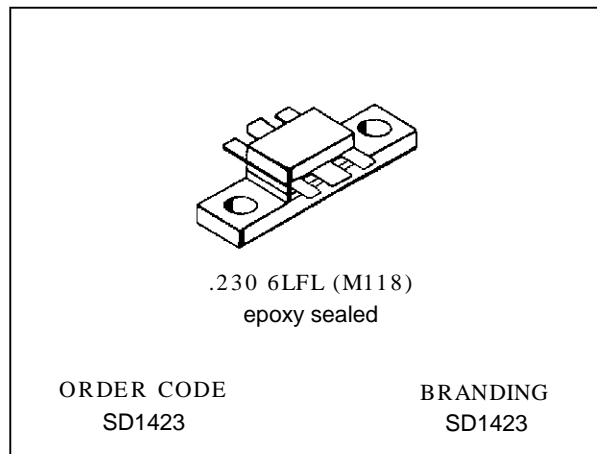


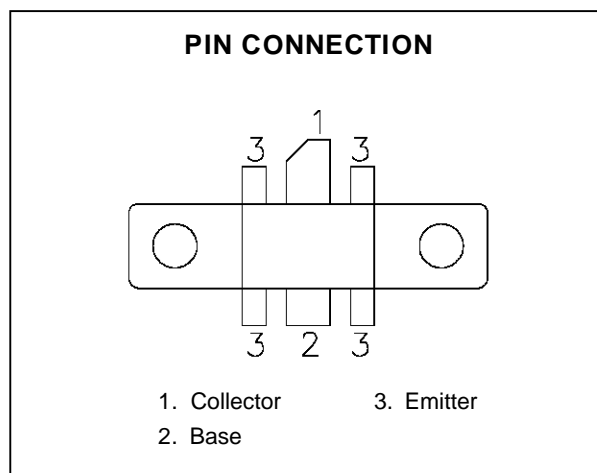
## RF & MICROWAVE TRANSISTORS 800-960MHz BASE STATION APPLICATIONS

- 800 - 960 MHz
- 24 VOLTS
- EFFICIENCY 50%
- COMMON EMITTER
- GOLD METALLIZATION
- CLASS AB LINEAR OPERATION
- $P_{OUT} = 15\text{ W MIN. WITH } 8.0\text{ dB GAIN}$



### DESCRIPTION

The SD1423 is a gold metallization epitaxial silicon NPN planar transistor using diffused emitter ballast resistors for high linearity Class AB operation for cellular base station applications. The SD1423 is designed as a medium power output device or as the driver for the SD1424.



### ABSOLUTE MAXIMUM RATINGS ( $T_{case} = 25^{\circ}\text{C}$ )

Symbol	Parameter	Value	Unit
$V_{CBO}$	Collector-Base Voltage	48	V
$V_{CEO}$	Collector-Emitter Voltage	25	V
$V_{CES}$	Collector-Emitter Voltage	45	V
$V_{EBO}$	Emitter-Base Voltage	3.5	V
$I_C$	Device Current	2.5	A
$P_{DISS}$	Power Dissipation	29	W
$T_J$	Junction Temperature	+200	$^{\circ}\text{C}$
$T_{STG}$	Storage Temperature	- 65 to +150	$^{\circ}\text{C}$

### THERMAL DATA

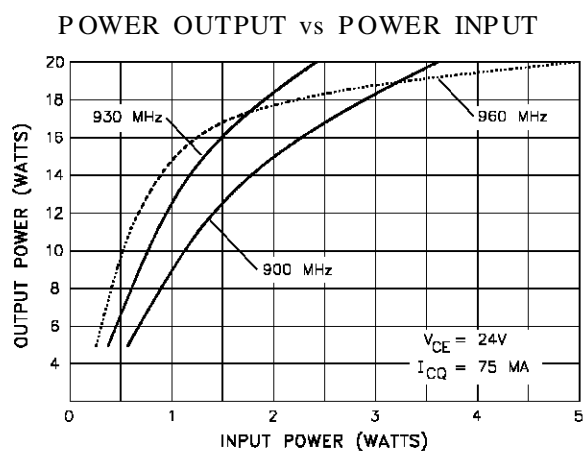
$R_{TH(j-c)}$	Junction-Case Thermal Resistance	6	$^{\circ}\text{C/W}$
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**SD1423****ELECTRICAL SPECIFICATIONS** ( $T_{\text{case}} = 25^{\circ}\text{C}$ )**STATIC**

