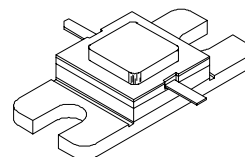


RF & MICROWAVE TRANSISTORS UHF PULSED APPLICATIONS

- 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

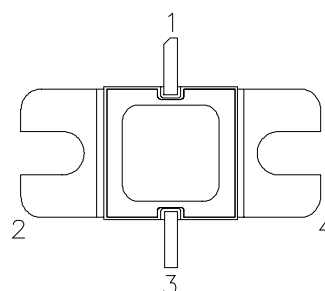
ORDER CODE
SD1563

BRANDING
SD1563

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.

PIN CONNECTION



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

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
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SD1563

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

STATIC

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

DYNAMIC

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

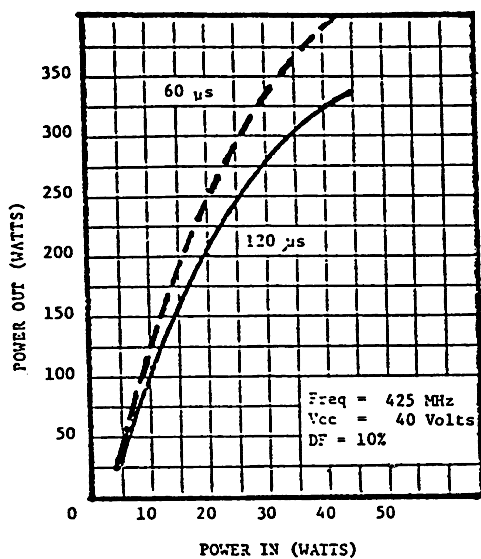
Note: Pulse Width = 250 μ Sec, Duty Cycle = 10%

TYPICAL PERFORMANCE

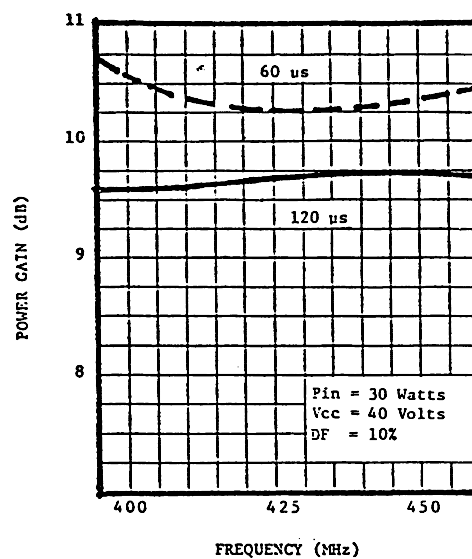
P_{OUT} (W)	P.W. (μ Sec)	D.C. (%)	T_{J} ($^{\circ}\text{C}$ max.)	V_{CC}
360	10	10	150	40
350	20	10	150	40
325	100	10	150	40
310	500	10	150	40
300	1000	10	150	40

TYPICAL PERFORMANCE (P.W. = 120 μ Sec)

