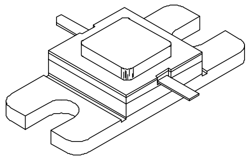
SGS-THOMSON MICROELECTRONICS

SD1563

RF & MICROWAVE TRANSISTORS
UHF PULSED APPLICATIONS

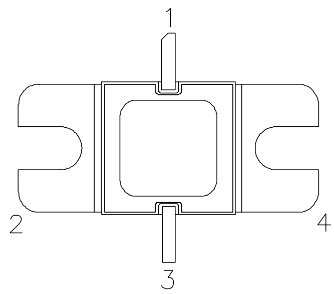
- 350 WATTS @ 10µSEC PULSE WIDTH, 10% DUTY CYCLE
- 300 WATTS @ 250µSEC PULSE WIDTH, 10% DUTY CYCLE
- 9.5 dB MIN. GAIN
- REFRACTORY GOLD METALLIZATION
- EMITTER BALLASTING AND LOW THERMAL RESISTANCE FOR RELIABILITY AND RUGGEDNESS
- INFINITE VSWR CAPABILITY AT SPECIFIED OPERATING CONDITIONS



.400 x .400 2LFL (M106)
hermetically sealed

ORDER CODE	BRANDING
SD1563	SD1563

PIN CONNECTION



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

DESCRIPTION

The SD1563 is a gold metallized silicon NPN pulse power transistor. The SD1563 is designed for applications requiring high peak power and low duty cycles within the frequency range of 400 - 500 MHz.

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

Symbol	Parameter	Value	Unit
V_{CBO}	Collector-Base Voltage	65	V
V_{CES}	Collector-Emitter Voltage	65	V
V_{EBO}	Emitter-Base Voltage	3.5	V
I_C	Device Current	21.6	A
P_{DISS}	Power Dissipation	875	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	0.2	°C/W

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

STATIC

Symbol	Test Conditions		Value			Unit
			Min.	Typ.	Max.	
BV_{CBO}	I_C = 50 mA	I_E = 0 mA	65	—	—	V
BV_{CES}	I_C = 50 mA	V_{BE} = 0 V	65	—	—	V
BV_{CEO}	I_C = 50 mA	I_B = 0 mA	28	—	—	V
BV_{EBO}	I_E = 10 mA	I_C = 0 mA	3.5	—	—	V
I_{CES}	V_{CE} = 30 V	I_E = 0 mA	—	—	7.5	mA
h_{FE}	V_{CE} = 5 V	I_C = 5 A	10	—	100	—

DYNAMIC

Symbol	Test Conditions			Value			Unit
				Min.	Typ.	Max.	
P_{OUT}	f = 425 MHz	P_{IN} = 33.5 W	V_{CE} = 40 V	300	—	—	W
P_G	f = 425 MHz	P_{OUT} = 300 W	V_{CE} = 40 V	9.5	—	—	dB
η_C	f = 425 MHz	P_{IN} = 25 W	V_{CE} = 40 V	55	—	—	%

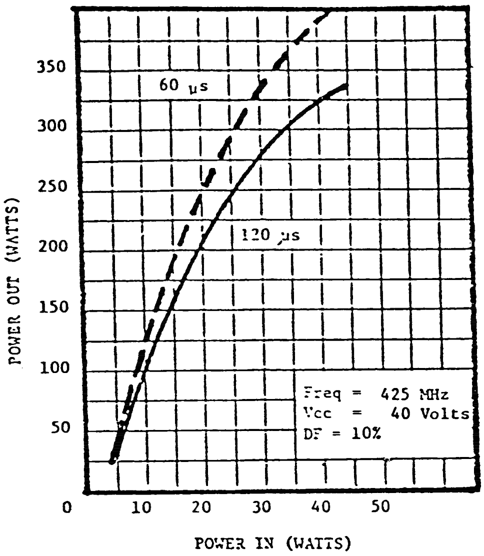
Note: Pulse Width = 250μSec, Duty Cyle = 10%

TYPICAL PERFORMANCE

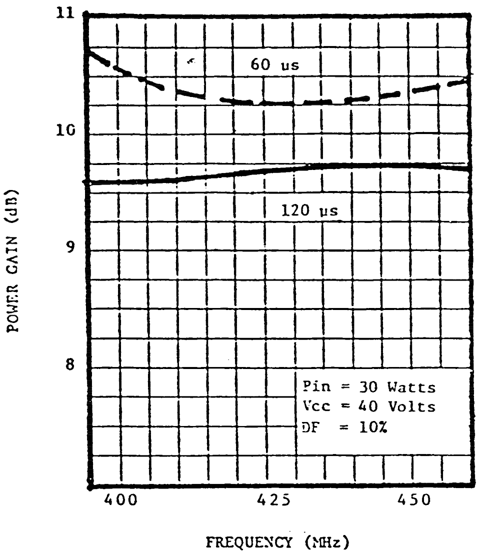
P_{OUT} (W)	P.W. (μSec)	D.C. (%)	T_J (°C max.)	V_{CC}
360	10	10	150	40
350	20	10	150	40
325	100	10	150	40
310	500	10	150	40
300	1000	10	150	40

