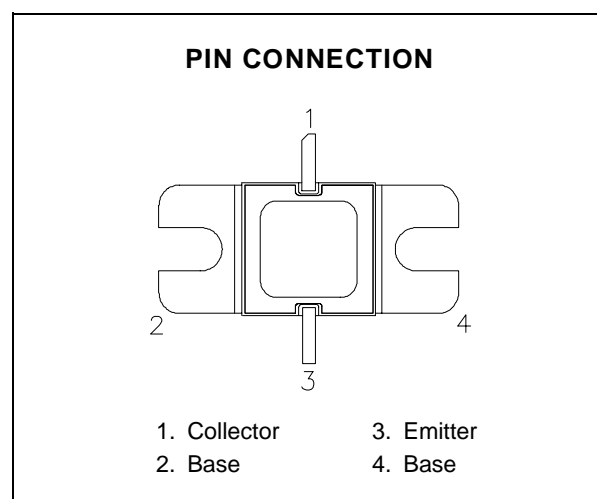
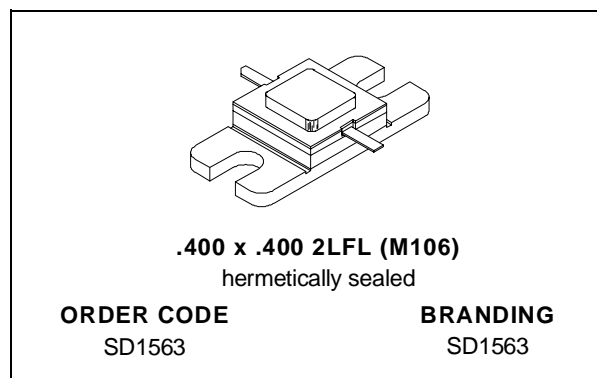


**RF & MICROWAVE TRANSISTORS  
 UHF PULSED APPLICATIONS**

- 350 WATTS @ 10 $\mu$ SEC PULSE WIDTH, 10% DUTY CYCLE
- 300 WATTS @ 250 $\mu$ SEC 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


**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** ( $T_{case} = 25^{\circ}C$ )

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	$^{\circ}C$
$T_{STG}$	Storage Temperature	- 65 to +150	$^{\circ}C$

**THERMAL DATA**

$R_{TH(j-c)}$	Junction-Case Thermal Resistance	0.2	$^{\circ}C/W$
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## SD1563

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

#### STATIC

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

#### DYNAMIC

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

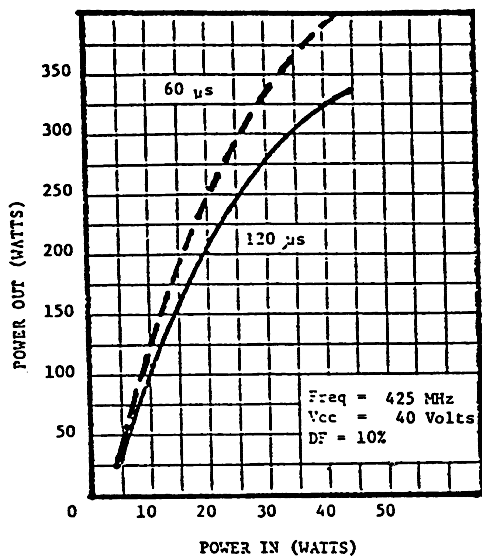
Note: Pulse Width = 250 $\mu$ Sec, Duty Cycle = 10%

#### TYPICAL PERFORMANCE

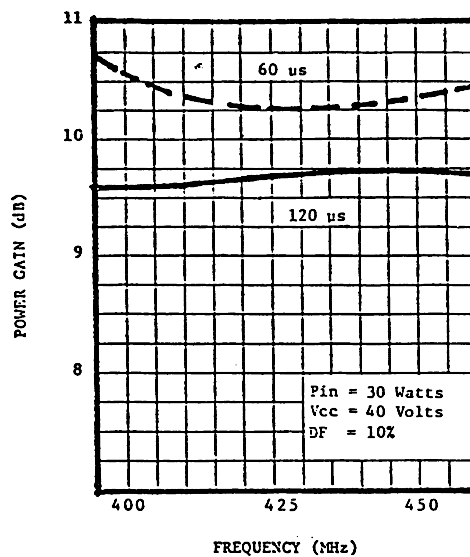
$P_{OUT}$ (W)	P.W. ( $\mu$ Sec)	D.C. (%)	$T_J$ ( $^{\circ}C$ max.)	$V_{CC}$
360	10	10	150	40
350	20	10	150	40
325	100	10	150	40
310	500	10	150	40
300	1000	10	150	40