Symbol	Test Conditions		Value			Unit
			Min.	Typ.	Max.	
$BV_{CBO}$	$I_C = 50\text{mA}$	$I_E = 0\text{mA}$	48	50	—	V
$BV_{CEO}$	$I_C = 20\text{mA}$	$I_B = 0\text{mA}$	25	30	—	V
$BV_{EBO}$	$I_E = 5\text{mA}$	$I_C = 0\text{mA}$	3.5	4.0	—	V
$I_{CBO}$	$V_{CB} = 24\text{V}$	$I_E = 0\text{mA}$	—	—	1.0	mA
$h_{FE}$	$V_{CE} = 10\text{V}$	$I_C = 100\text{mA}$	20	—	100	—

**DYNAMIC**

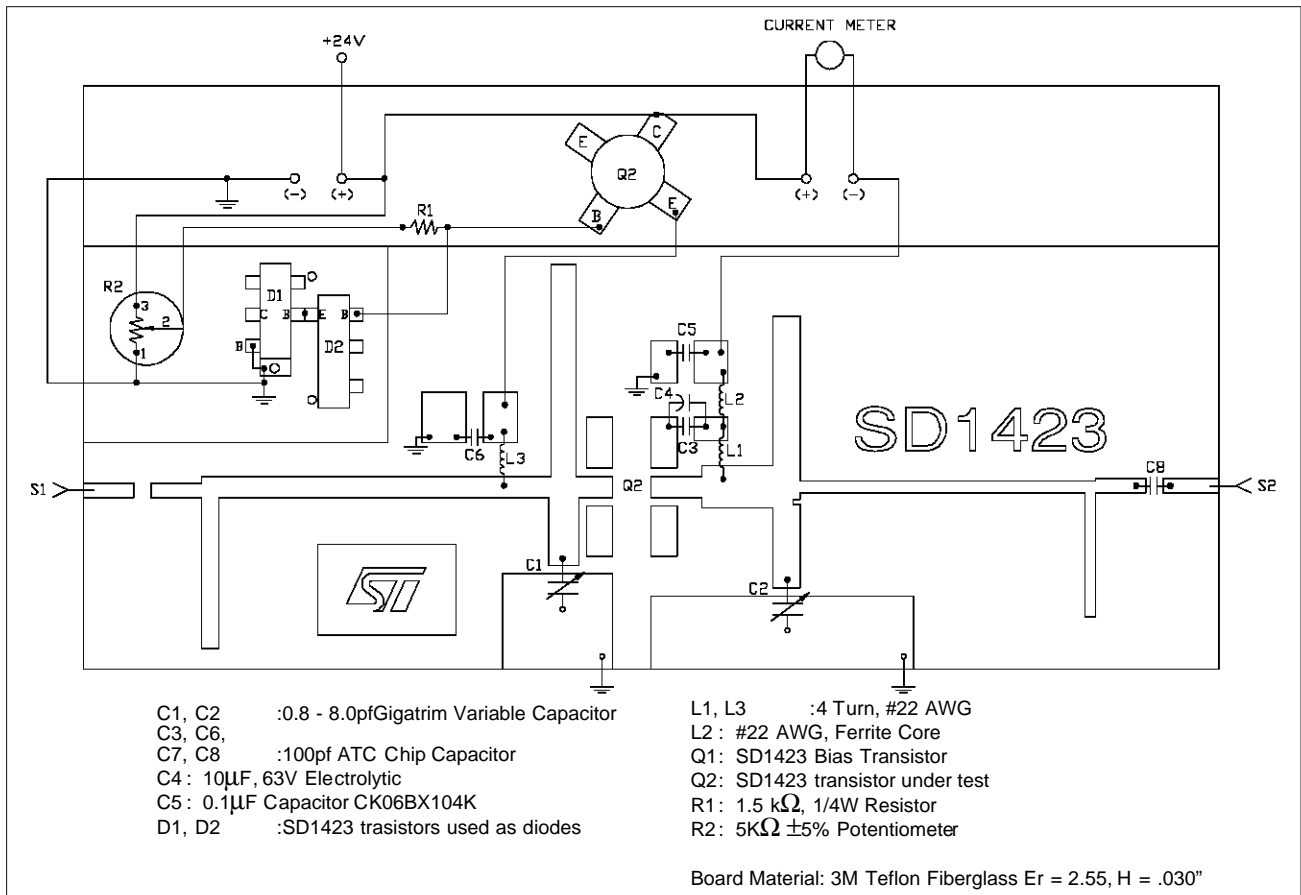
Symbol	Test Conditions			Value			Unit
				Min.	Typ.	Max.	
$P_{OUT}$	$f = 960\text{ MHz}$	$V_{CC} = 24\text{ V}$	$I_{CQ} = 75\text{ mA}$	15	—	—	W
$P_G$	$f = 960\text{ MHz}$	$V_{CC} = 24\text{ V}$	$I_{CQ} = 75\text{ mA}$	8	—	—	dB
$\eta_C$	$f = 960\text{ MHz}$	$V_{CC} = 24\text{ V}$	$I_{CQ} = 75\text{ mA}$	45	50	—	%
$C_{OB}$	$f = 1\text{ MHz}$	$V_{CB} = 24\text{V}$		—	20	24	pF

