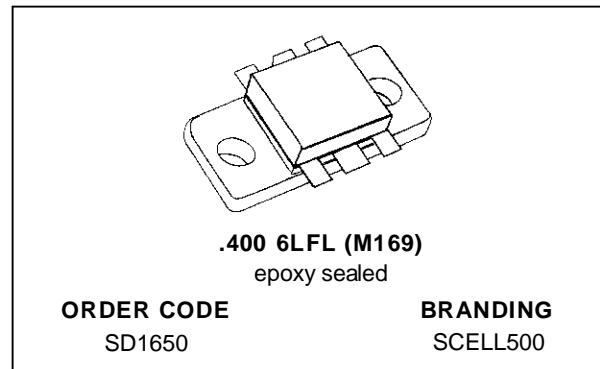


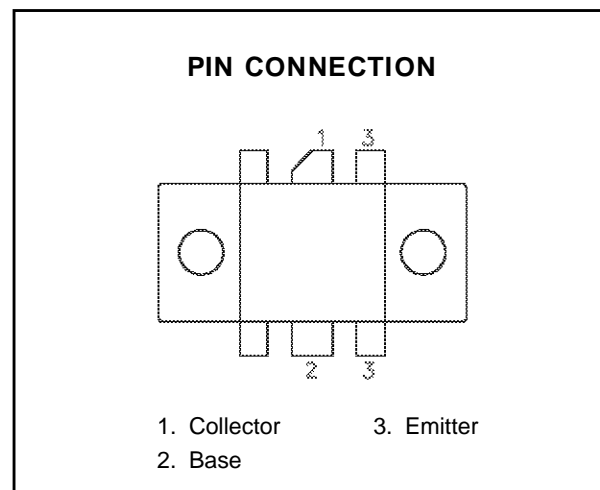
RF & MICROWAVE TRANSISTORS CELLULAR BASE STATION APPLICATIONS

- REFRACTORY/GOLD METALLIZATION
- DOUBLE STEP INPUT/OUTPUT MATCH
- 850-960 MHz CLASS AB LINEAR
- COMMON EMITTER
- $P_{OUT} = 60\text{ W MIN. WITH } 7\text{ dB MIN GAIN}$



DESCRIPTION

Designed for 900 MHz cellular radio base station applications, the SD1650 exhibits high collector efficiency with excellent thermal characteristics. Double-section internal input/output matching result in terminal impedance levels easily handled by the circuit designer.



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	28	V
V_{EBO}	Emitter-Base Voltage	4.0	V
I_C	Device Current	10	A
P_{DISS}	Power Dissipation (+25°C)	175	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	1.5	°C/W
---------------	----------------------------------	-----	------

