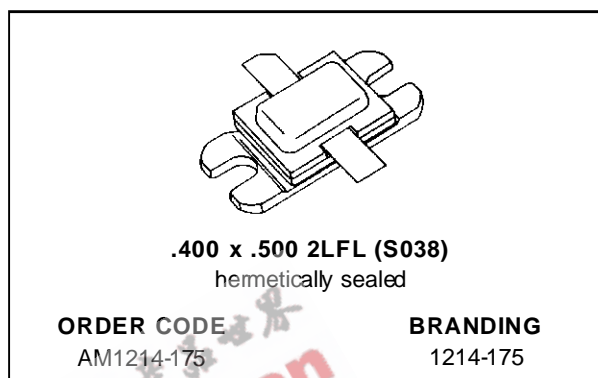


RF & MICROWAVE TRANSISTORS L-BAND RADAR APPLICATIONS

- REFRACTORY/GOLD METALLIZATION
- EMITTER SITE BALLASTED
- 3:1 VSWR CAPABILITY
- LOW THERMAL RESISTANCE
- INPUT/OUTPUT MATCHING
- OVERLAY GEOMETRY
- METAL/CERAMIC HERMETIC PACKAGE
- P_{OUT} = 160 W MIN. WITH 7.3 dB GAIN

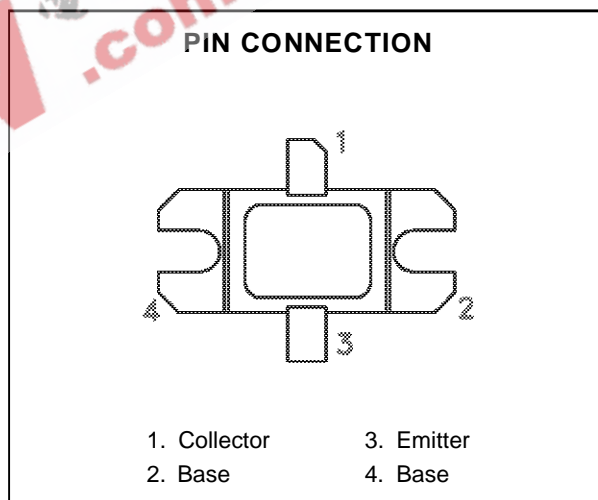


DESCRIPTION

The AM1214-175 device is a high power Class C transistor specifically designed for L-Band radar pulsed output and driver applications.

This device is capable of operation over a wide range of pulse widths, duty cycles and temperatures and is capable of withstanding 3:1 output VSWR at rated RF conditions. Low RF thermal resistance and computerized automatic wire bonding techniques ensure high reliability and product consistency.

The AM1214-175 is supplied in the BIGPAC™ Hermetic Metal/Ceramic package with internal Input/Output matching structures.



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

Symbol	Parameter	Value	Unit
P _{DISS}	Power Dissipation* (T _C ≤ 100°C)	330	W
I _C	Device Current*	14	A
V _{CC}	Collector-Supply Voltage*	45	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*	0.45	°C/W
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*Applies only to rated RF amplifier operation