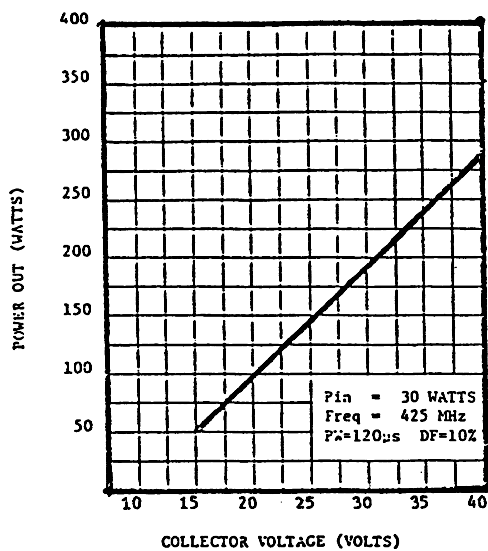
POWER OUTPUT vs POWER INPUT



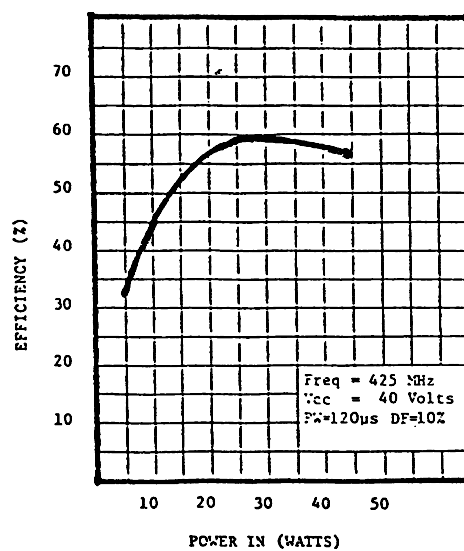
POWER GAIN vs FREQUENCY



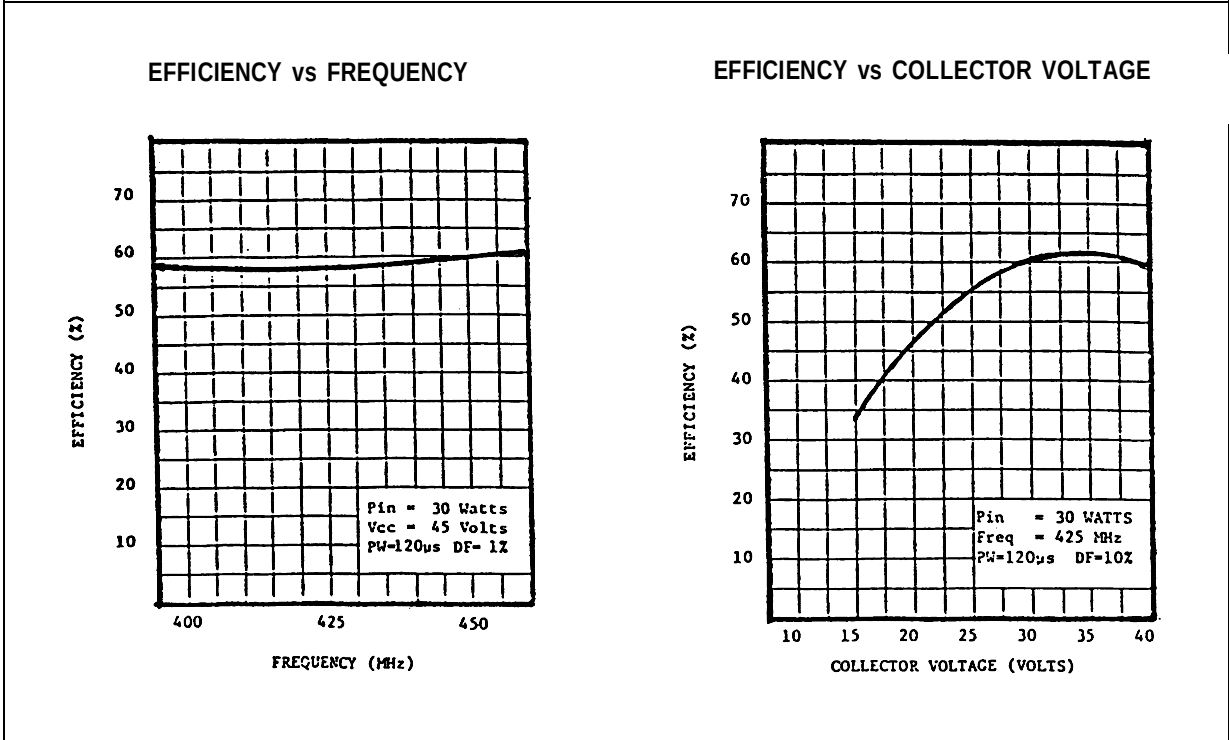
POWER OUTPUT vs COLLECTOR VOLTAGE



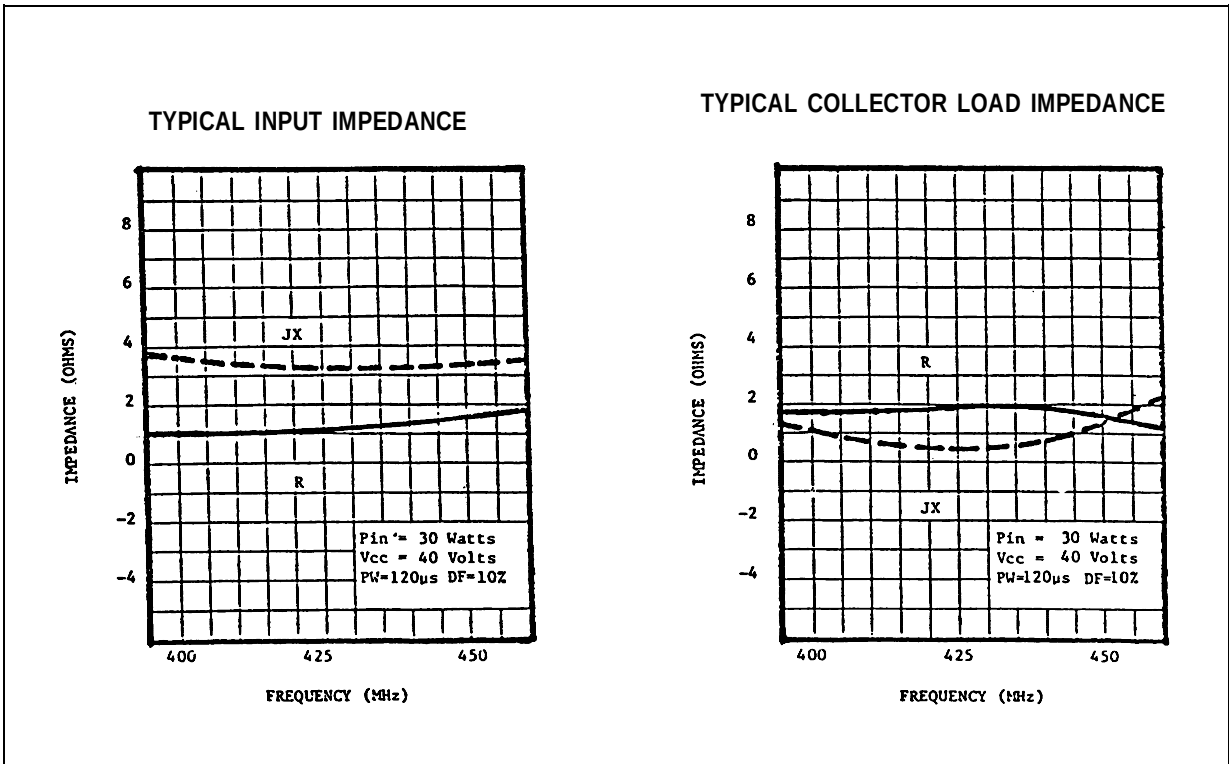
