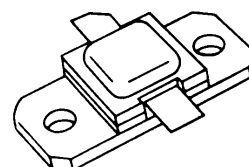


RF & MICROWAVE TRANSISTORS AVIONICS APPLICATIONS

- REFRACTORY/GOLD METALLIZATION
- EMITTER SITE BALLASTED
- 5:1 VSWR CAPABILITY @ 1.75 dB RF OVERDRIVE
- LOW THERMAL RESISTANCE
- INPUT/OUTPUT MATCHING
- OVERLAY GEOMETRY
- METAL/CERAMIC HERMETIC PACKAGE
- $P_{OUT} = 250$ W MIN. WITH 8.0 dB GAIN



.400 x .400 2LFL (S036)
hermetically sealed

ORDER CODE
SD8250

BRANDING
STAN250A

DESCRIPTION

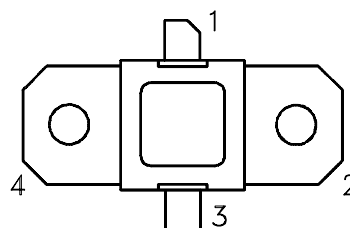
The SD8250 is a high power Class C transistor specifically designed for TACAN/DME pulsed output and driver applications.

This device is designed for operation under moderate pulse width and duty cycle pulse conditions and is capable of withstanding 5:1 output VSWR at rated RF overdrive.

Low RF thermal resistance and computerized automatic wire bonding techniques ensure high reliability and product consistency.

The SD8250 is supplied in the AMPAC™ Hermetic Metal/Ceramic package with internal Input/Output matching structures.

PIN CONNECTION



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

ABSOLUTE MAXIMUM RATINGS ($T_{case} = 25^{\circ}C$)

Symbol	Parameter	Value	Unit
P_{DISS}	Power Dissipation* ($T_C \leq 90^{\circ}C$)	575	W
I_C	Device Current*	20	A
V_{CC}	Collector-Supply Voltage*	55	V
T_J	Junction Temperature (Pulsed RF Operation)	250	$^{\circ}C$
T_{STG}	Storage Temperature	- 65 to +200	$^{\circ}C$

THERMAL DATA

$R_{TH(j-c)}$	Junction-Case Thermal Resistance ⁽¹⁾	0.28	$^{\circ}C/W$
---------------	---	------	---------------

*Applies only to rated RF amplifier operation

(1) Infra-Red Scan of Hot Spot Junction Temperature at Rated RF Operating Conditions

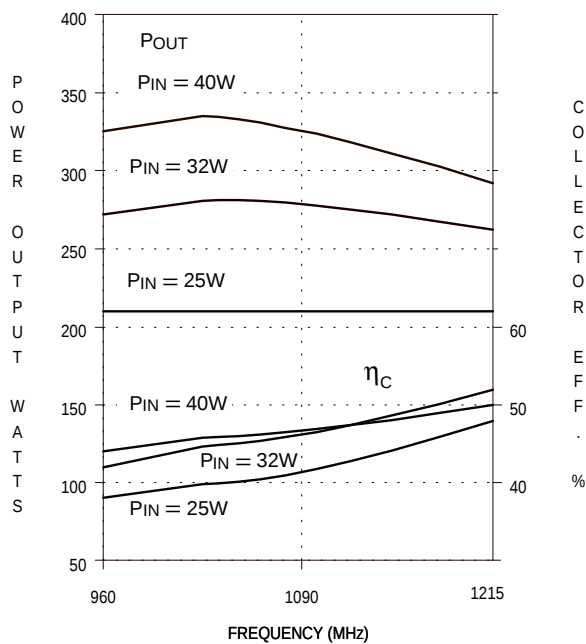
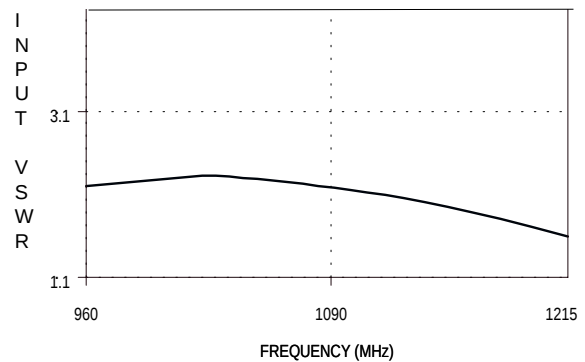
ELECTRICAL SPECIFICATIONS ($T_{\text{case}} = 25^{\circ}\text{C}$)**STATIC**