AM1214-175

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

STATIC

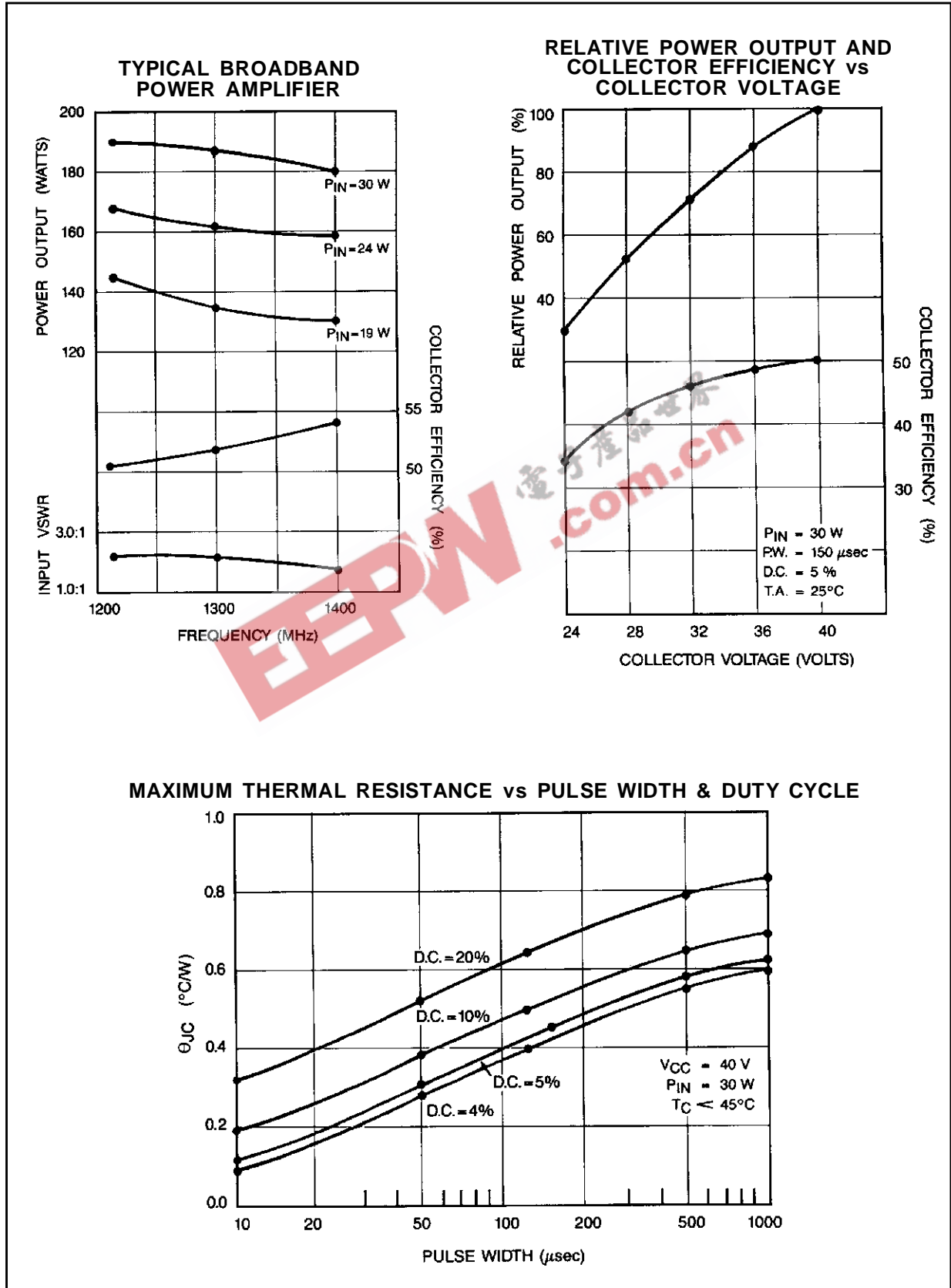
Symbol	Test Conditions	Value			Unit
		Min.	Typ.	Max.	
BV_{CBO}	$I_{\text{C}} = 60\text{mA}$ $I_{\text{E}} = 0\text{mA}$	65	—	—	V
BV_{EBO}	$I_{\text{E}} = 10\text{mA}$ $I_{\text{C}} = 0\text{mA}$	3.5	—	—	V
BV_{CES}	$I_{\text{C}} = 100\text{mA}$	65	—	—	V
I_{CES}	$V_{\text{CE}} = 40\text{V}$	—	—	25	mA
h_{FE}	$V_{\text{CE}} = 5\text{V}$ $I_{\text{C}} = 5\text{A}$	15	—	150	—

