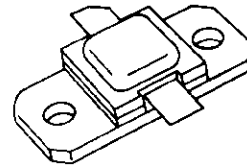


RF & MICROWAVE TRANSISTORS AVIONICS APPLICATIONS

- 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

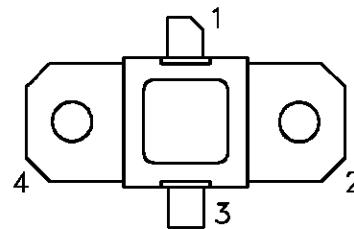
The SD8250 is a high power Class C transistor specifically designed for TACAN/DME pulsed output and driver applications.

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

2. Base

3. Emitter

4. Base

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

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

THERMAL DATA

$R_{TH(j-c)}$	Junction-Case Thermal Resistance ⁽¹⁾	0.28	$^{\circ}\text{C/W}$
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*Applies only to rated RF amplifier operation

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

SD8250

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

STATIC

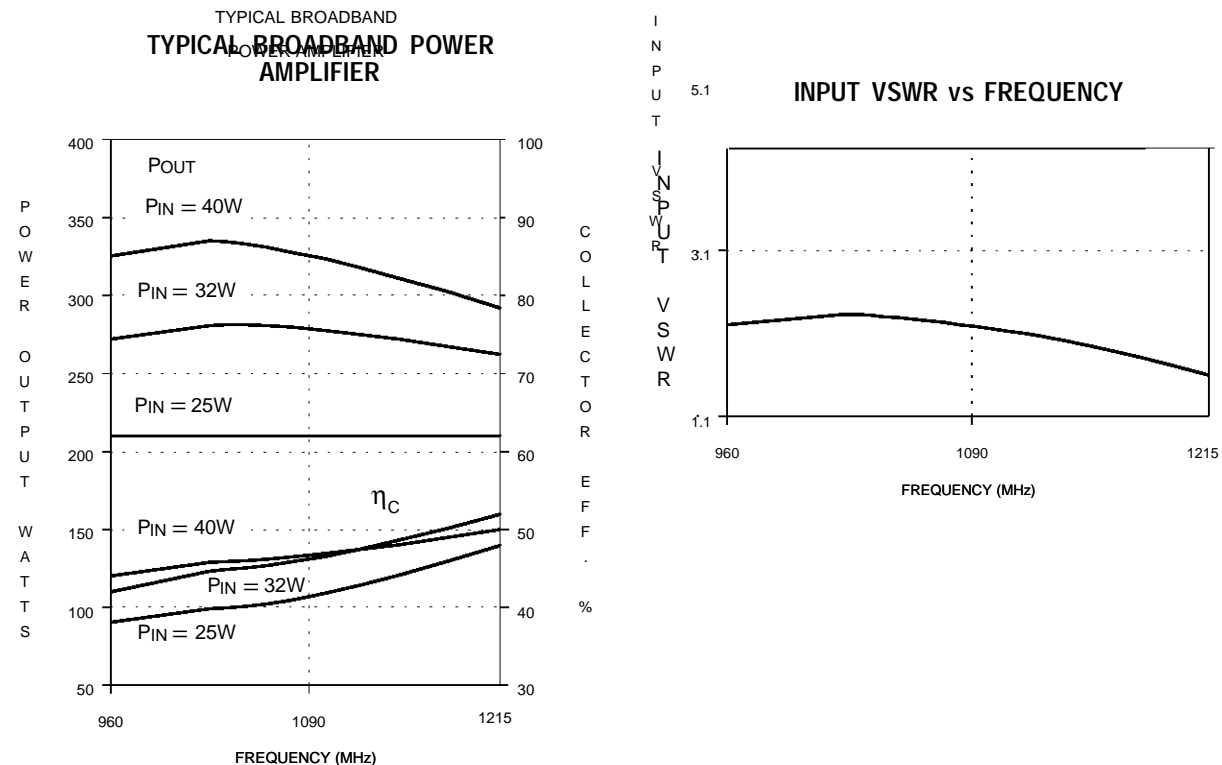
Symbol	Test Conditions	Value			Unit
		Min.	Typ.	Max.	
BV_{CBO}	$I_C = 35\text{mA}$ $I_E = 0\text{mA}$	65	—	—	V
BV_{EBO}	$I_E = 15\text{mA}$ $I_C = 0\text{mA}$	4.0	—	—	V
BV_{CES}	$I_C = 25\text{mA}$ $I_B = 0\text{mA}$	60	—	—	V
I_{CES}	$V_{BE} = 0\text{V}$ $V_{CE} = 50\text{V}$	—	—	20	mA
h_{FE}	$V_{CE}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