Symbol	Test Conditions	Value			Unit
		Min.	Typ.	Max.	
BV_{CBO}	$I_C = 35\text{mA}$ $I_E = 0\text{mA}$	65	—	—	V
BV_{EBO}	$I_E = 15\text{mA}$ $I_C = 0\text{mA}$	4.0	—	—	V
BV_{CES}	$I_C = 25\text{mA}$ $I_B = 0\text{mA}$	60	—	—	V
I_{CES}	$V_{BE} = 0\text{V}$ $V_{CE} = 50\text{V}$	—	—	20	mA
h_{FE}	$V_{CE} = 5\text{V}$ $I_C = 1\text{A}$	10	—	—	—

DYNAMIC

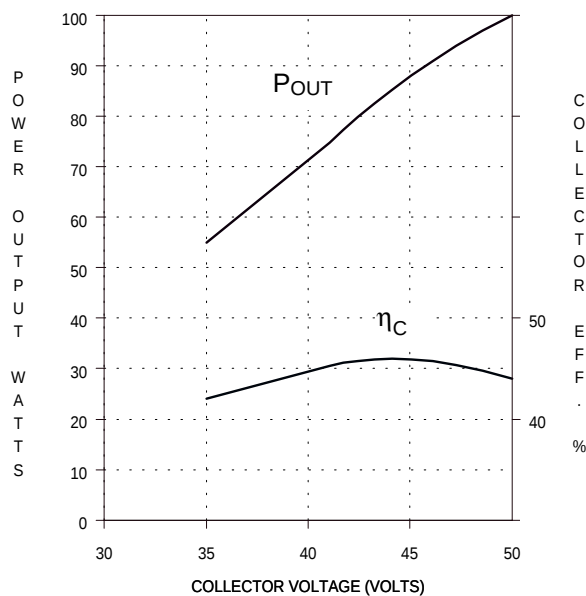
Symbol	Test Conditions	Value			Unit
		Min.	Typ.	Max.	
P_{OUT}	$f = 960 - 1215\text{ MHz}$ $P_{IN} = 40\text{ W}$ $V_{CC} = 50\text{ V}$	250	295	—	W
η_C	$f = 960 - 1215\text{ MHz}$ $P_{IN} = 40\text{ W}$ $V_{CC} = 50\text{ V}$	38	44	—	%
P_G	$f = 960 - 1215\text{ MHz}$ $P_{IN} = 40\text{ W}$ $V_{CC} = 50\text{ V}$	8.0	8.7	—	dB

Note: Pulse Width = $20\mu\text{Sec}$
Duty Cycle = 5%
 T_C = 25°C

TYPICAL PERFORMANCE**TYPICAL BROADBAND POWER AMPLIFIER****INPUT VSWR vs FREQUENCY**

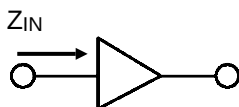
TYPICAL PERFORMANCE (cont'd)