DYNAMIC

Symbol	Test Conditions	Value			Unit
		Min.	Typ.	Max.	
P_{OUT}	$f = 1215 \text{ — } 1400\text{MHz}$ $P_{\text{IN}} = 30\text{W}$ $V_{\text{CC}} = 40\text{V}$	160	180	—	W
η_{C}	$f = 1215 \text{ — } 1400\text{MHz}$ $P_{\text{IN}} = 30\text{W}$ $V_{\text{CC}} = 40\text{V}$	45	50	—	%
G_{P}	$f = 1215 \text{ — } 1400\text{MHz}$ $P_{\text{IN}} = 30\text{W}$ $V_{\text{CC}} = 40\text{V}$	7.3	7.8	—	dB

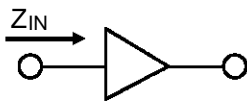
Note: Pulse Width = $150\mu\text{S}$
Duty Cycle = 5%

TYPICAL PERFORMANCE

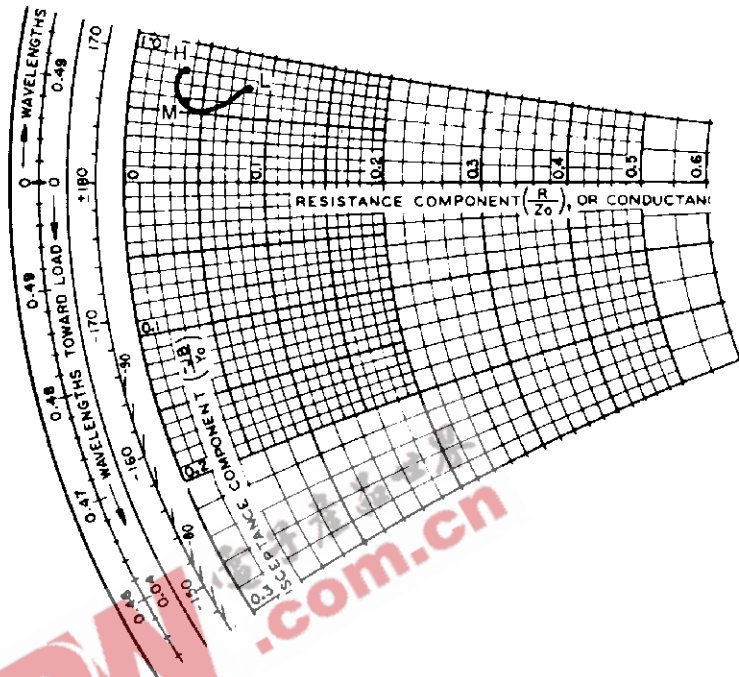


IMPEDANCE DATA

TYPICAL INPUT IMPEDANCE

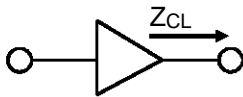


$P_{IN} = 30\text{ W}$
 $V_{CC} = 40\text{ V}$
 $Z_0^* = 50\text{ ohms}$

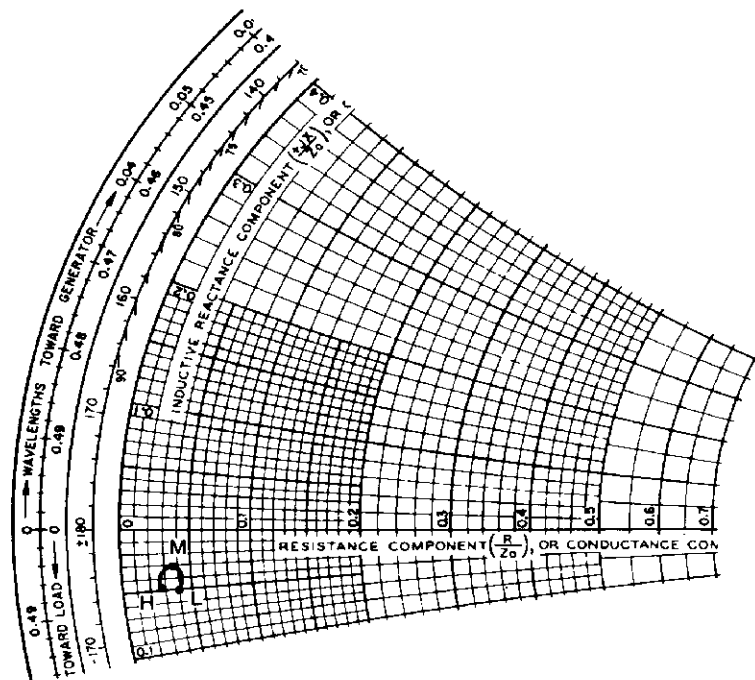


FREQ.	$Z_{IN} (\Omega)$	$Z_{CL} (\Omega)$
L = 1215 MHz	$4.0 + j 3.5$	$2.0 - j 2.5$
M = 1300 MHz	$2.0 + j 3.0$	$2.0 - j 1.5$
H = 1400 MHz	$1.5 + j 4.0$	$1.5 - j 2.5$