EFFICIENCY vs POWER INPUT



TYPICAL PERFORMANCE (P.W. = 120μSec)

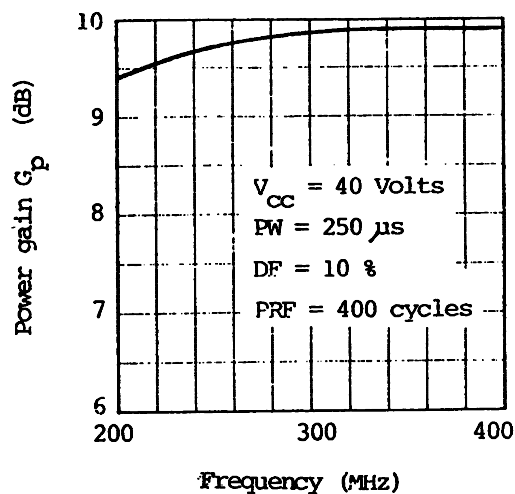


IMPEDANCE DATA (P.W. = 120μSec)

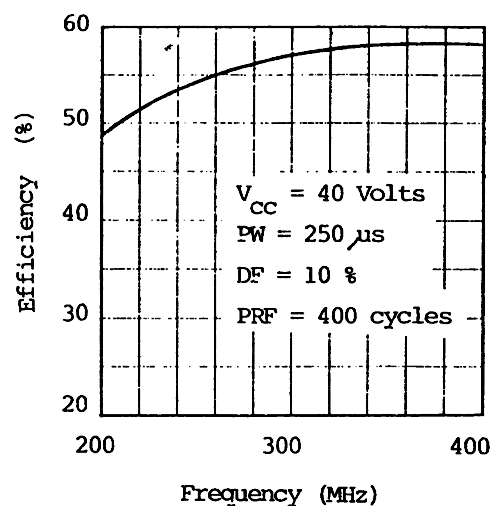
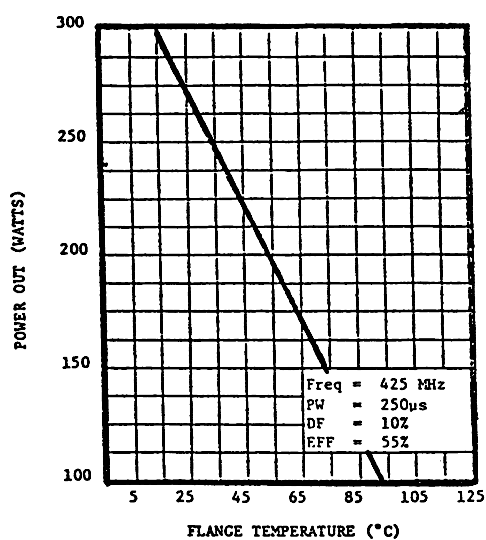
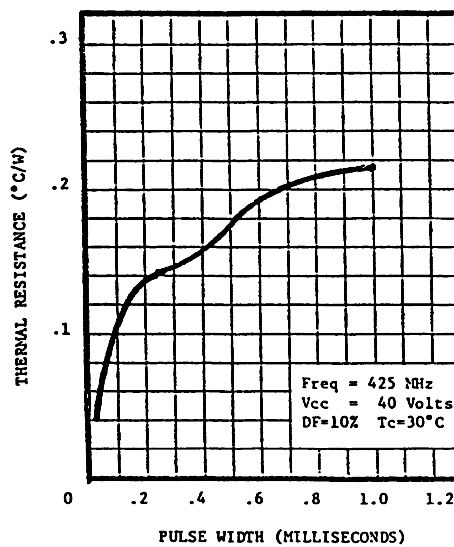


