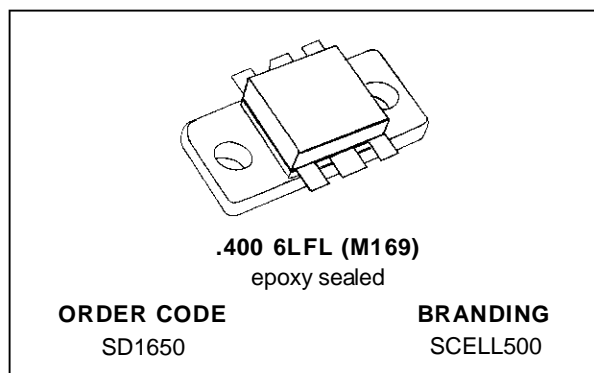


RF & MICROWAVE TRANSISTORS CELLULAR BASE STATION APPLICATIONS

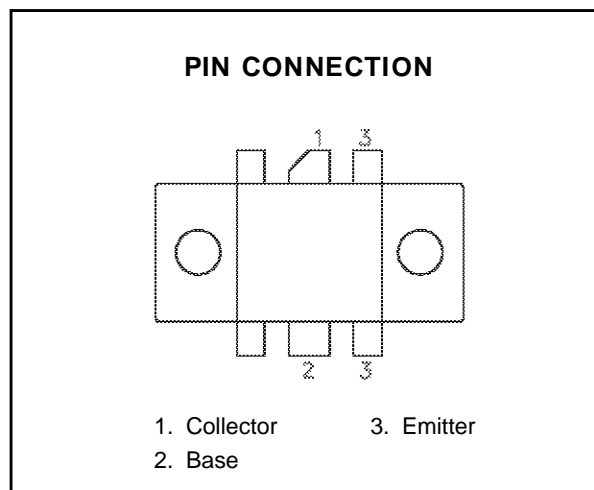
- REFRACTORY/GOLD METALLIZATION
- DOUBLE STEP INPUT/OUTPUT MATCH
- 850-960 MHz CLASS AB LINEAR
- COMMON EMITTER
- P_{OUT} = 60 W MIN. WITH 7 dB MIN GAIN

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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°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
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*Applies only to rated RF amplifier operation

