

RF & MICROWAVE TRANSISTORS S-BAND RADAR APPLICATIONS

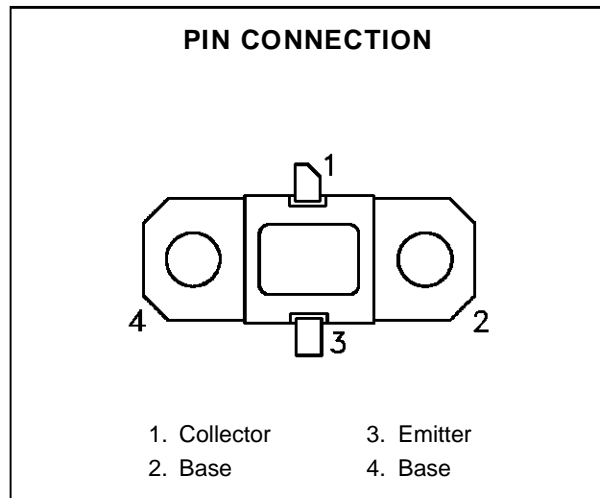
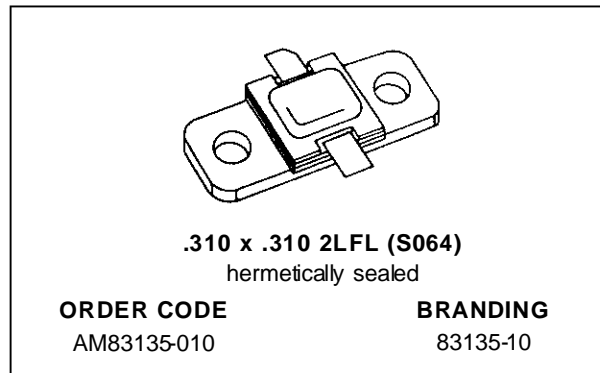
- REFRACTORY/GOLD METALLIZATION
- EMITTER SITE BALLASTED
- LOW THERMAL RESISTANCE
- INPUT/OUTPUT MATCHING
- OVERLAY GEOMETRY
- METAL/CERAMIC HERMETIC PACKAGE
- P_{OUT} = 10 W MIN. WITH 5.0 dB GAIN

DESCRIPTION

The AM83135-010 device is a high power silicon bipolar NPN transistor specifically designed for S-Band radar pulsed output and driver applications.

This device is characterized at 100μsec pulse width and 10% duty cycle, but is capable of operation over a range of pulse widths, duty cycles, and temperatures, and can withstand a 3:1 output VSWR with a + 1 dB input overdrive. Low RF thermal resistance, refractory/gold metallization, and computerized automatic wire bonding techniques ensure high reliability and product consistency (including phase characteristics).

The AM83135-010 is supplied in the IMPAC™ hermetic metal/ceramic package with internal input/output impedance matching circuitry, and is intended for military and other high reliability applications.



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

Symbol	Parameter	Value	Unit
P _{DISS}	Power Dissipation* (T _c ≤ 50°C)	50	W
I _c	Device Current*	2	A
V _{CC}	Collector-Supply Voltage*	46	V
T _J	Junction Temperature (Pulsed RF Operation)	250	°C
T _{STG}	Storage Temperature	- 65 to +200	°C

THERMAL DATA

R _{TH(j-c)}	Junction-Case Thermal Resistance*	4.0	°C/W
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*Applies only to rated RF amplifier operation

AM83135-010

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

STATIC

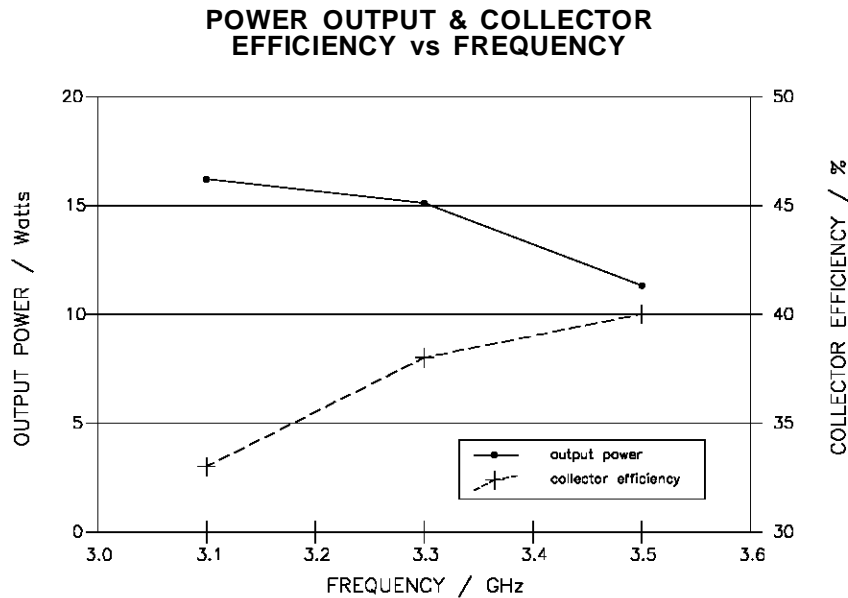
Symbol	Test Conditions		Value			Unit
			Min.	Typ.	Max.	
BV _{CBO}	I _C = 7 mA	I _E = 0 mA	55	—	—	V
BV _{EBO}	I _E = 1 mA	I _C = 0 mA	3.5	—	—	V
BV _{CER}	I _C = 7 mA	R _{BE} = 10 Ω	55	—	—	V
I _{CES}	V _{BE} = 0 V	V _{CE} = 40 V	—	—	5	mA
h _{FE}	V _{CE} = 5 V	I _C = 600 mA	30	—	—	—