TYPICAL PERFORMANCE (P.W. = 120 $\mu$ Sec)

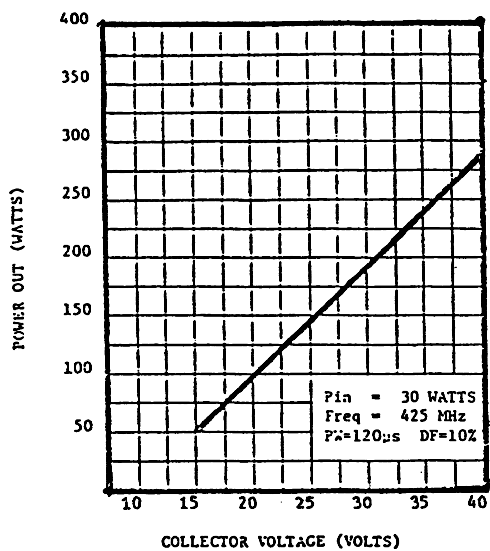
POWER OUTPUT vs POWER INPUT



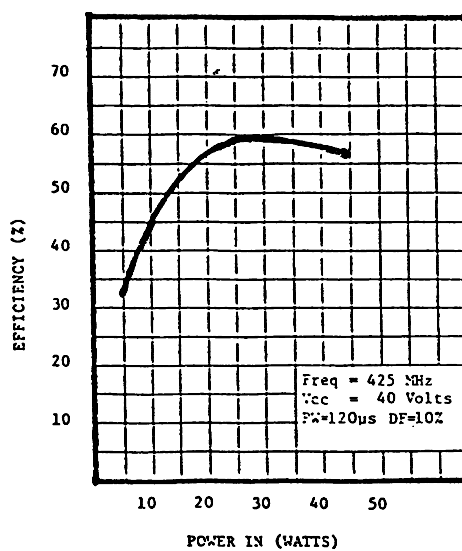
POWER GAIN vs FREQUENCY