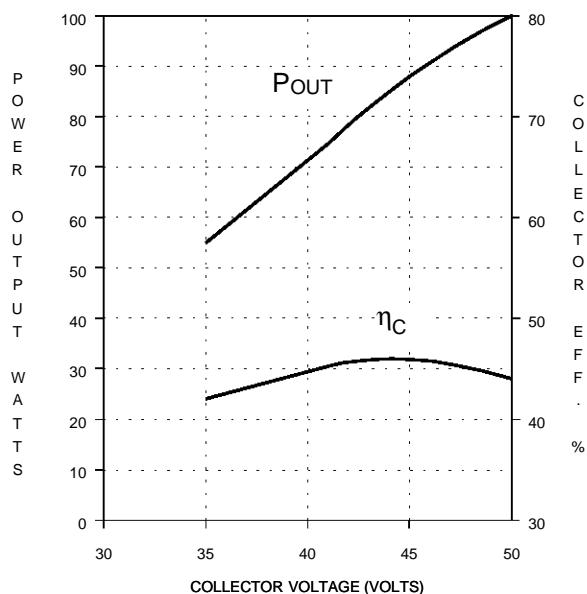
Note: Pulse Width = $20\mu\text{Sec}$
Duty Cycle = 5%
 $T_C = 25^{\circ}\text{C}$

TYPICAL PERFORMANCE



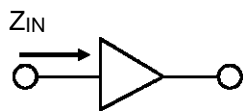
TYPICAL PERFORMANCE (cont'd)