**TYPICAL PERFORMANCE****IMPEDANCE DATA**

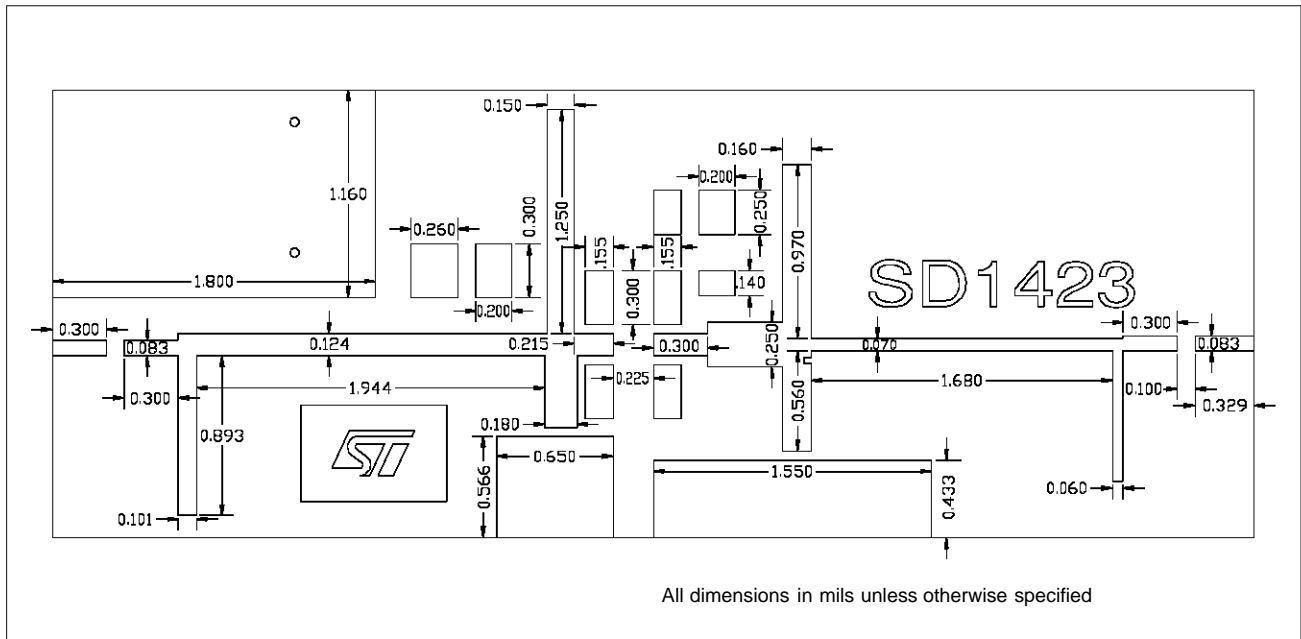
FREQ.	$Z_{IN} (\Omega)$	$Z_{CL} (\Omega)$
900 MHz	$1.30 + j 1.98$	$3.99 + j 5.55$
930 MHz	$1.42 + j 2.31$	$3.18 + j 4.97$
960 MHz	$1.45 + j 2.62$	$2.96 + j 4.07$