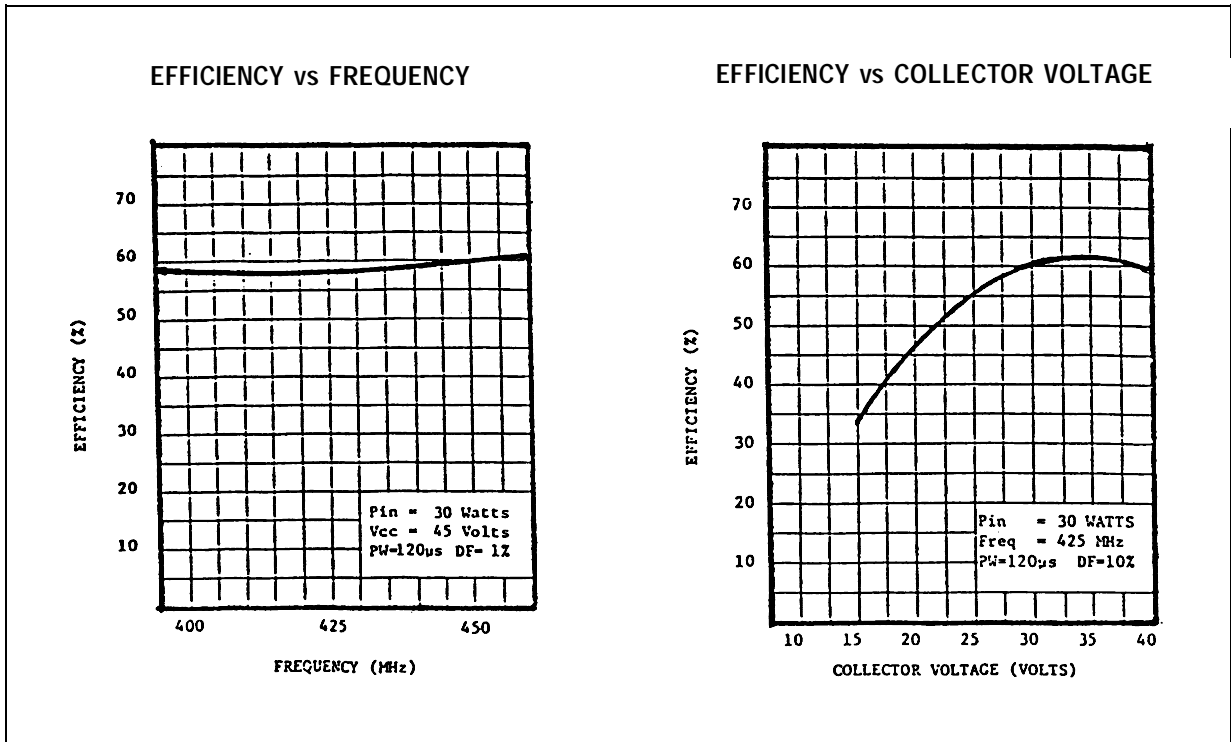
POWER OUTPUT vs COLLECTOR VOLTAGE



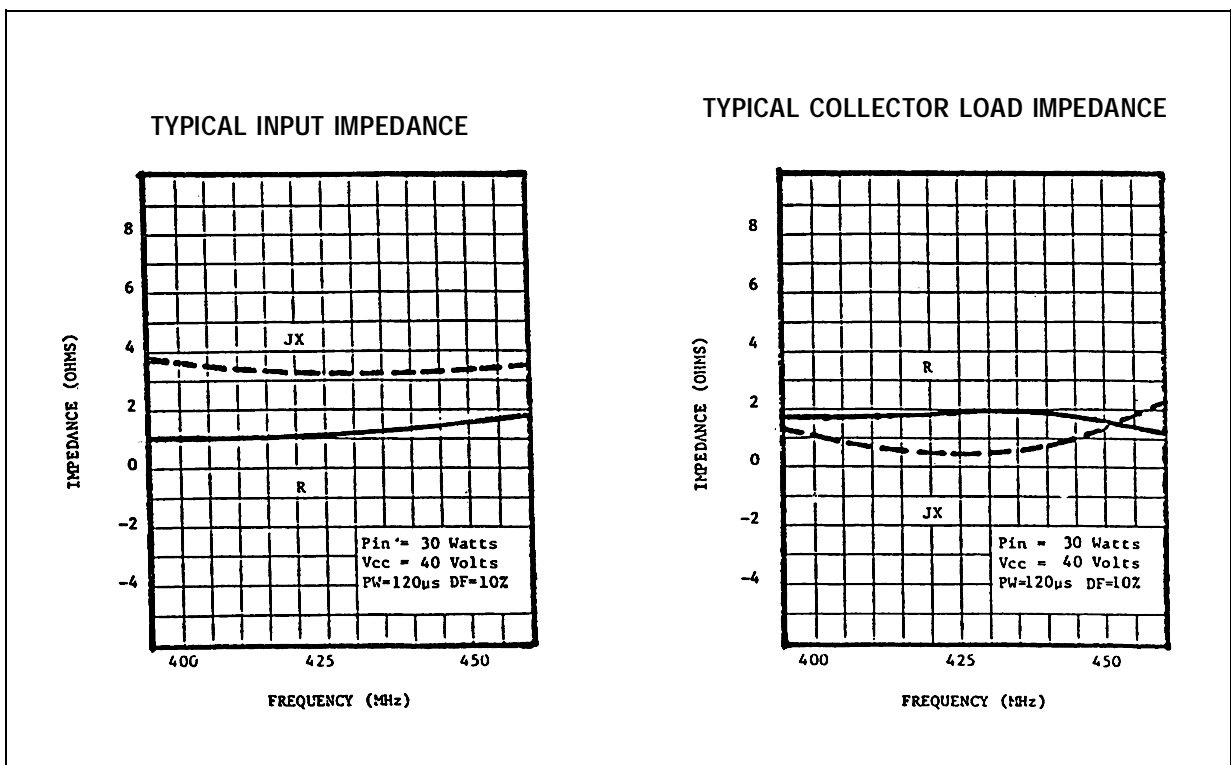
EFFICIENCY vs POWER INPUT



TYPICAL PERFORMANCE (P.W. = 120μSec)

