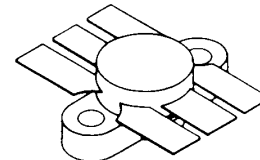


RF & MICROWAVE TRANSISTORS UHF COMMUNICATIONS APPLICATIONS

PRELIMINARY DATA

- REFRACTORY/GOLD METALLIZATION
- INTERNAL INPUT MATCHING
- METAL/CERAMIC PACKAGE
- EMITTER BALLASTED
- 20:1 VSWR CAPABILITY
- $P_{OUT} = 25 \text{ W MIN. WITH } 9 \text{ dB GAIN}$



.500 6LFL (M111)
epoxy sealed

ORDER CODE
SD4013

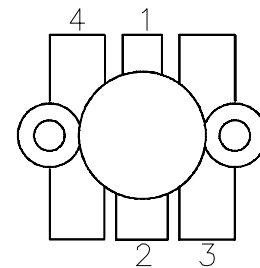
BRANDING
SUMIL25

DESCRIPTION

The SD4013 is a gold metallized epitaxial silicon NPN planar transistor using diffused emitter ballast resistors for superior ruggedness.

The SD4013 can withstand 20:1 VSWR under rated operating conditions and is internally input matched to optimize power gain and efficiency over the band.

PIN CONNECTION



1. Collector 3. Emitter
2. Base 4. Emitter

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	30	V
V_{EBO}	Emitter-Base Voltage	3.5	V
I_C	Device Current	3.0	A
P_{DISS}	Power Dissipation	70	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	2.5	$^{\circ}\text{C/W}$
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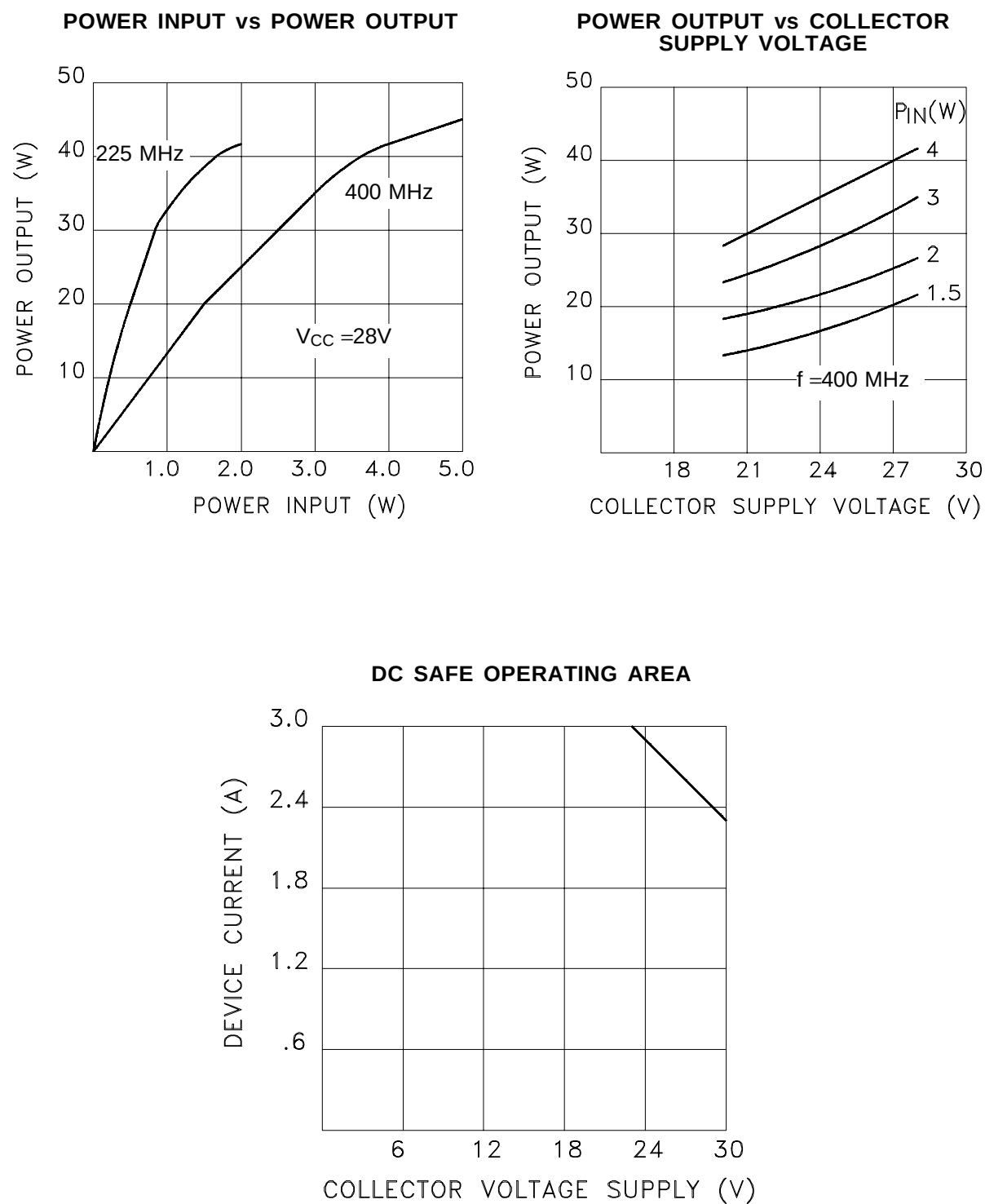
SD4013**ELECTRICAL SPECIFICATIONS** ($T_{\text{case}} = 25^{\circ}\text{C}$)**STATIC**

