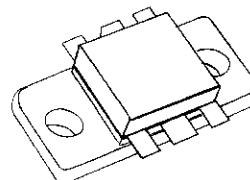


RF & MICROWAVE TRANSISTORS CELLULAR BASE STATION APPLICATIONS

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



.400 6LFL (M169)
epoxy sealed

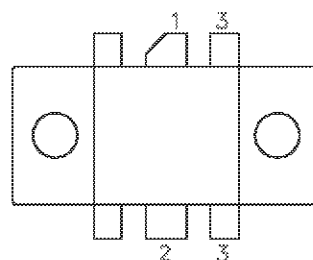
ORDER CODE
SD1650

BRANDING
SCCELL500

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.

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	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

SD1650

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

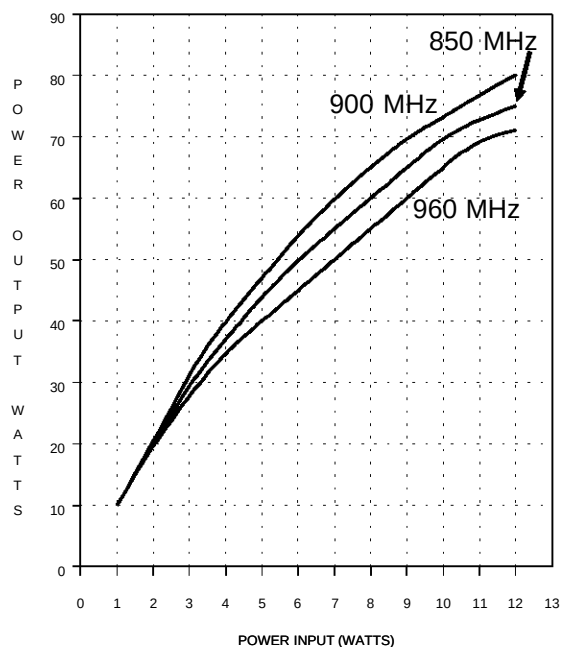
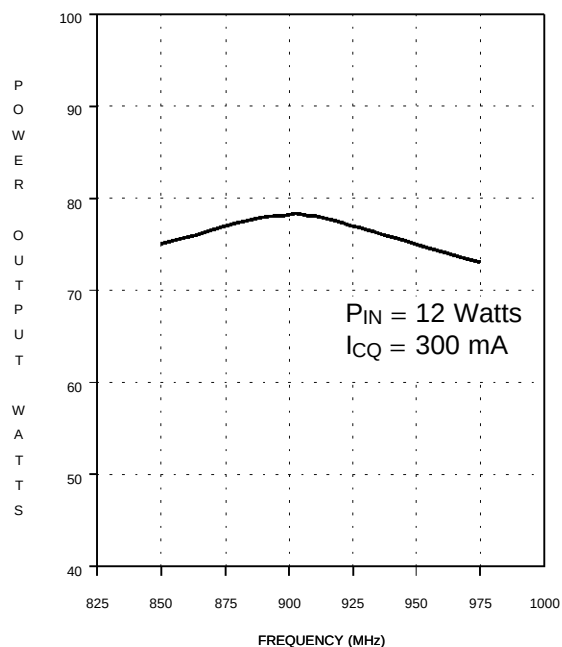
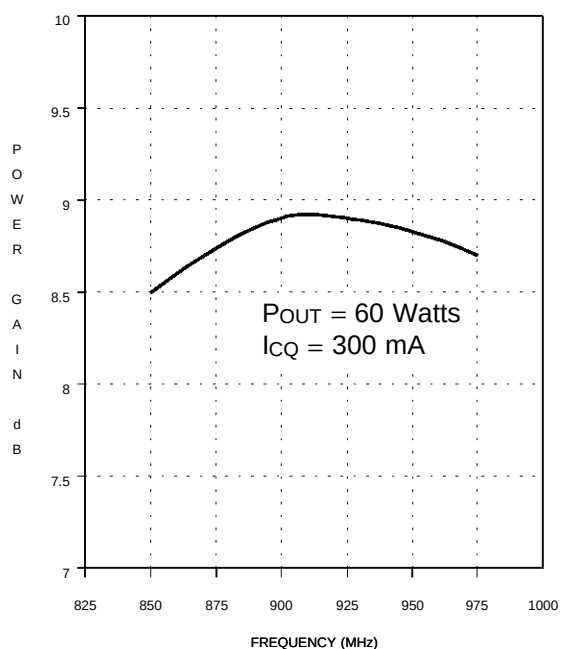
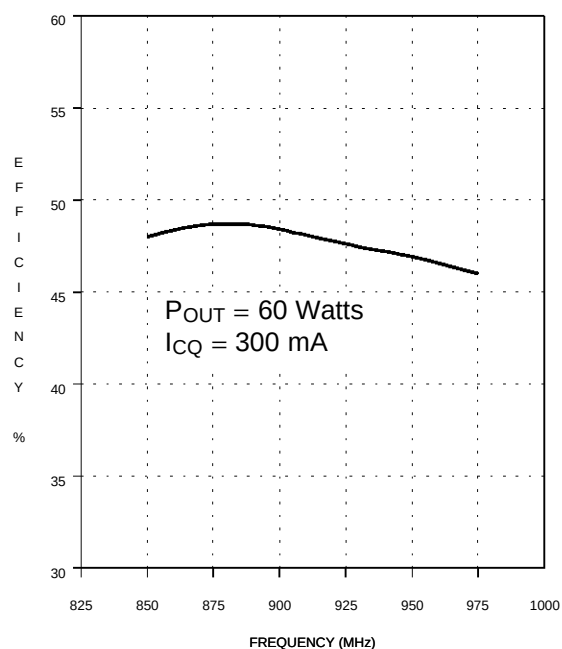
STATIC

