SD1414-12

RF & MICROWAVE TRANSISTORS 800-900 MHz APPLICATIONS

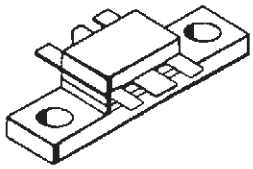
PRELIMINARY DATA

- 960 MHz
- 13.5 VOLTS
- COMMON BASE
- P_{OUT} = 40 W MIN. WITH 4.3 dB gain

DESCRIPTION

The SD1414-12 is a 13.5 V Class C Epitaxial silicon NPN planar transistor designed for amplifier applications up to 960 MHz.

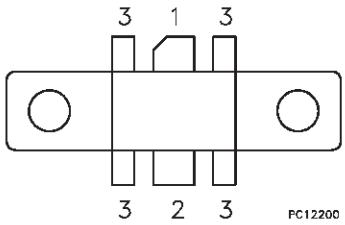
Internal input matching and common base configuration assure optimum gain and efficiency in broad band applications.



.230 6LFL (M142)
epoxy sealed

ORDER CODE	BRANDING
SD1414-12	SD1414-12

PIN CONNECTION



1. Collector
2. Emitter
3. Base

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

Symbol	Parameter	Value	Unit
V_{CBO}	Collector-Base Voltage	36	V
V_{CEO}	Collector-Emitter Voltage	18	V
V_{CES}	Collector-Emitter Voltage	36	V
V_{EBO}	Emitter-Base Voltage	4.0	V
I_C	Device Current	9.0	A
P_{DISS}	Power Dissipation	150	W
T_j	Max. Operating 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

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

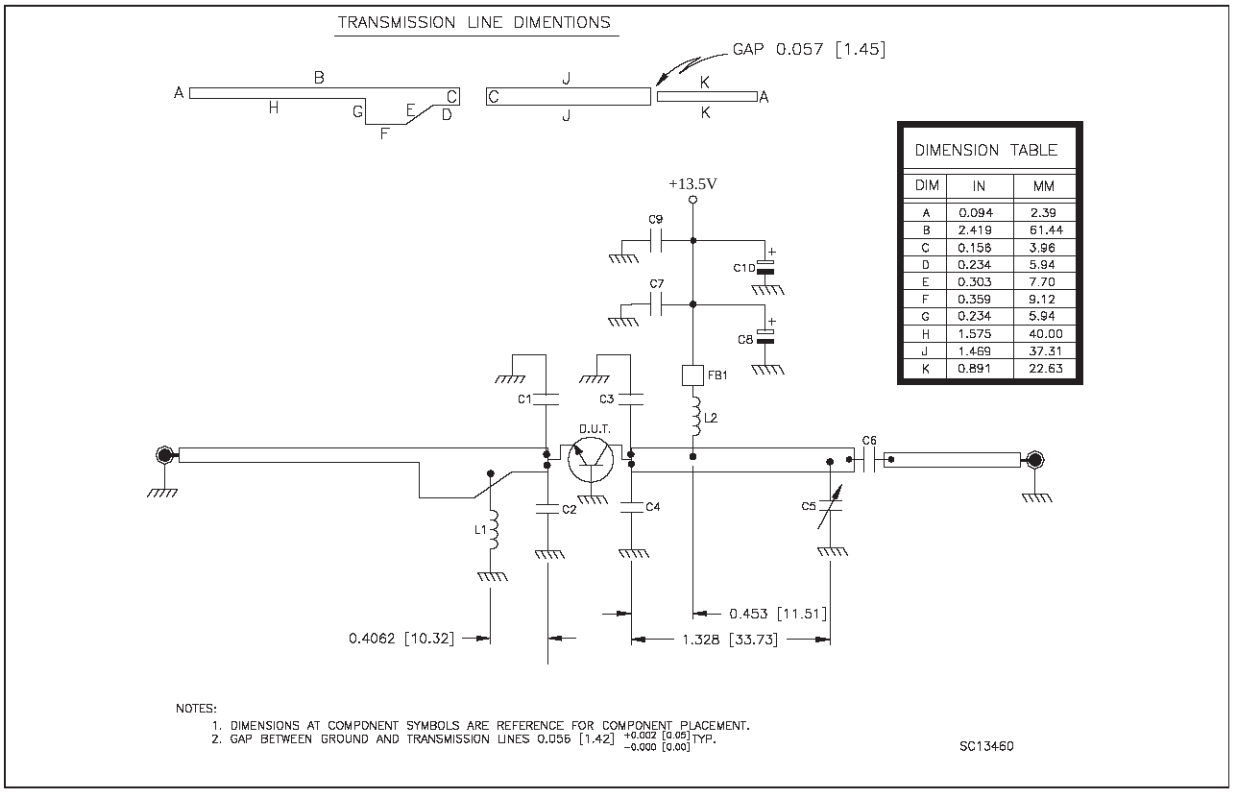
STATIC

Symbol	Parameter		Min.	Typ.	Max.	Unit
BV_{CES}	I_C = 50 mA	V_{BE} = 0 V	36			V
BV_{CEO}	I_C = 50 mA	I_B = 0 mA	18			V
BV_{EBO}	I_E = 10 mA	I_C = 0 mA	4.0			V
I_{CBO}	V_{CB} = 15 V	I_E = 0 mA			5	mA
h_{FE}	V_{CE} = 5 V	I_C = 1 A	20		200	