Symbol	Test Conditions		Value			Unit
			Min.	Typ.	Max.	
BV_{CBO}	$I_{\text{C}} = 50\text{mA}$	$I_{\text{E}} = 0\text{mA}$	60	—	—	V
BV_{EBO}	$I_{\text{E}} = 5\text{mA}$	$I_{\text{C}} = 0\text{mA}$	3.5	—	—	V
BV_{CES}	$I_{\text{C}} = 50\text{mA}$	$V_{\text{BE}} = 0\text{mA}$	60	—	—	V
I_{CBO}	$V_{\text{CB}} = 30\text{V}$	$I_{\text{E}} = 0\text{mA}$	—	—	3.0	mA
h_{FE}	$V_{\text{CE}} = 5\text{V}$	$I_{\text{C}} = 500\text{mA}$	10	30	120	—

DYNAMIC

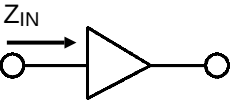
Symbol	Test Conditions		Value			Unit
			Min.	Typ.	Max.	
P_{OUT}	$f = 400\text{ MHz}$	$V_{\text{CC}} = 28\text{V}$	25	—	—	W
P_{IN}	$f = 400\text{ MHz}$	$V_{\text{CC}} = 28\text{V}$	—	—	3.15	W
η_{C}	$f = 400\text{ MHz}$	$V_{\text{CC}} = 28\text{V}$	50	55	—	%
G_{P}	$f = 400\text{ MHz}$	$V_{\text{CC}} = 28\text{V}$	9.0	10.5	—	dB
VSWR	$f = 400\text{ MHz}$	$V_{\text{CC}} = 28\text{V}$	20:1	—	—	—
C_{OB}	$f = 1\text{ MHz}$	$V_{\text{CB}} = 28\text{V}$	—	—	30	pF

TYPICAL PERFORMANCE

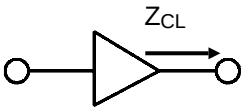


IMPEDANCE DATA

TYPICAL INPUT
IMPEDANCE



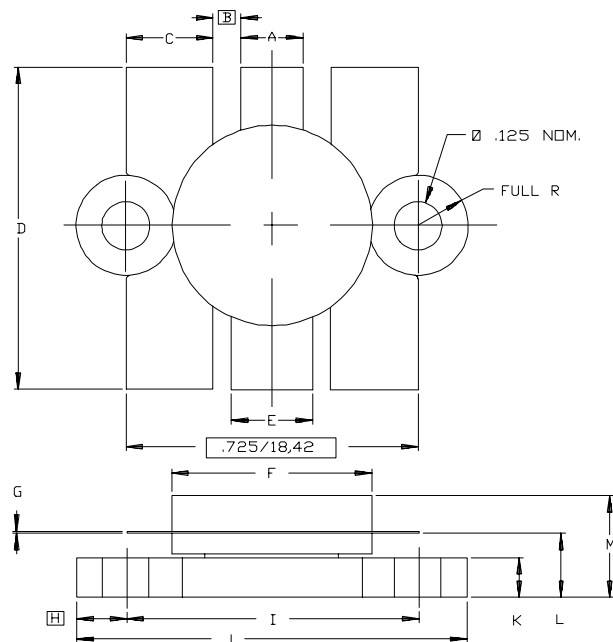
TYPICAL COLLECTOR
LOAD IMPEDANCE



FREQ.	$Z_{IN} (\Omega)$	$Z_{CL} (\Omega)$
225 MHz	$1.40 + j\ 2.5$	$7.55 + j\ 0.0$
275 MHz	$1.25 + j\ 3.3$	$7.5 - j\ 0.05$
300 MHz	$1.10 + j\ 4.0$	$7.5 - j\ 1.00$
350 MHz	$1.10 + j\ 4.7$	$6.8 - j\ 1.15$
400 MHz	$1.70 + j\ 5.1$	$6.0 - j\ 1.30$

PACKAGE MECHANICAL DATA

Ref.: Dwg. No. 12-0111



SGS-THOMSON MICROELECTRONICS			CONT'D		
	MINIMUM Inches/mm	MAXIMUM Inches/mm		MINIMUM Inches/mm	MAXIMUM Inches/mm
A	.150/3,43	.160/4,06	K	.095/2,41	.105/2,67
B	.045/1,14		L	.150/3,81	.170/4,32
C	.210/5,33	.220/5,59	M		.280/7,11
D	.835/21,21	.865/21,97			
E	.200/5,08	.210/5,33			
F	.490/12,45	.510/12,95			
G	.003/0,08	.007/0,18			
H	.125/3,18				
I	.720/18,29	.730/18,54			
J	.970/24,64	.980/24,89			

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