*Applies only to rated RF amplifier operation

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

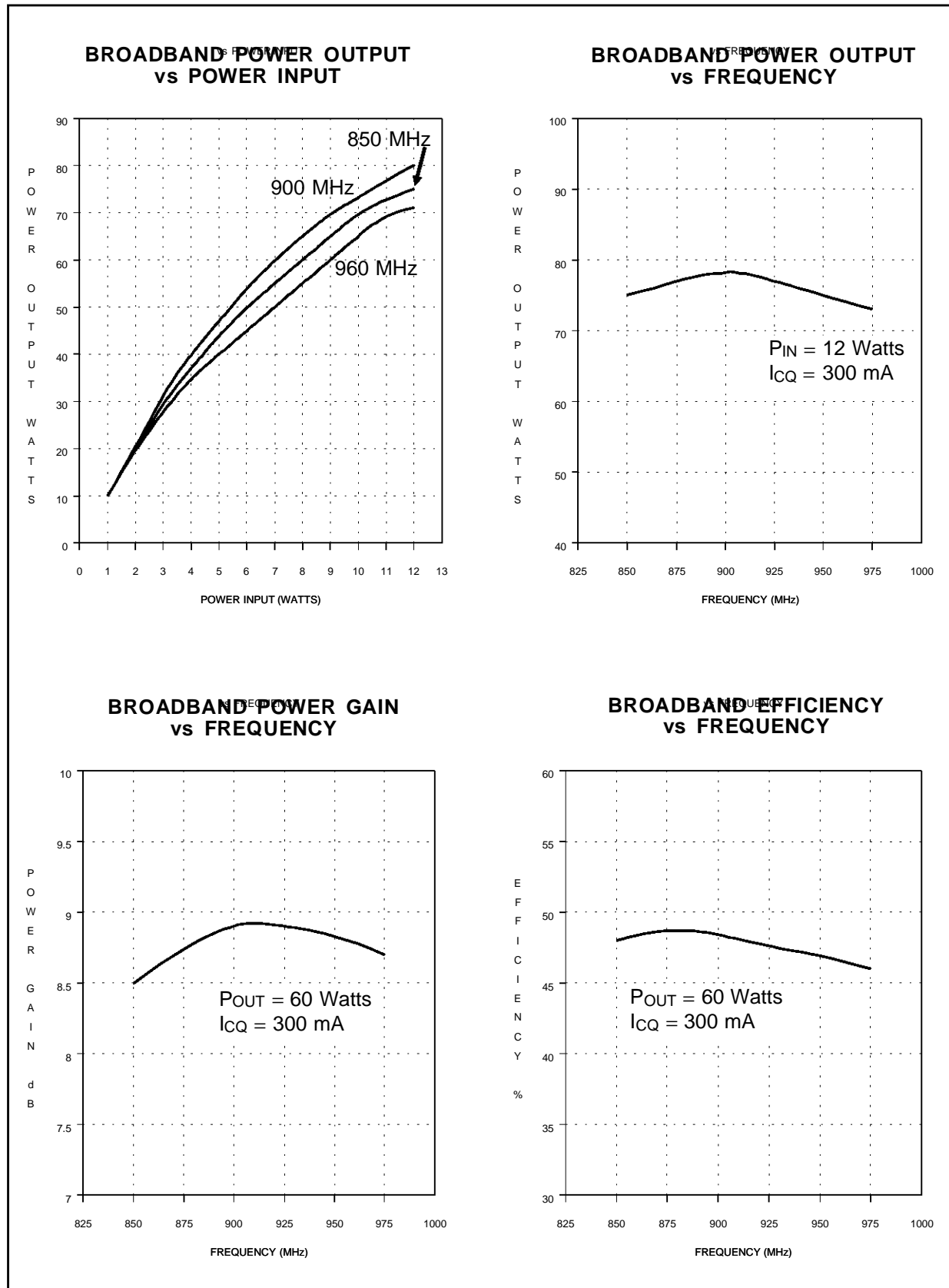
STATIC

Symbol	Test Conditions	Value			Unit
		Min.	Typ.	Max.	
BV_{CBO}	$I_{\text{C}} = 50\text{mA}$	60	—	—	V
BV_{EBO}	$I_{\text{E}} = 20\text{mA}$	3.0	—	—	V
BV_{CES}	$I_{\text{C}} = 100\text{mA}$	60	—	—	V
BV_{CEO}	$I_{\text{C}} = 100\text{mA}$	28	—	—	V
I_{CEO}	$V_{\text{CE}} = 24\text{V}$	—	—	10	mA
h_{FE}	$V_{\text{CE}} = 5\text{V}$ $I_{\text{C}} = 6\text{A}$	20	—	200	—

DYNAMIC

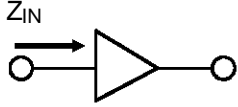
Symbol	Test Conditions	Value			Unit
		Min.	Typ.	Max.	
P_{OUT}	$f = 900\text{ MHz}$ $P_{\text{IN}} = 12\text{ W}$ $I_{\text{CQ}} = 300\text{ mA}$	60	—	—	W
η_{c}	$f = 900\text{ MHz}$ $P_{\text{IN}} = 12\text{ W}$ $I_{\text{CQ}} = 300\text{ mA}$	45	—	—	%
G_{P}	$f = 900\text{ MHz}$ $P_{\text{IN}} = 12\text{ W}$ $I_{\text{CQ}} = 300\text{ mA}$	7	—	—	dB
VSWR	$f = 900\text{ MHz}$ $P_{\text{IN}} = 12\text{ W}$	3:1	—	—	—