DYNAMIC

Symbol	Parameter				Min.	Typ.	Max.	Unit
P_{OUT}	f = 960 MHz	P_{IN} = 15 W	V_{CC} = 13.5 V		40			W
G_P	f = 960 MHz	P_{IN} = 15 W	V_{CC} = 13.5 V		4.3			dB
η_C	f = 960 MHz	P_{IN} = 15 W	V_{CC} = 13.5 V			50		%
Load Mismatch	f = 960 MHz	P_{IN} = 15 W	V_{CC} = 15 V	All Phases	10:1			VSWR
C_{OB}	f = 1 MHz	V_{CB} = 13.5 V				80		pF

960 MHz Test Circuit Schematic

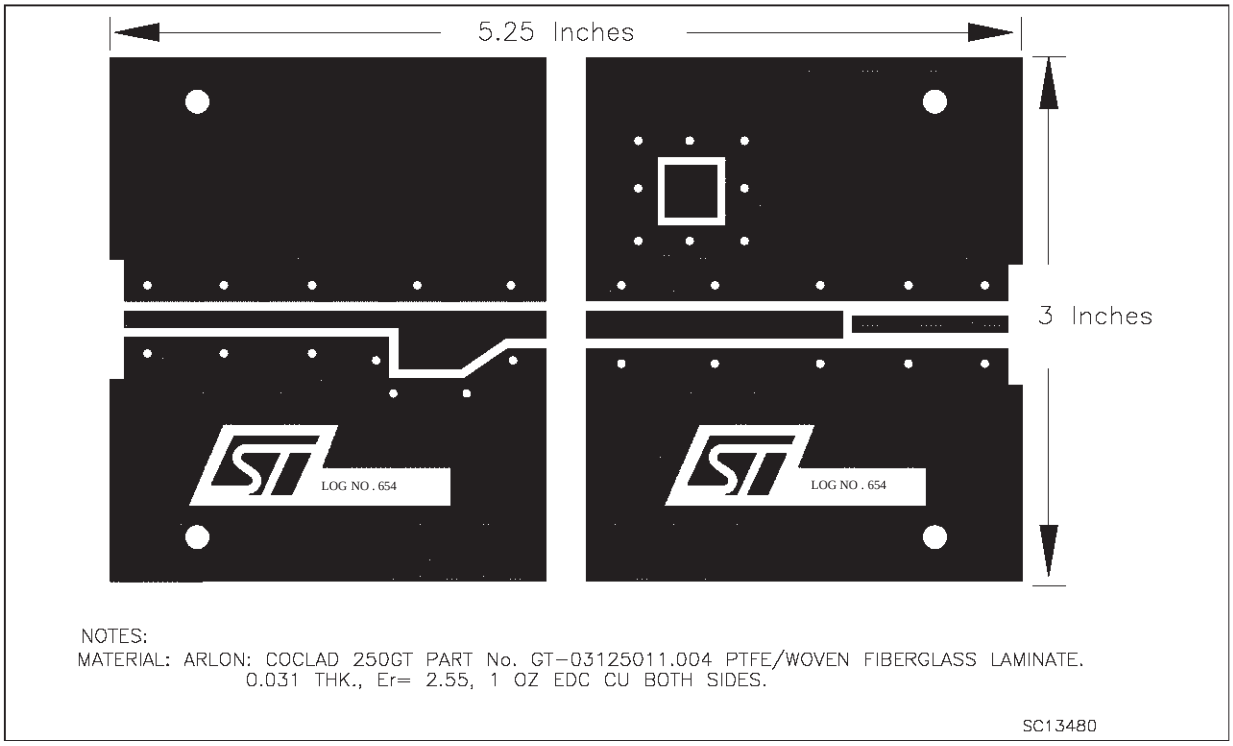


960 MHz Test Circuit Component Part List

ITEM	PART NO	VENDOR	DESCRIPTION
C10	WGR680M1JG18V	MALLORY	68μF/63V ALUMINUM ELECTROLYTIC RADIAL LEAD CAPACITOR
C9	MCJ-101ED102J0	ARCO	1000pf/500V METAL CLAD SURFACE MOUNT CAPACITOR
C8	516D106M063JL6A	SPRAGUE	10μF/63V ALUMINUM ELECTRILYTIC AXIAL LEAD CAPACITOR
C7	CKR06BX104KR	KEMET	0.1μF/100V CERAMIC MOLDED RADIAL LEAD CAPACITOR
C6	ATC100B470KP500X	ATC	47pf ATC 100B SURFACE MOUNT CERAMIC CHIP CAPACITOR
C5	5401PC	JOHANSON	1.0-14pf STANDARD AIR DIELECTRIC VARIABLE CAPACITOR
C4	MUM-602ED150J0	ARCO	15pf METAL CLAD SURFACE MOUNT CAPACITOR
C3	MUM-602ED200J0	ARCO	20pf METAL CLAD SURFACE MOUNT CAPACITOR
C2	MUM-602ED110J0	ARCO	11pf METAL CLAD SURFACE MOUNT CAPACITOR
C1	MUM-602ED110J0	ARCO	11pf METAL CLAD SURFACE MOUNT CAPACITOR
FB1	2643000101	FAIR-RITE	SHIELD BEAD
L2	TYPE 8076	BELDEN	INDUCTOR, 10 TURN, AIR WOUND, I.D. 0.109 [2.77], 20AWG POLLY-COATED MAGNET WIRE
L1	TYPE 8078	BELDEN	INDUCTOR, 12 TURN, AIR WOUND,I.D. 0.080 [2.03], 24AWG POLLY-COATED MAGNET WIRE