TYPICAL POWER OUTPUT & COLLECTOR EFFICIENCY vs COLLECTOR VOLTAGE

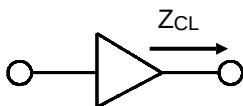


IMPEDANCE DATA

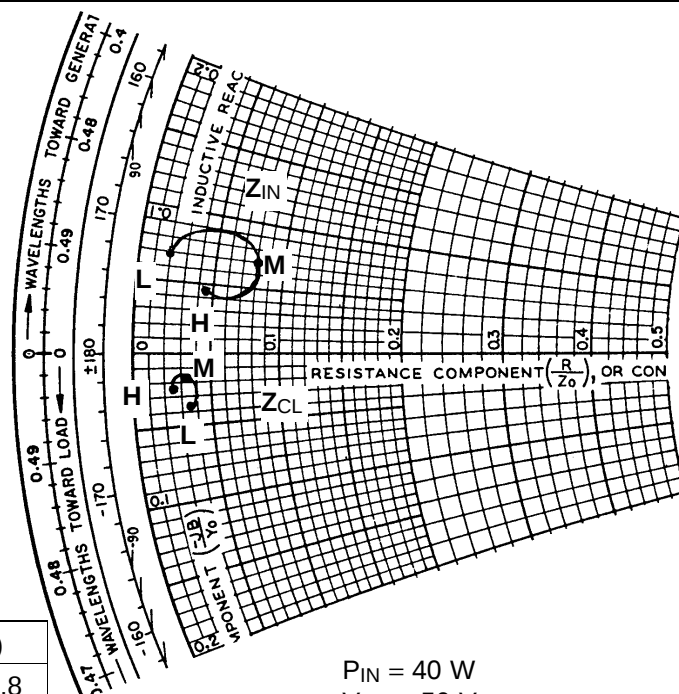
TYPICAL INPUT IMPEDANCE



TYPICAL COLLECTOR LOAD IMPEDANCE

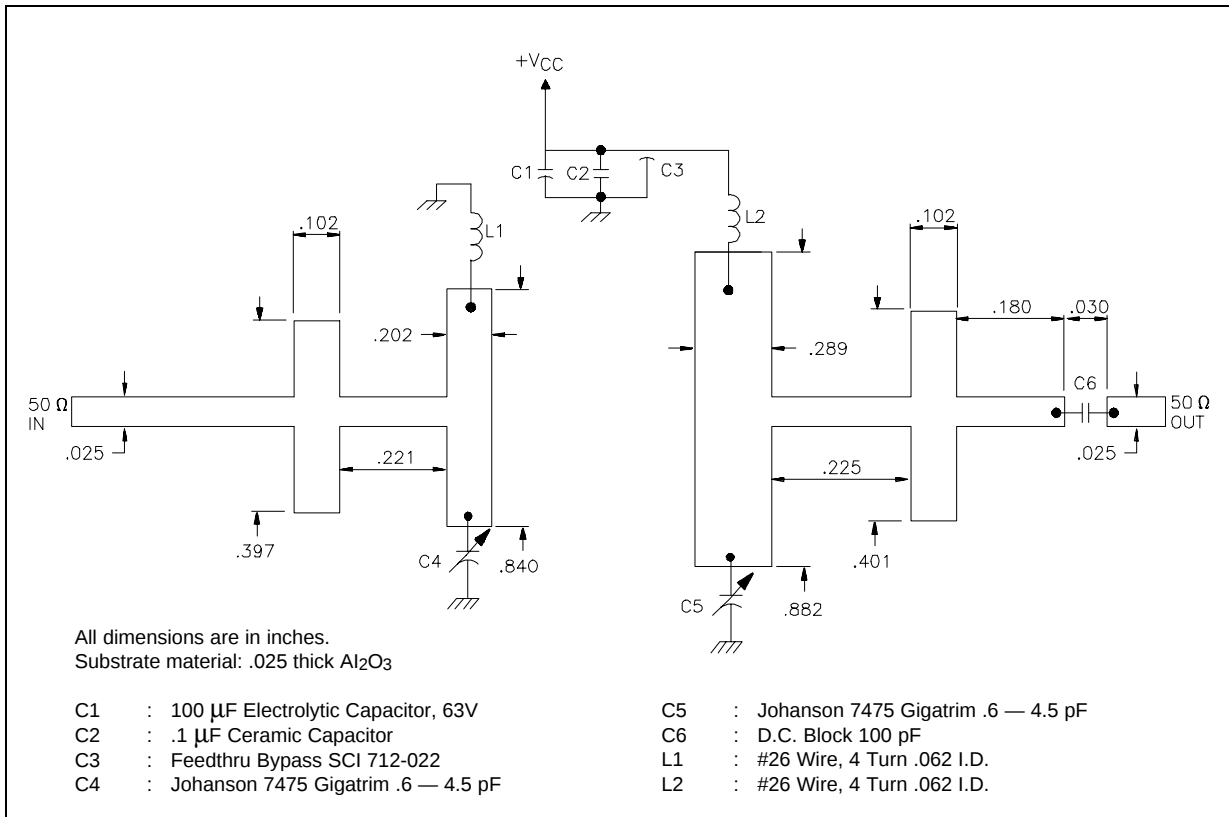


FREQ.	$Z_{IN} (\Omega)$	$Z_{CL} (\Omega)$
L = 960 MHz	$1.0 + j 3.5$	$1.9 - j 1.8$
M = 1090 MHz	$4.0 + j 3.5$	$1.6 - j 0.9$
H = 1215 MHz	$2.2 + j 2.2$	$1.4 - j 1.1$



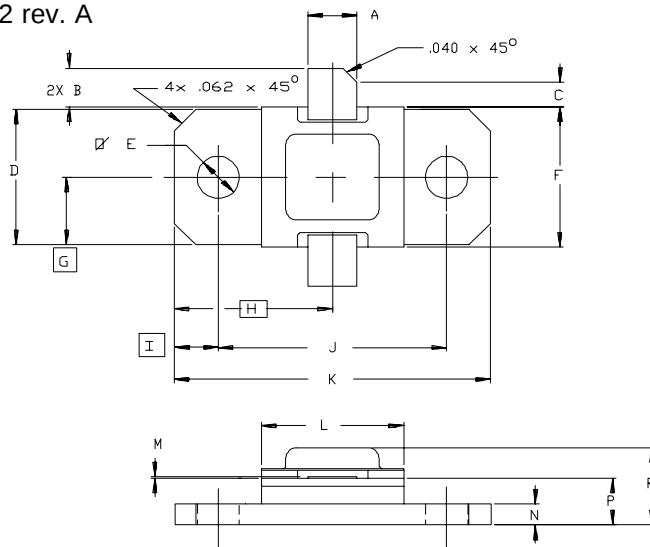
$P_{IN} = 40 \text{ W}$
 $V_{CC} = 50 \text{ V}$
 Normalized to 50 ohms

TEST CIRCUIT



PACKAGE MECHANICAL DATA

Ref.: Dwg. No. 12-0222 rev. A



SGS-THOMSON MICROELECTRONICS			CONT'D		
	MINIMUM Inches/mm	MAXIMUM Inches/mm		MINIMUM Inches/mm	MAXIMUM Inches/mm
A	.135/3,43	.145/3,68	K	.890/22,61	.910/23,11
B	.100/2,54	.120/3,05	L	.395/10,03	.415/10,54
C	.050/1,27		M	.003/0,08	.006/0,15
D	.376/9,55	.396/10,06	N	.052/1,32	.072/1,83
E	.110/2,79	.130/3,30	P	.118/3,00	.131/3,33
F	.395/10,03	.407/10,34	R		.230/5,84
G	.193/4,90				
H	.450/11,43				
I	.125/3,18				
J	.640/16,26	.660/16,76			

Information furnished is believed to be accurate and reliable. However, SGS-THOMSON Microelectronics assumes no responsibility for the consequences of use of such information nor for any infringement of patents or other rights of third parties which may result from its use. No license is granted by implication or otherwise under any patent or patent rights of SGS-THOMSON Microelectronics. Specifications mentioned in this publication are subject to change without notice. This publication supersedes and replaces all information previously supplied. SGS-THOMSON Microelectronics products are not authorized for use as critical components in life support devices or systems without express written approval of SGS-THOMSON Microelectronics.

©1994 SGS-THOMSON Microelectronics - All Rights Reserved

SGS-THOMSON Microelectronics GROUP OF COMPANIES

Australia - Brazil - France - Germany - Hong Kong - Italy - Japan - Korea - Malaysia - Malta - Morocco - The Netherlands - Singapore - Spain - Sweden - Switzerland - Taiwan - Thailand - United Kingdom - U.S.A.