DYNAMIC

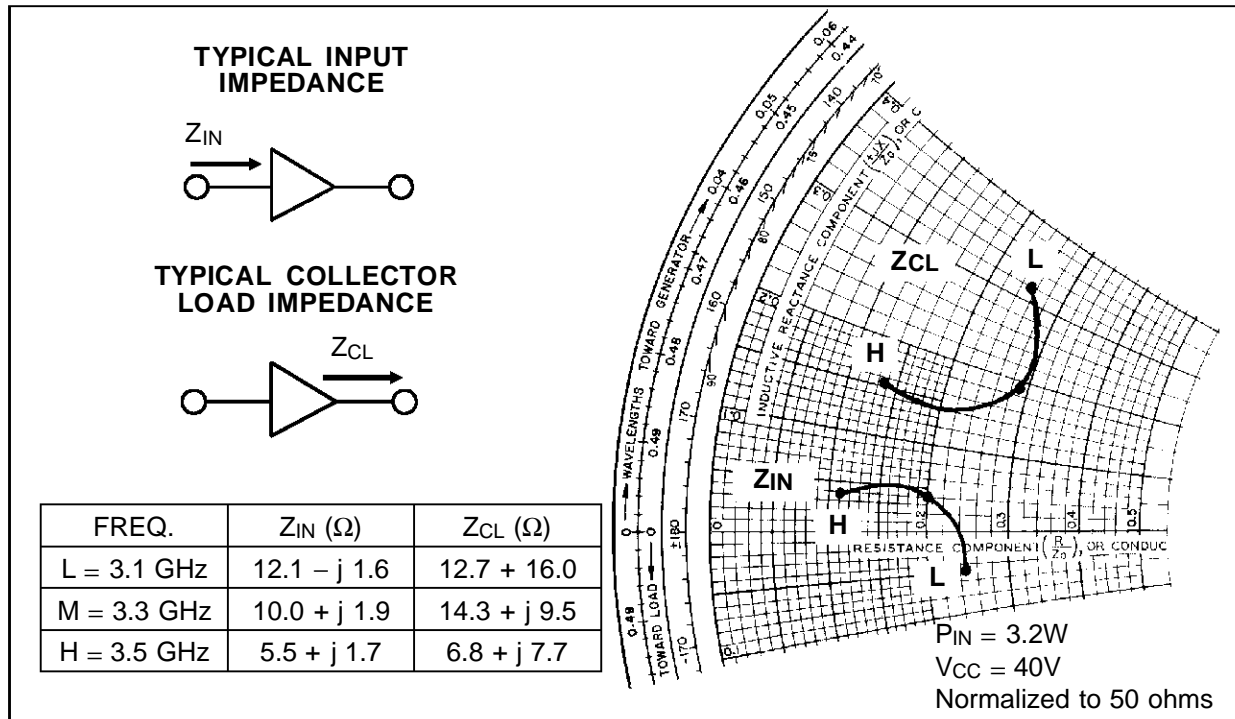
Symbol	Test Conditions			Value			Unit
				Min.	Typ.	Max.	
P _{OUT}	f = 3.1 – 3.5 GHz	P _{IN} = 3.2 W	V _{CC} = 40 V	10	—	—	W
η _C	f = 3.1 – 3.5 GHz	P _{OUT} = 10 W	V _{CC} = 40 V	30	—	—	%
P _G	f = 3.1 – 3.5 GHz	P _{OUT} = 10 W	V _{CC} = 40 V	5.0	—	—	dB