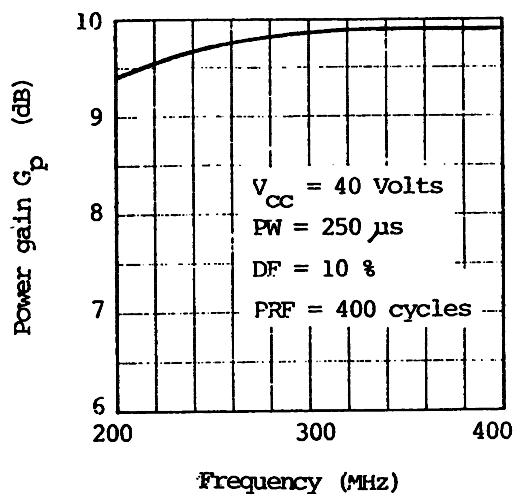


IMPEDANCE DATA (P.W. = 120μSec)

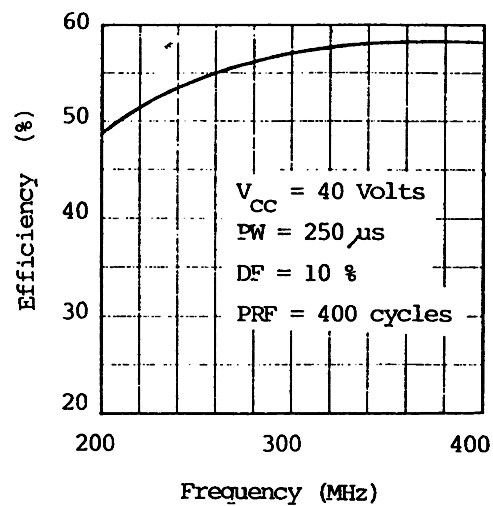
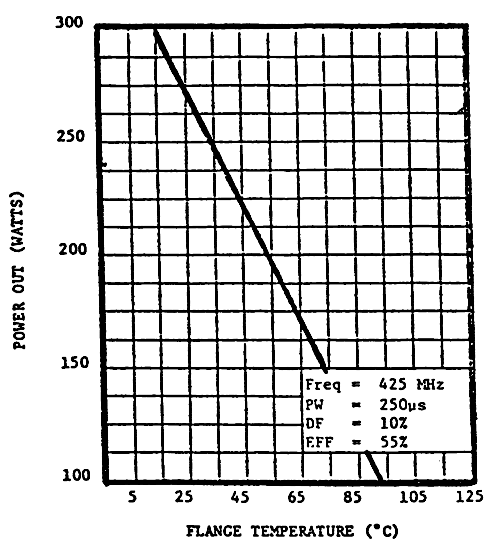


TYPICAL PERFORMANCE (P.W. = 250 $\mu$ Sec)