TYPICAL PERFORMANCE (P.W. = 120µSec)

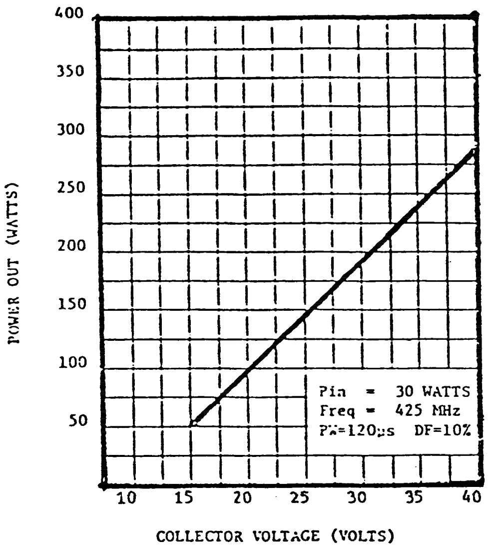
POWER OUTPUT vs POWER INPUT



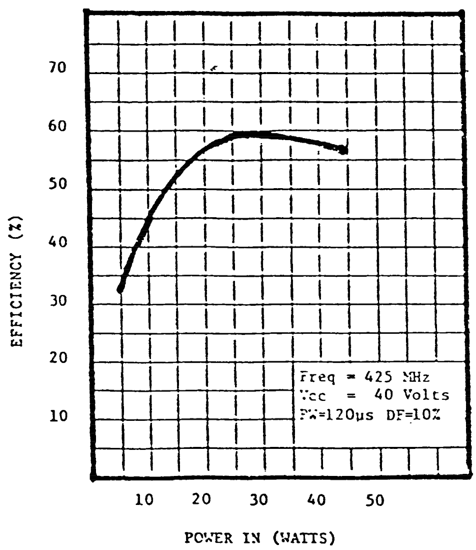
POWER GAIN vs FREQUENCY



POWER OUTPUT vs COLLECTOR VOLTAGE

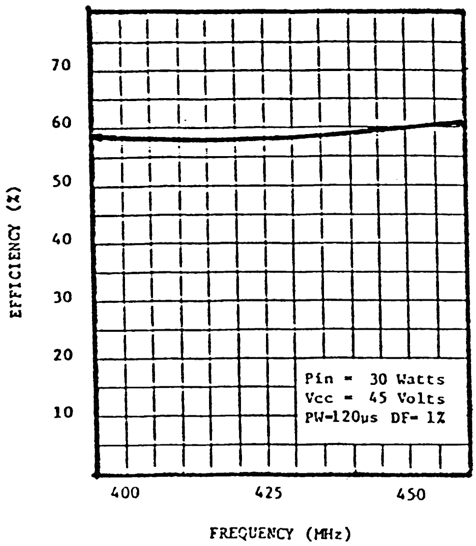


EFFICIENCY vs POWER INPUT

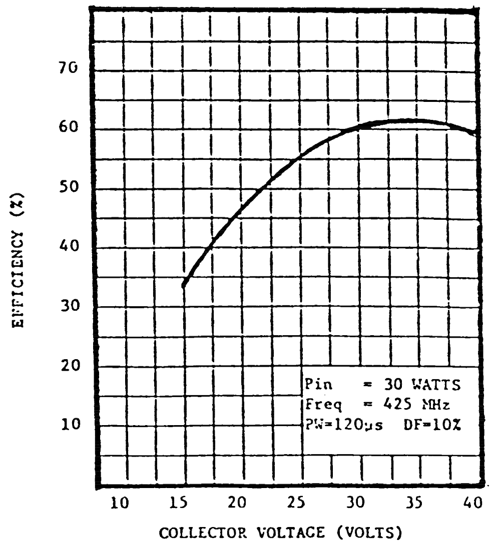


TYPICAL PERFORMANCE (P.W. = 120µSec)

