
S1 : Teflon Glass Er = 2.33 H = .020

PACKAGE MECHANICAL DATA

Ref. Dwg. No.: 12-0173



SGS-THOMSON MICROELECTRONICS		
	MINIMUM Inches/mm	MAXIMUM Inches/mm
A	.055/1,40	
B	.120/3,05	.130/3,30
C		.785/19,94
D	.455/11,56	.465/11,81
E	.125/3,18	
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

CONT'D		
	MINIMUM Inches/mm	MAXIMUM Inches/mm
K	.002/0,05	.006/0,15
L	.055/1,40	.065/1,65
M	.080/2,03	.095/2,41
N		.195/4,95
P	.455/11,56	.465/11,81