TYPICAL PERFORMANCE (P.W. = 250 μ Sec)

POWER GAIN vs FREQUENCY

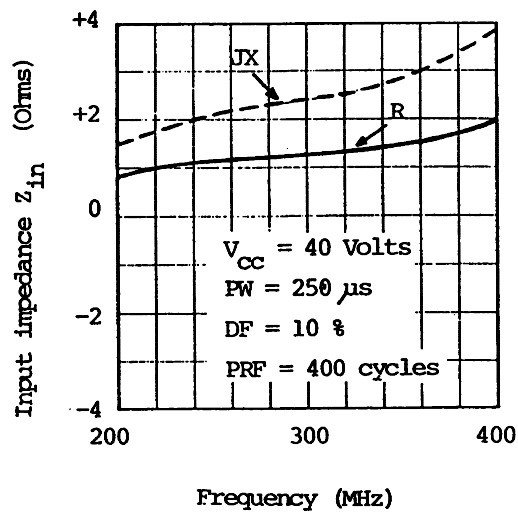


EFFICIENCY vs FREQUENCY

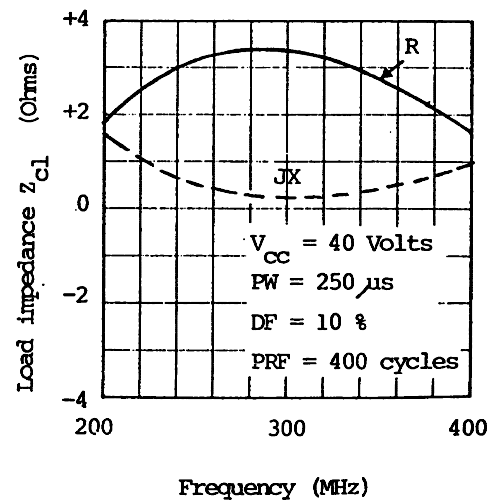
POWER OUTPUT vs FLANGE
 T_j @ CONSTANT 125°CTHERMAL RESISTANCE vs PULSE
WIDTH

IMPEDANCE DATA (P.W. = 250 μ Sec)

TYPICAL INPUT IMPEDANCE

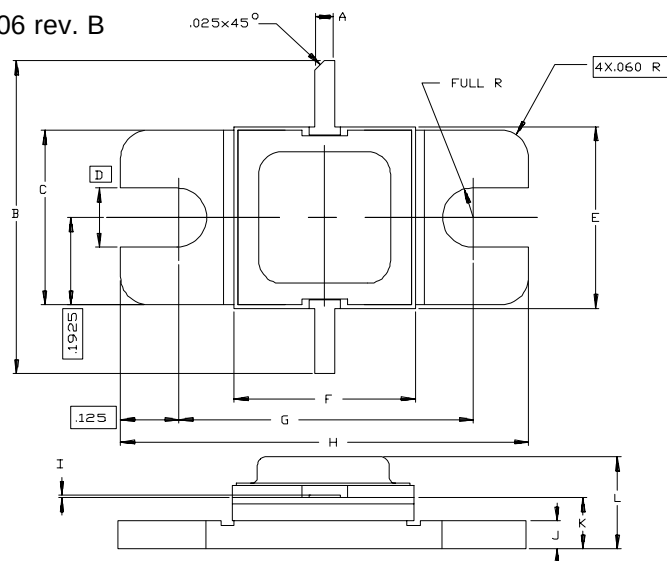


TYPICAL COLLECTOR LOAD IMPEDANCE



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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