TYPICAL POWER OUTPUT & COLLECTOR EFFICIENCY VS. COLLECTOR VOLTAGE

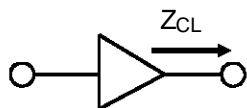


IMPEDANCE DATA

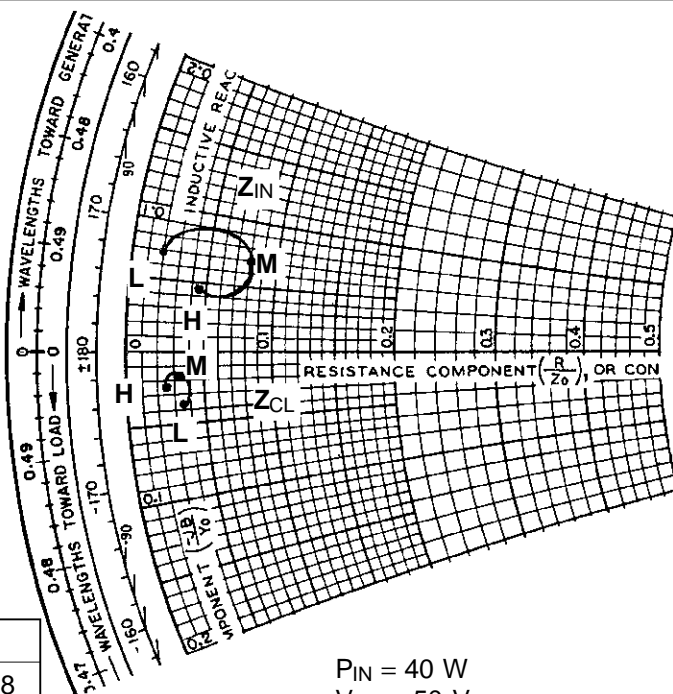
TYPICAL INPUT IMPEDANCE



TYPICAL COLLECTOR LOAD IMPEDANCE

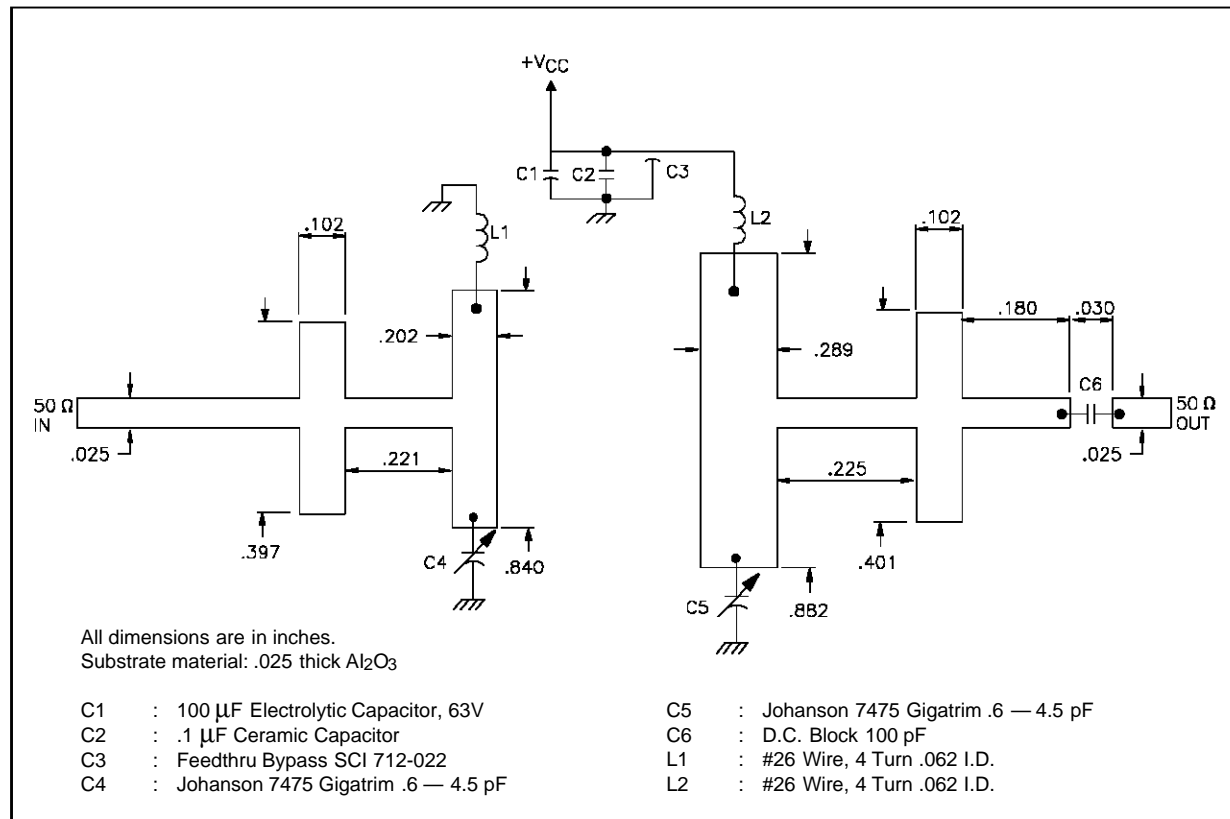


FREQ.	$Z_{IN} (\Omega)$	$Z_{CL} (\Omega)$
L = 960 MHz	$1.0 + j 3.5$	$1.9 - j 1.8$
M = 1090 MHz	$4.0 + j 3.5$	$1.6 - j 0.9$
H = 1215 MHz	$2.2 + j 2.2$	$1.4 - j 1.1$



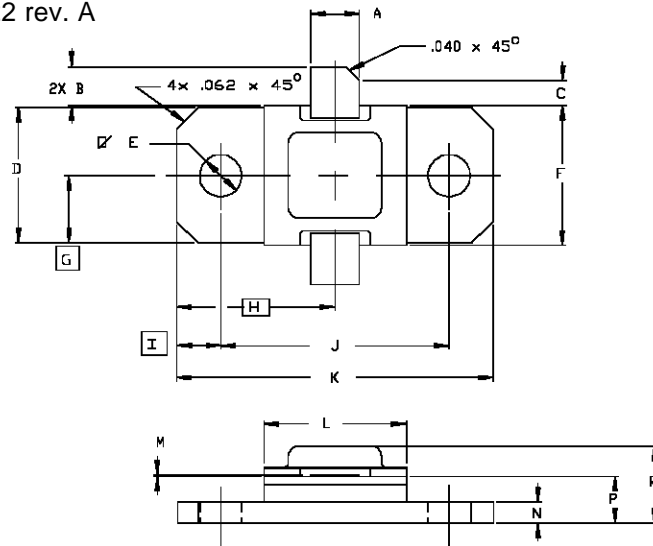
$P_{IN} = 40 \text{ W}$
 $V_{CC} = 50 \text{ V}$
 Normalized to 50 ohms

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			

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