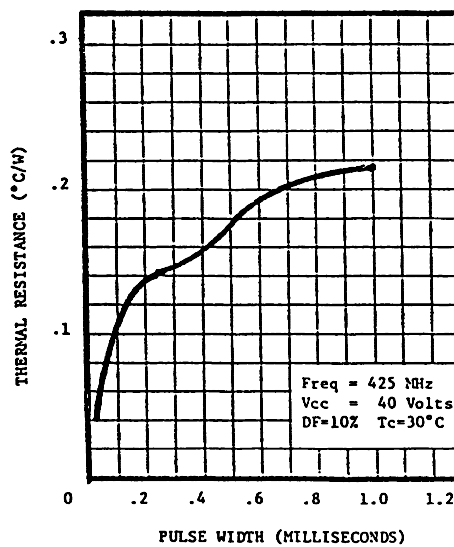
POWER GAIN vs FREQUENCY



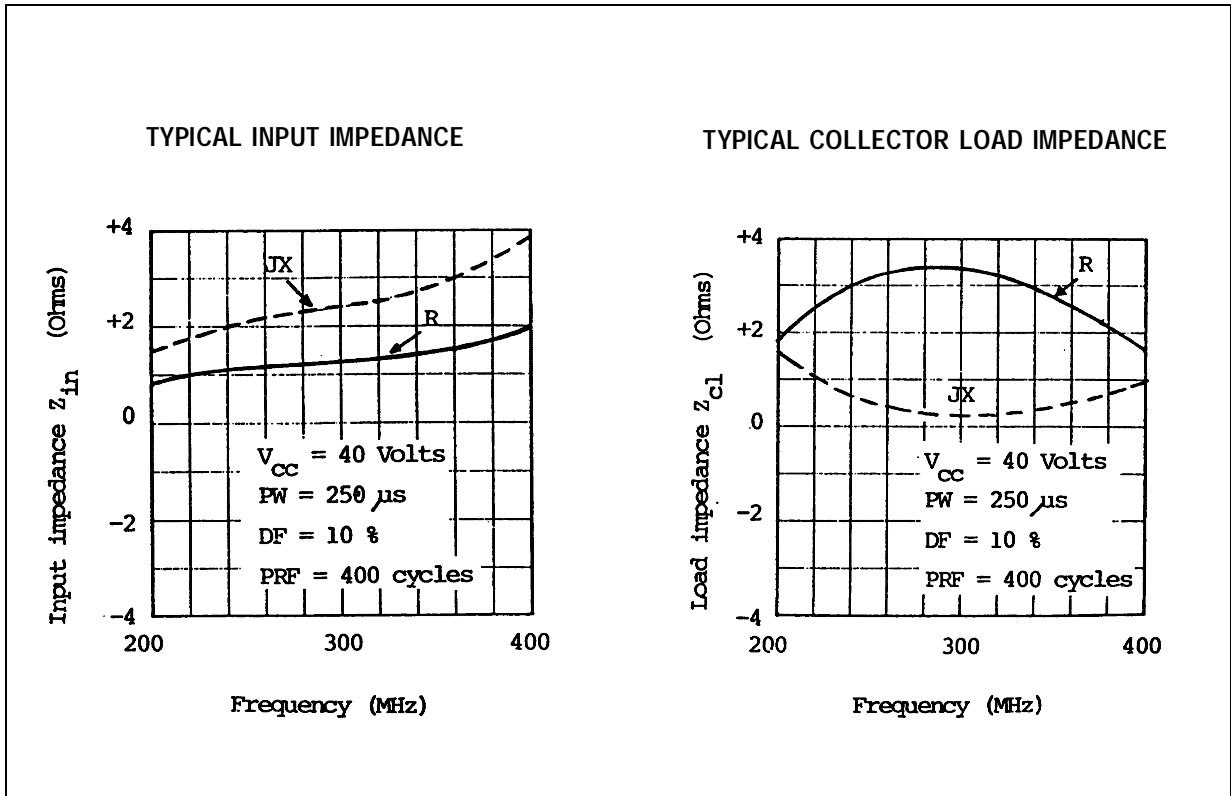
EFFICIENCY vs FREQUENCY

POWER OUTPUT vs FLANGE  
 $T_J$  @ CONSTANT 125°C

THERMAL RESISTANCE vs PULSE WIDTH

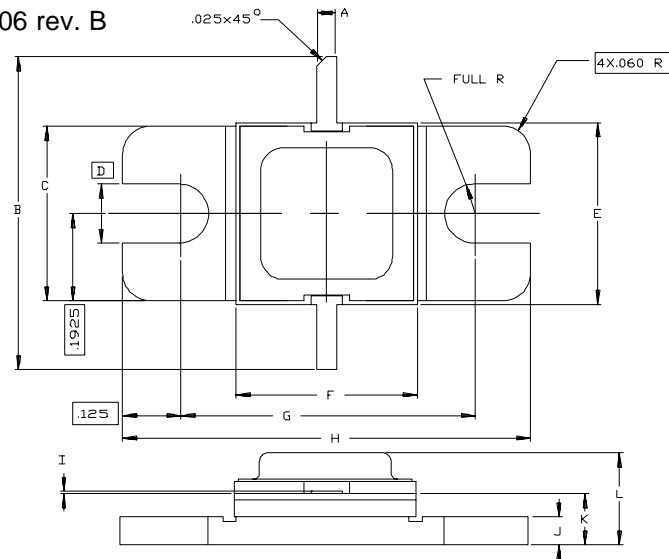


IMPEDANCE DATA (P.W. = 250 $\mu$ Sec)



## PACKAGE MECHANICAL DATA

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



SGS-THOMSON MICROELECTRONICS		CONT'D			
	MINIMUM Inches/mm	MAXIMUM Inches/mm		MINIMUM Inches/mm	MAXIMUM Inches/mm
A	.045/1,14	.055/1,40	K	.105/2,67	.125/3,18
B	.710/18,03		L		.230/5,84
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			

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