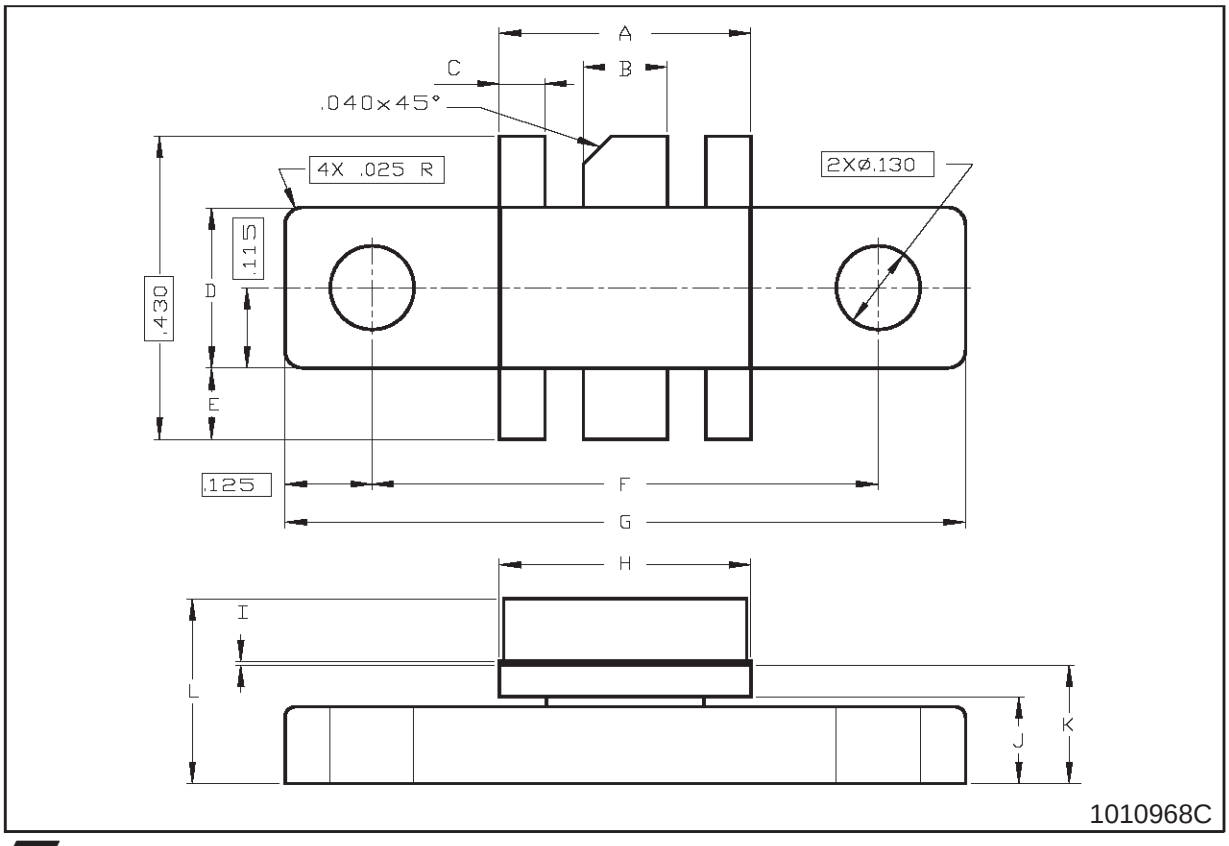
SC13470

960 MHz Test Circuit Photomaster



M142 MECHANICAL DATA

DIM.	mm			inch		
	MIN.	TYP.	MAX.	MIN.	TYP.	MAX.
A	9.02		9.27	0.355		0.365
B	2.92		3.18	0.115		0.125
C	1.91		2.16	0.075		0.085
D	5.72		5.97	0.225		0.235
E	2.29		2.79	0.090		0.110
F	18.29		18.54	0.720		0.730
G	24.64		24.89	0.970		0.980
H	9.02		9.27	0.355		0.365
I	0.10		0.15	0.004		0.006
J	3.05		3.30	0.120		0.130
K	4.06		4.57	0.160		0.180
L	5.84		6.60	0.230		0.260



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