 $P_{OUT} = 15\text{ W}$  $V_{CE} = 75\text{ mA}$  $I_{CQ} = 24\text{ V}$

TEST CIRCUIT

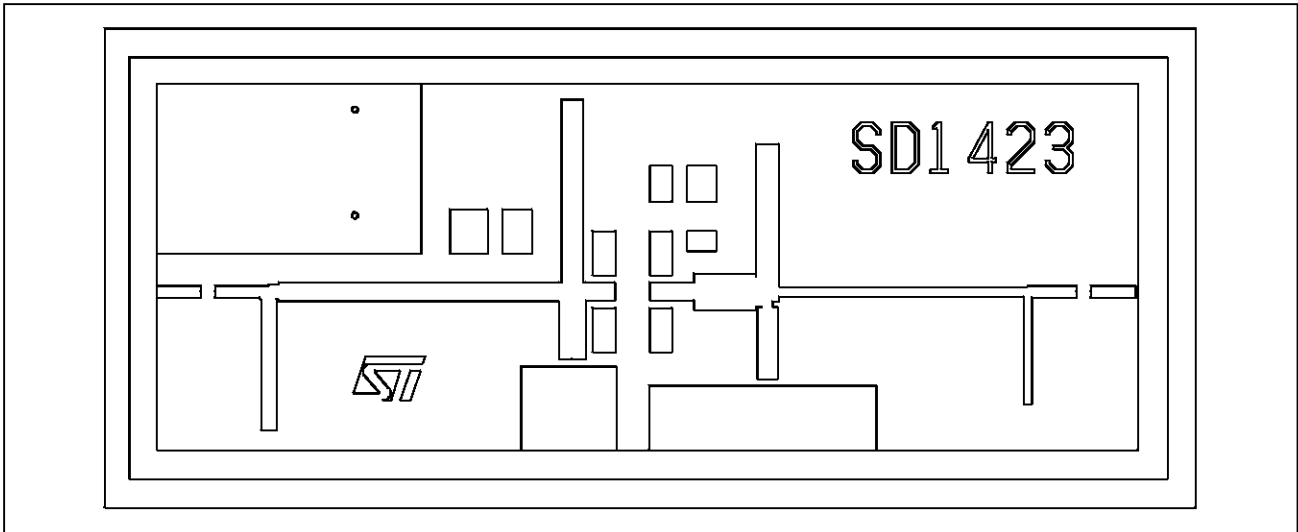


TEST CIRCUIT DIMENSIONS



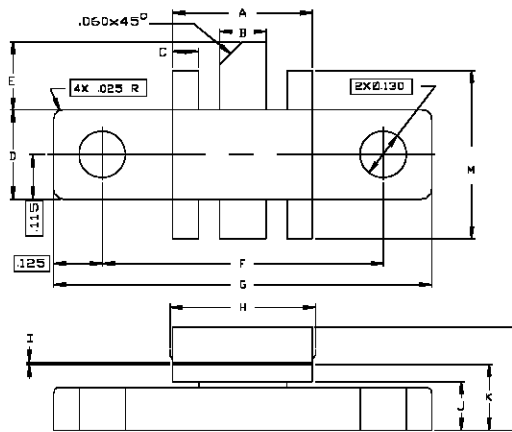
**SD1423**

**TEST CIRCUIT LAYOUT**



**PACKAGE MECHANICAL DATA**

Ref.: UDCS Doc. No.1010941 rev. B



SGS-THOMSON MICROELECTRONICS		CONT'D			
	MINIMUM Inches/mm	MAXIMUM Inches/mm		MINIMUM Inches/mm	MAXIMUM Inches/mm
A	.355/9,02	.365/9,27	K	.160/4,06	.180/4,57
B	.115/2,92	.125/3,18	L	.250/6,35	.275/6,99
C	.060/1,52	.070/1,78	M	.420/10,67	.450/11,43
D	.225/5,72	.235/5,97			
E	.150/3,81	.170/4,32			
F	.720/18,29	.730/18,54			
G	.970/24,64	.980/24,89			
H	.355/9,02	.365/9,27			
I	.004/0,10	.005/0,15			
J	.120/3,05	.130/3,30			

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