EFFICIENCY vs FREQUENCY

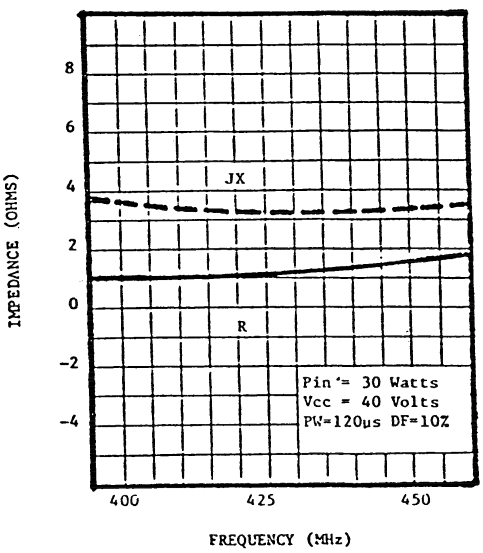


EFFICIENCY vs COLLECTOR VOLTAGE

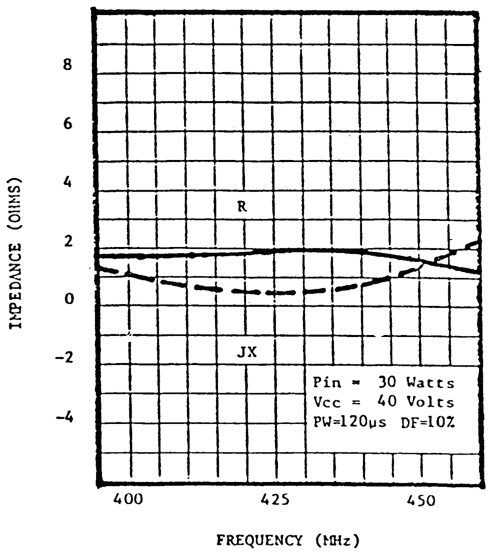


IMPEDANCE DATA (P.W. = 120µSec)

TYPICAL INPUT IMPEDANCE

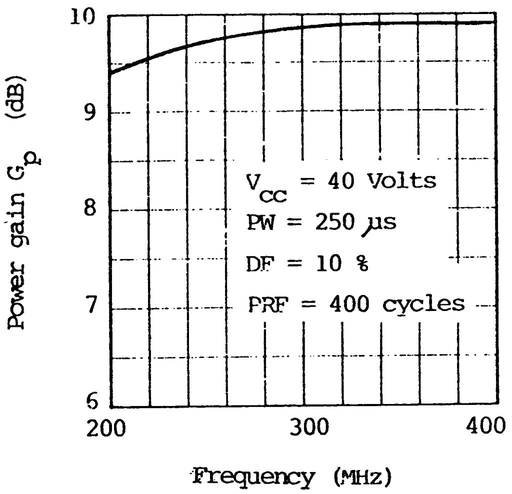


TYPICAL COLLECTOR LOAD IMPEDANCE

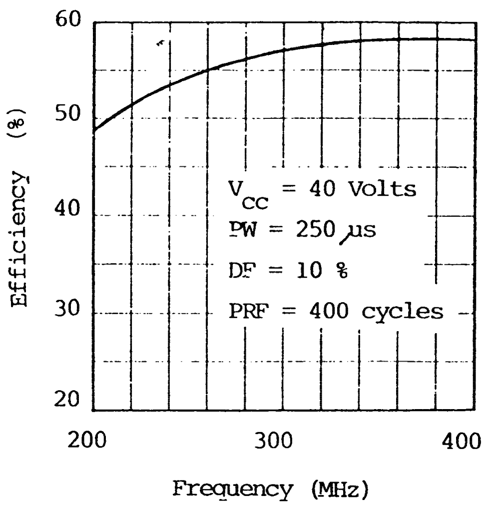


TYPICAL PERFORMANCE (P.W. = 250µSec)