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	—

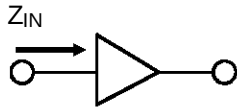
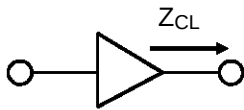
DYNAMIC

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

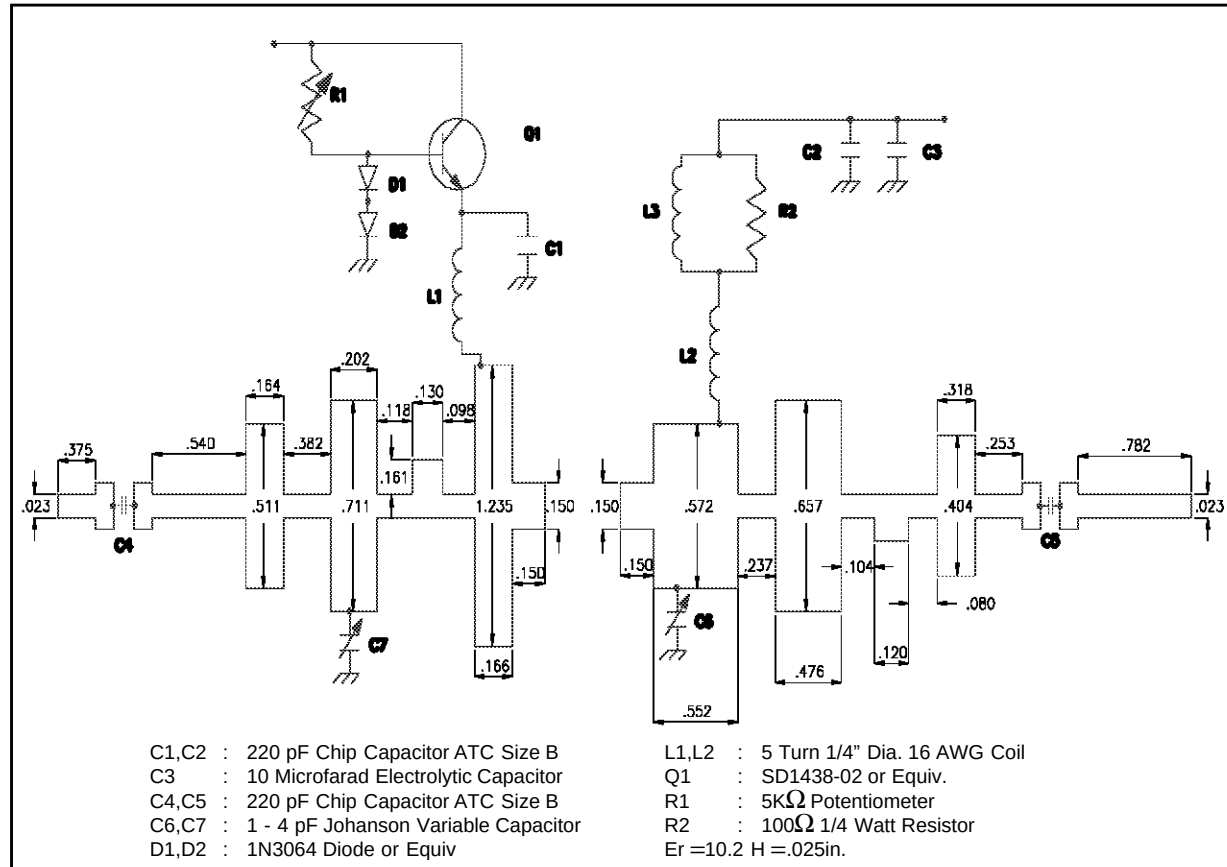
BROADBAND POWER OUTPUT
vs POWER INPUTBROADBAND POWER OUTPUT
vs FREQUENCYBROADBAND POWER GAIN
vs FREQUENCYBROADBAND EFFICIENCY
vs FREQUENCY

IMPEDANCE DATA