TYPICAL COLLECTOR LOAD IMPEDANCE

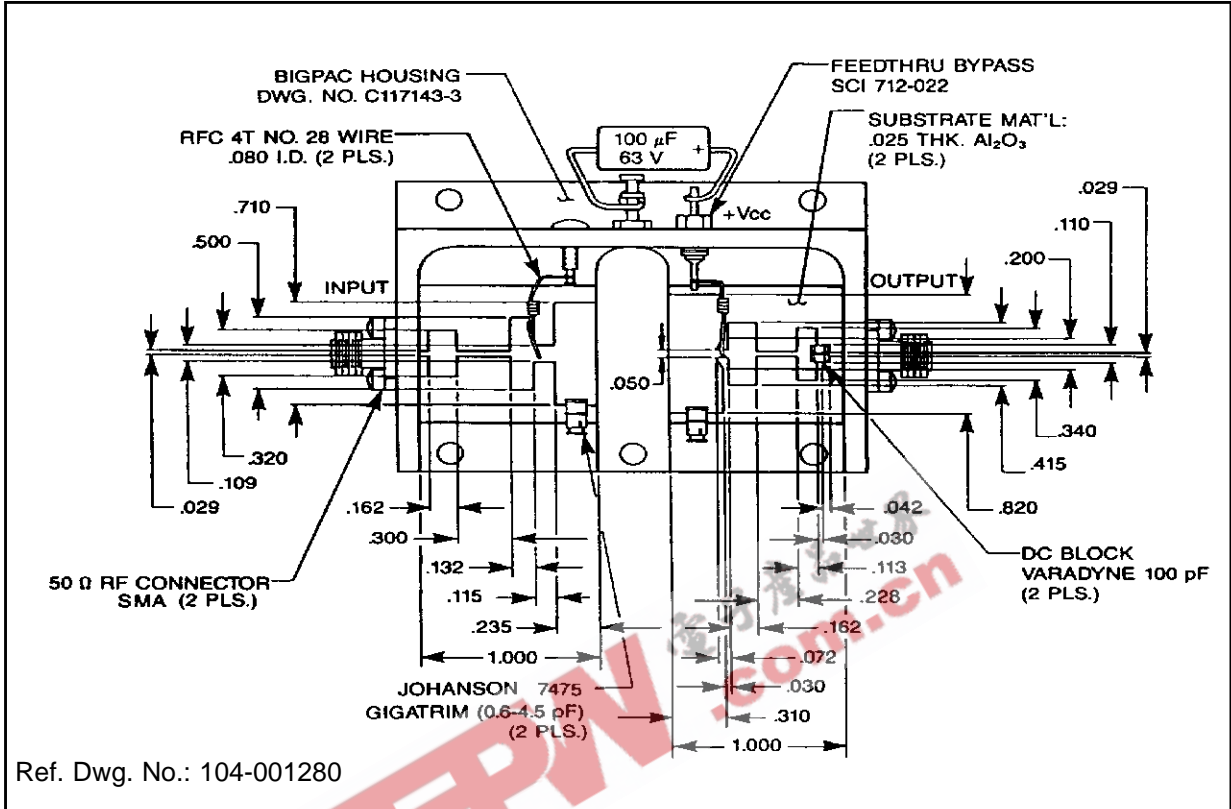


$P_{IN} = 30\text{ W}$
 $V_{CC} = 40\text{ V}$
 $Z_0^* = 50\text{ ohms}$