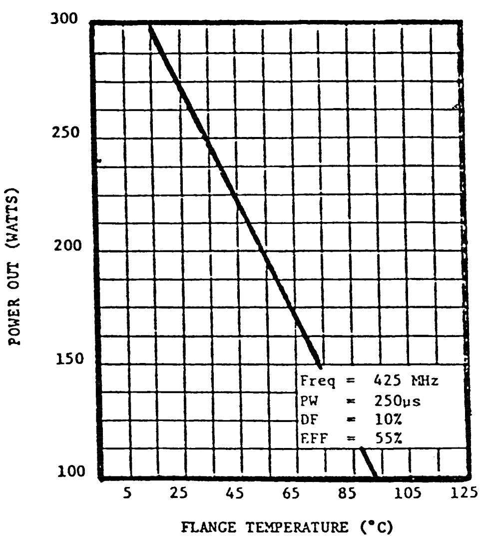
POWER GAIN vs FREQUENCY



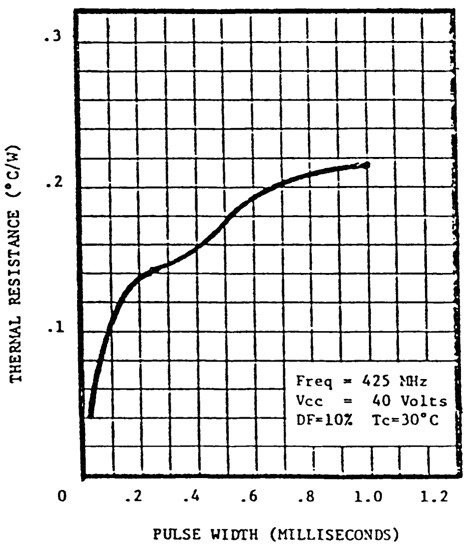
EFFICIENCY vs FREQUENCY



POWER OUTPUT vs FLANGE
T_J @ CONSTANT 125°C

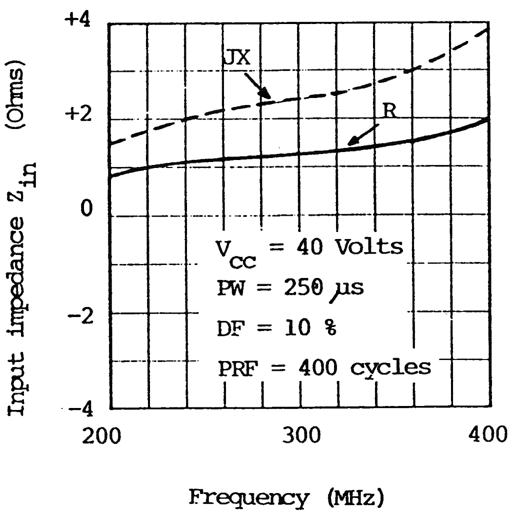


THERMAL RESISTANCE vs PULSE WIDTH

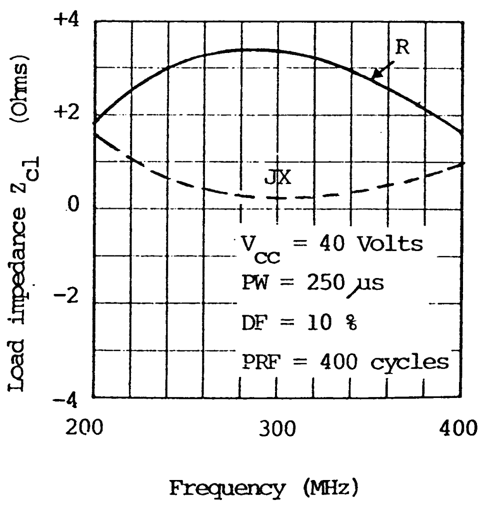


IMPEDANCE DATA (P.W. = 250µSec)

TYPICAL INPUT IMPEDANCE

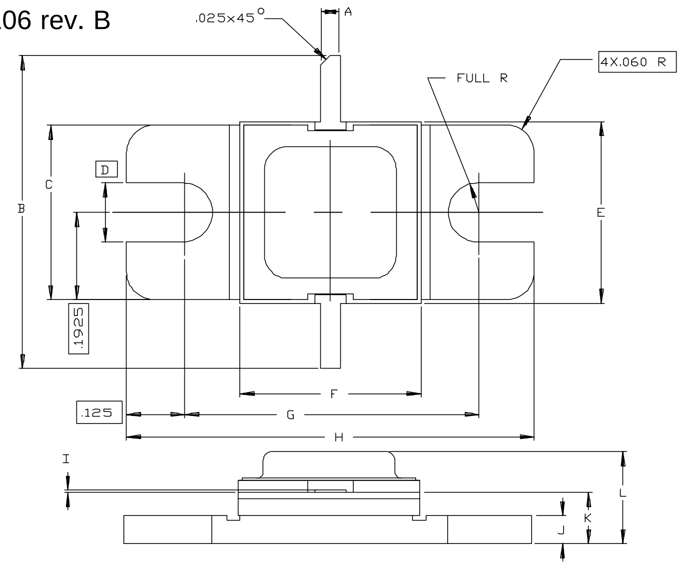


TYPICAL COLLECTOR LOAD IMPEDANCE



PACKAGE MECHANICAL DATA

Ref.: Dwg. No.12-0106 rev. B



SGS-THOMSON MICROELECTRONICS	MINIMUM Inches/mm	MAXIMUM Inches/mm
A	.045/1,14	.055/1,40
B	.710/18,03	
C	.380/9,65	.390/9,91
D	.130/3,30	
E	.392/9,96	.402/10,29
F	.392/9,96	.402/10,29
G	.645/16,38	.655/16,64
H	.895/22,73	.905/22,99
I	.002/0,05	.006/0,15
J	.055/1,40	.065/1,65

CONT'D	MINIMUM Inches/mm	MAXIMUM Inches/mm
K	.105/2,67	.125/3,18
L		.230/5,84

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