SD1650

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

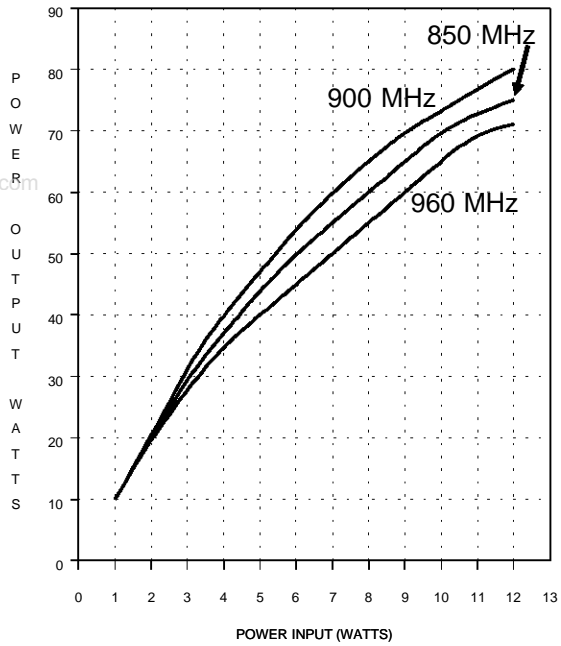
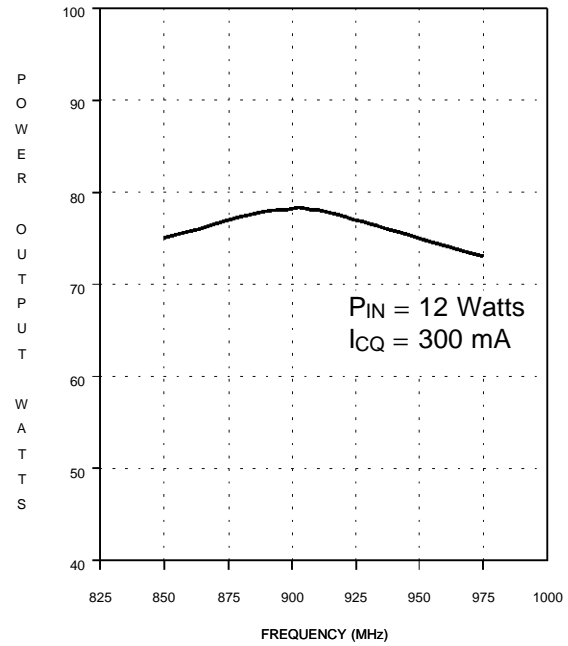
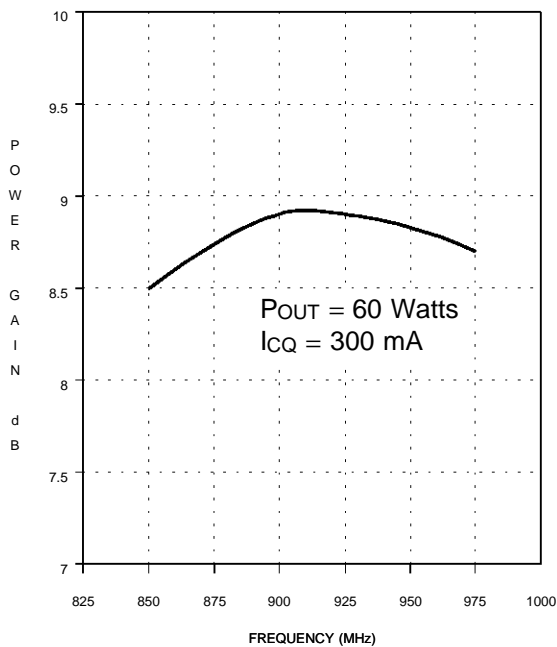
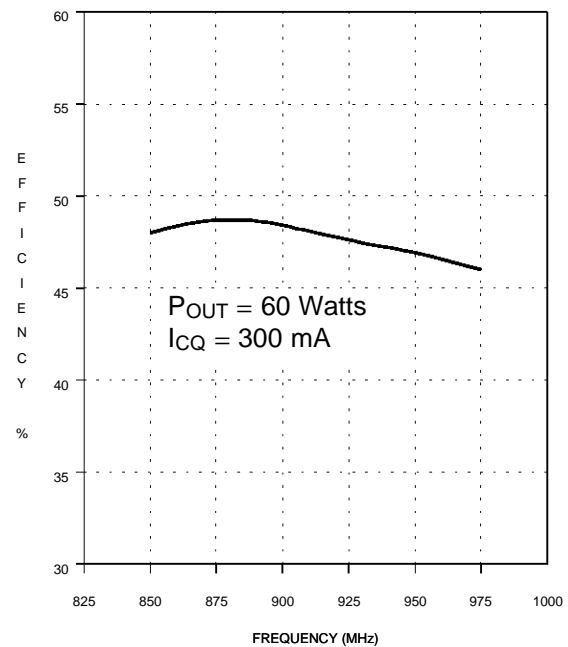
STATIC

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

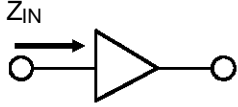
Symbol	Test Conditions	Value			Unit
		Min.	Typ.	Max.	
P_{OUT}	$f = 900\text{ MHz}$ $P_{\text{IN}} = 12\text{ W}$ $I_{\text{CQ}} = 300\text{ mA}$	60	—	—	W
η_{c}	$f = 900\text{ MHz}$ $P_{\text{IN}} = 12\text{ W}$ $I_{\text{CQ}} = 300\text{ mA}$	45	—	—	%
G_{P}	$f = 900\text{ MHz}$ $P_{\text{IN}} = 12\text{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

TYPICAL PERFORMANCE

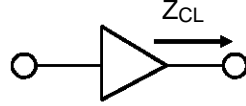
BROADBAND POWER OUTPUT
vs POWER INPUTBROADBAND POWER OUTPUT
vs FREQUENCYBROADBAND POWER GAIN
vs FREQUENCYBROADBAND EFFICIENCY
vs FREQUENCY