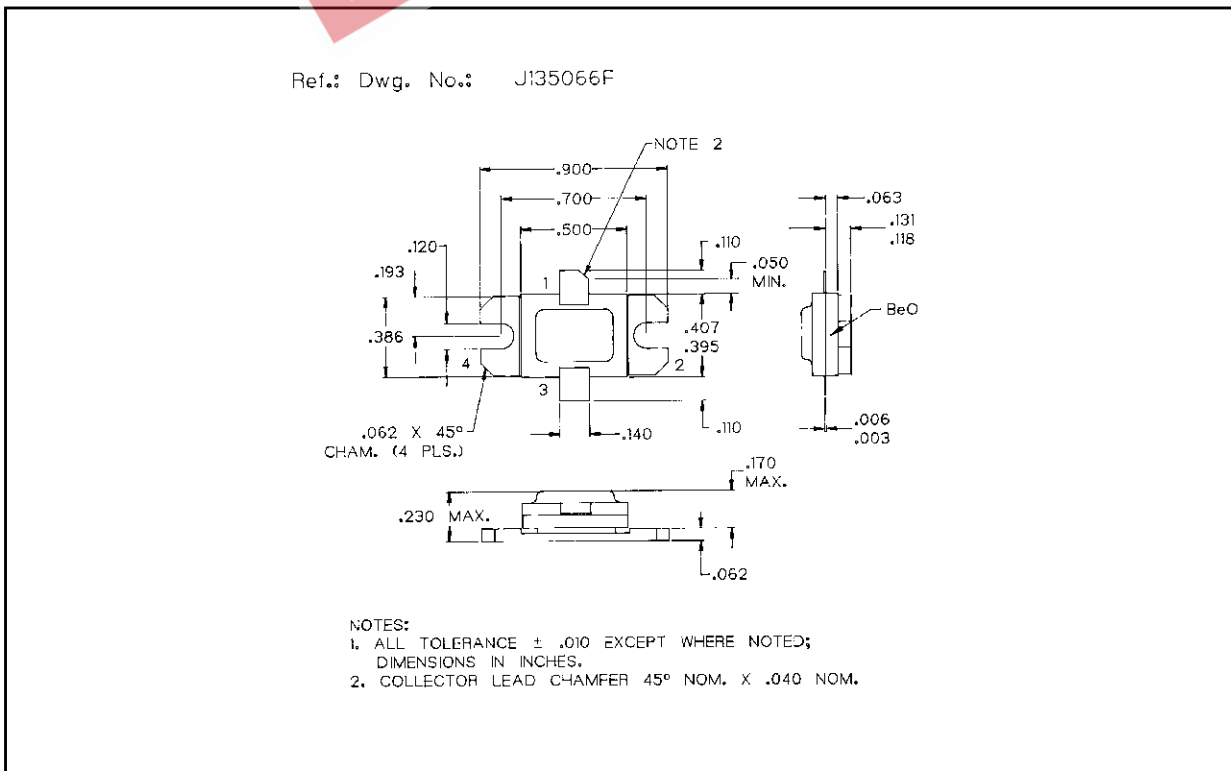


*Normalized Impedance

TEST CIRCUIT



PACKAGE MECHANICAL DATA



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