TYPICAL INPUT
IMPEDANCETYPICAL COLLECTOR
LOAD IMPEDANCE

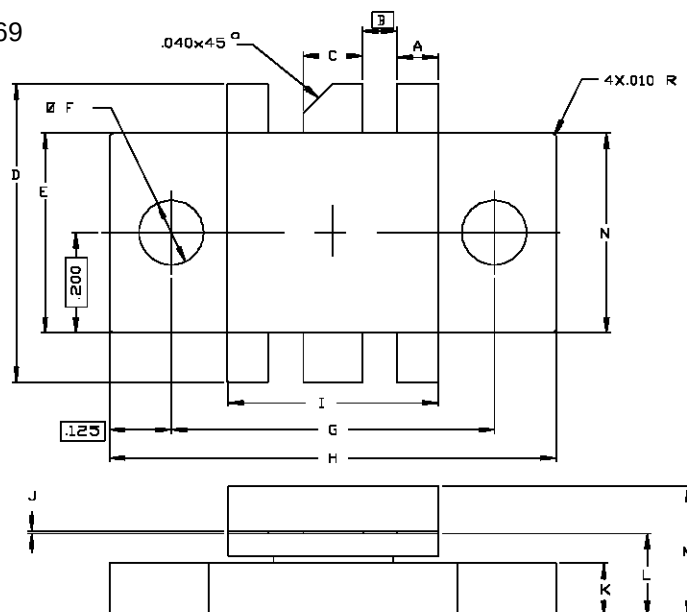
FREQ.	$Z_{IN} (\Omega)$	$Z_{CL} (\Omega)$
850 MHz	$2.4 + j 5.2$	$4.0 - j 1.3$
870 MHz	$2.6 + j 5.4$	$3.9 - j 2.3$
900 MHz	$3.2 + j 6.3$	$3.6 - j 2.6$
930 MHz	$4.1 + j 6.0$	$3.4 - j 2.4$
960 MHz	$4.7 + j 5.6$	$3.0 - j 3.0$

TEST CIRCUIT



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