TYPICAL PERFORMANCE

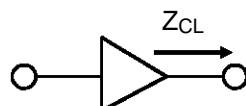


IMPEDANCE DATA

TYPICAL INPUT IMPEDANCE

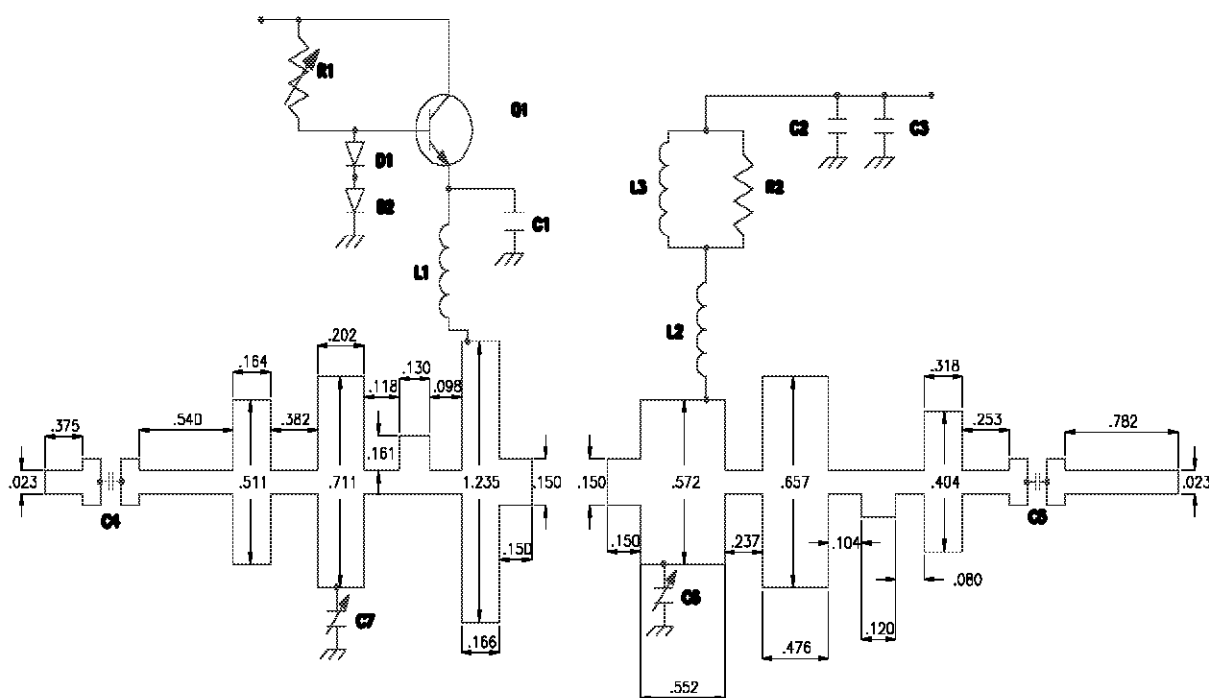


TYPICAL COLLECTOR LOAD IMPEDANCE



FREQ.	Z _{IN} (Ω)	Z _{CL} (Ω)
850 MHz	2.4 + j 5.2	4.0 - j 1.3
870 MHz	2.6 + j 5.4	3.9 - j 2.3
900 MHz	3.2 + j 6.3	3.6 - j 2.6
930 MHz	4.1 + j 6.0	3.4 - j 2.4
960 MHz	4.7 + j 5.6	3.0 - j 3.0

TEST CIRCUIT

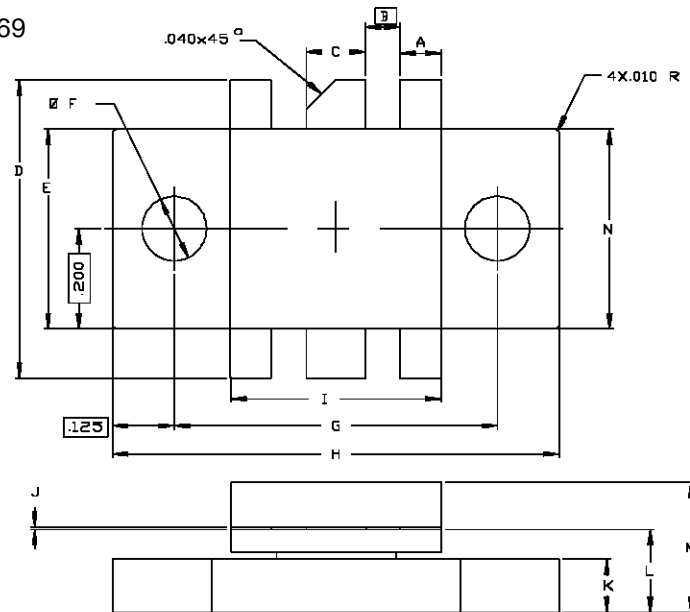


C1,C2 : 220 pF Chip Capacitor ATC Size B
 C3 : 10 Microfarad Electrolytic Capacitor
 C4,C5 : 220 pF Chip Capacitor ATC Size B
 C6,C7 : 1 - 4 pF Johanson Variable Capacitor
 D1,D2 : 1N3064 Diode or Equiv

L1,L2 : 5 Turn 1/4" Dia. 16 AWG Coil
 Q1 : SD1438-02 or Equiv.
 R1 : 5KΩ Potentiometer
 R2 : 100Ω 1/4 Watt Resistor
 Er = 10.2 H = .025in.

PACKAGE MECHANICAL DATA

Ref. Dwg. No.: 12-0169



SGS-THOMSON MICROELECTRONICS			CONT'D		
	MINIMUM Inches/mm	MAXIMUM Inches/mm		MINIMUM Inches/mm	MAXIMUM Inches/mm
A	.078/1,98	.088/2,24	K	.105/2,67	.115/2,92
B	.120/3,05		L	.159/4,04	.175/4,45
C	.115/2,92	.125/3,18	M	.280/7,11	
D	.580/14,73	.620/15,75	N	.395/10,03	.408/10,36
E	.395/10,03	.405/10,29			
F	.125/3,18				
G	.720/18,29	.730/18,54			
H	.970/24,64	.980/24,89			
I	.420/10,67	.430/10,92			
J	.002/0,05	.007/0,18			

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