Note: Pulse Width = 100μSec
Duty Cycle = 10%

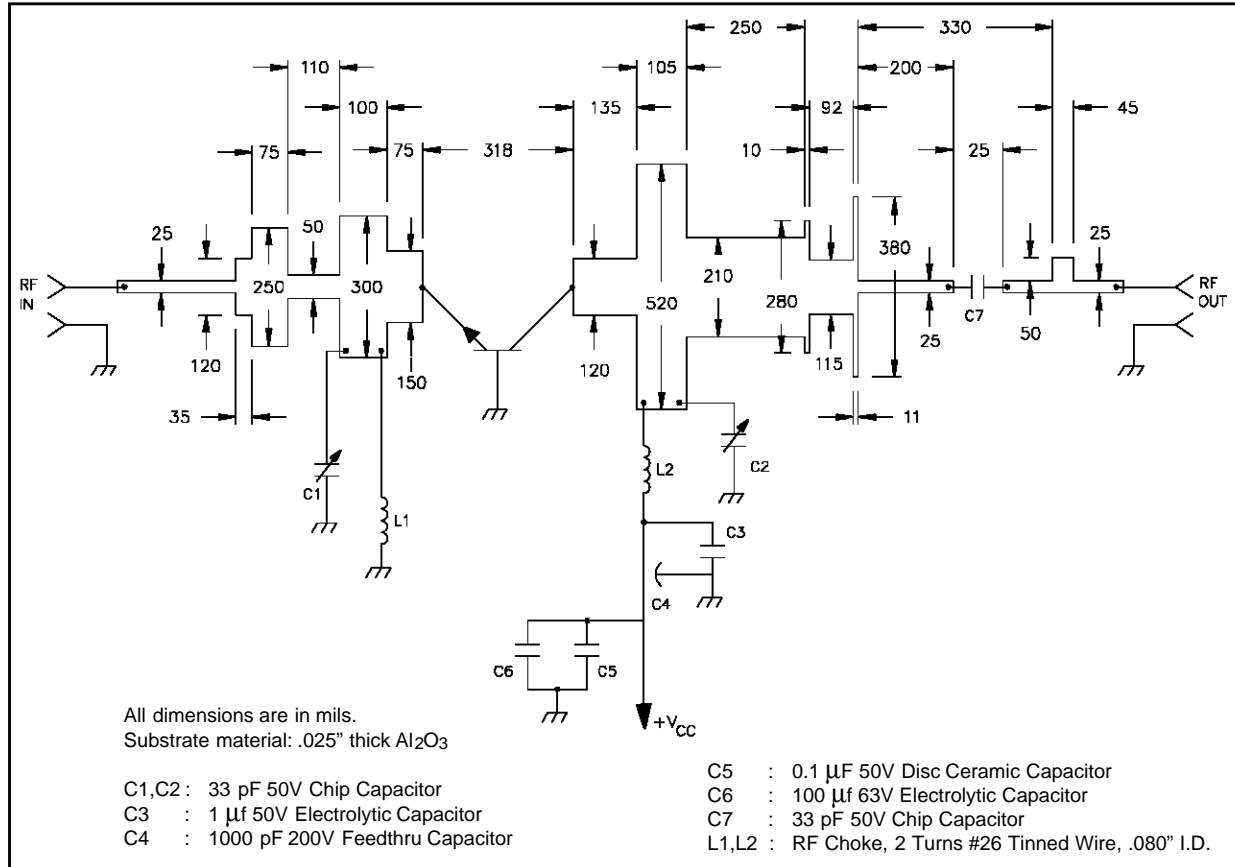
TYPICAL PERFORMANCE



IMPEDANCE DATA

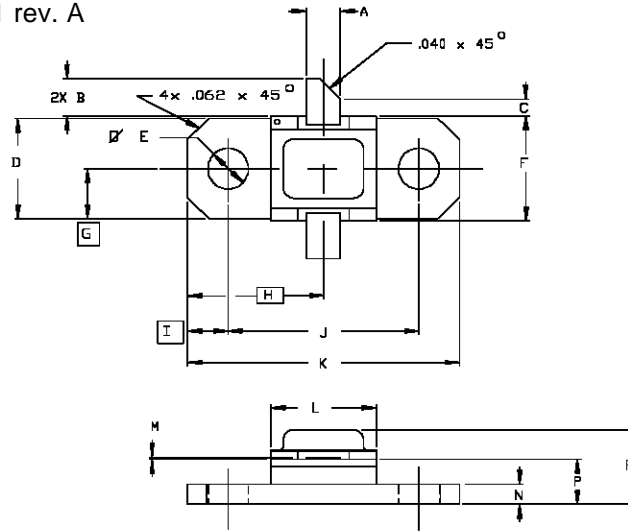


TEST CIRCUIT



PACKAGE MECHANICAL DATA

Ref.: Dwg. No. 12-0221 rev. A



SGS-THOMSON MICROELECTRONICS		CONT'D			
	MINIMUM Inches/mm	MAXIMUM Inches/mm		MINIMUM Inches/mm	MAXIMUM Inches/mm
A	.095/2,41	.105/2,67	K	.790/20,07	.810/20,57
B	.100/2,54	.120/3,05	L	.300/7,62	.320/8,13
C	.050/1,27		M	.003/0,08	.006/0,15
D	.286/7,26	.306/7,77	N	.052/1,32	.072/1,83
E	.110/2,79	.130/3,30	P	.118/3,00	.131/3,33
F	.306/7,77	.319/8,09	R		.230/5,84
G	.148/3,76				
H	.400/10,16				
I	.119/3,02				
J	.552/14,02	.572/14,53			

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