IMPEDANCE DATA

TYPICAL INPUT IMPEDANCE

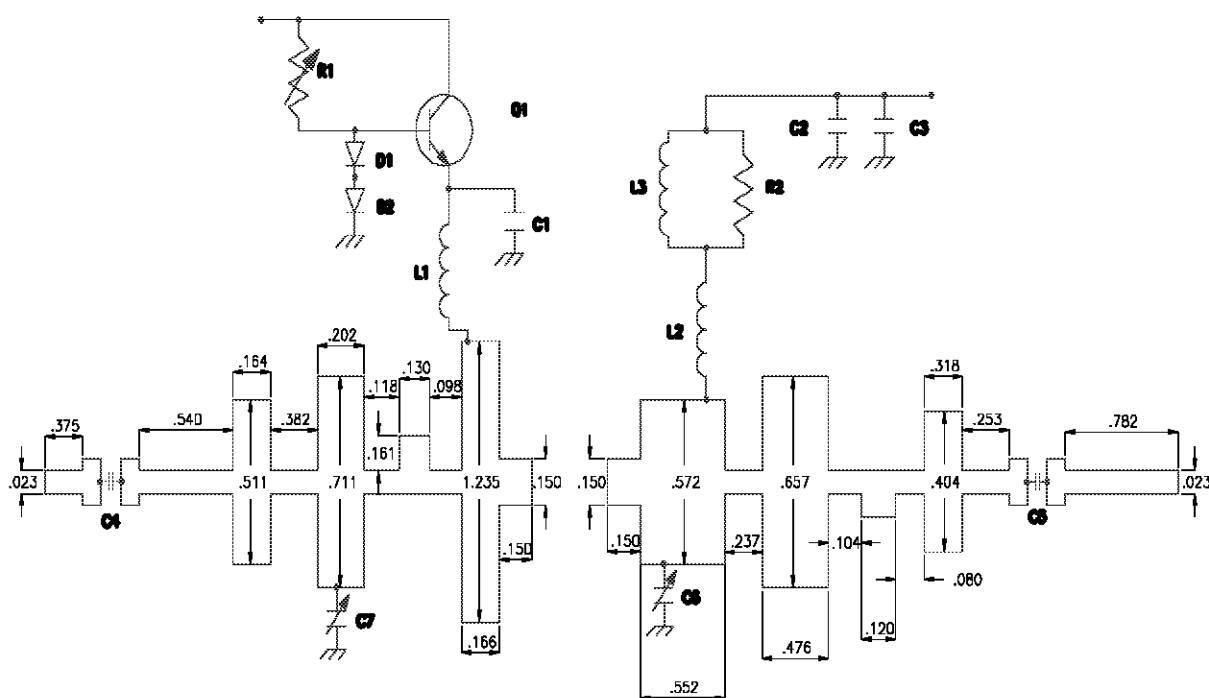


TYPICAL COLLECTOR LOAD IMPEDANCE



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

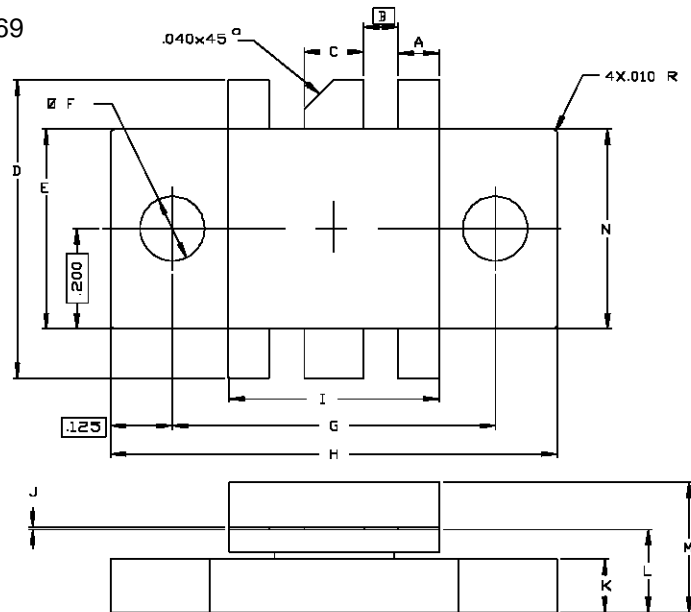


C1,C2 : 220 pF Chip Capacitor ATC Size B
 C3 : 10 Microfarad Electrolytic Capacitor
 C4,C5 : 220 pF Chip Capacitor ATC Size B
 C6,C7 : 1 - 4 pF Johanson Variable Capacitor
 D1,D2 : 1N3064 Diode or Equiv

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			

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