

Wireless Power Transistor

45 Watts, 1805 - 1880 MHz



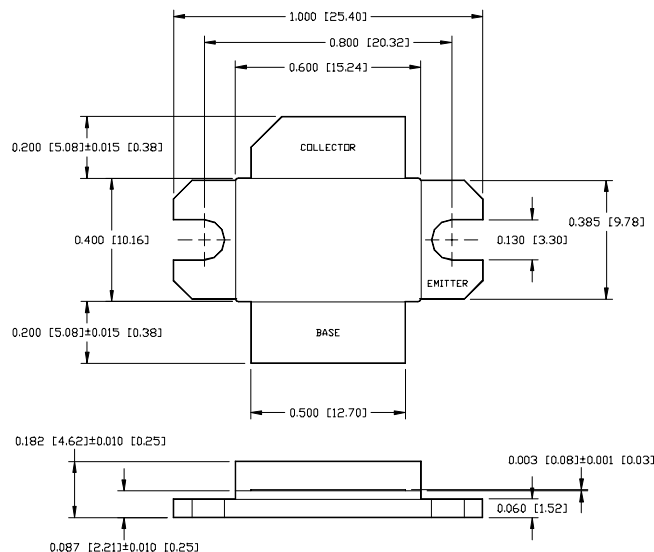
Features

- NPN Silicon Microwave Power Transistor
- -28 dBc Typical 3rd IMD at 45 Watts PEP
- Common Emitter Class AB Operation
- Internal Input and Output Impedance Matching
- Diffused Emitter Ballasting
- Gold Metalization System

Description

M/A-COM's PH1819-45A is a high efficiency silicon bipolar NPN transistor intended for use as a common emitter class AB stage in power amplifiers that operate in the 1805 to 1880 MHz range. This transistor features internal input and output impedance matching, diffused emitter ballasting and gold metalization. The PH1819-45A is packaged in a low cost, non-hermetic ceramic package which has a very low thermal impedance.

Outline Drawing¹



Note: (unless otherwise specified)

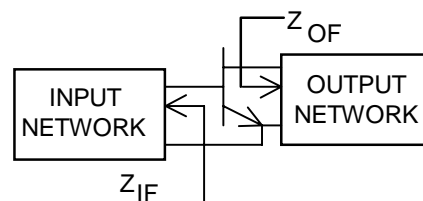
1. Tolerances are: inches ± 0.005" (millimeters ± 0.13mm)

Absolute Maximum Rating at 25°C

Parameter	Symbol	Rating	Units
Collector-Base Voltage	V_{CE0}	20	V
Collector-Emitter Voltage	V_{CES}	65	V
Emitter-Base Voltage	I_{EBO}	3.0	V
Collector Current	I_C	4.0	A
Power Dissipation	P_D	117	W
Storage Temperature	T_{stg}	-55 to +150	°C
Junction Temperature	T_J	200	°C
Thermal Resistance	θ_{jc}	1.5	°C/W

BroadBand Fixture Impedance

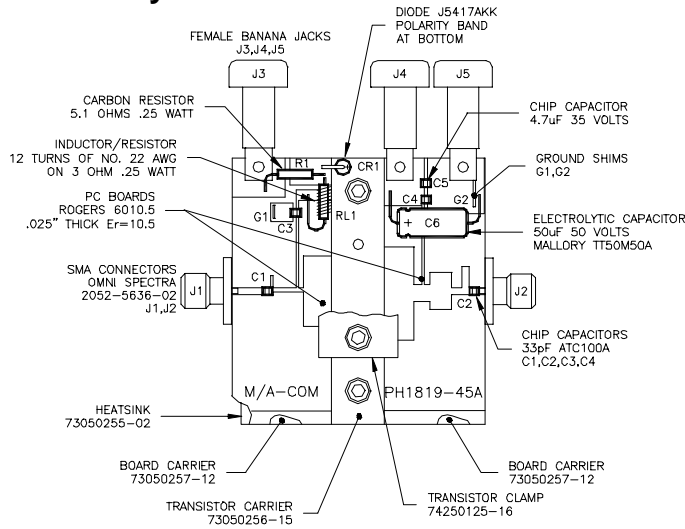
F (MHz)	Z_{IF} (Ω)	Z_{OF} (Ω)
1805	3.3 + j5.7	4.1 + j0.3
1842	3.1 + j5.6	4.5 + j0.2
1880	2.9 + j5.4	4.8 + j0.0



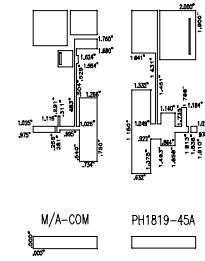
Electrical Specifications at 25°C

Symbol	Parameter	Test Conditions	Min	Max	Units
h_{FE}	DC Forward Current Gain	$V_{CE}=5\text{ V}, I_C=1.5\text{ A}$	15	120	-
G_P	Power Gain	$V_{CC}=25\text{ V}, I_{CQ}=200\text{ mA}, P_{OUT}=45\text{ W}, f=1805, 1880\text{ MHz}$	9.0	-	dB
η_C	Collector Efficiency	$V_{CC}=25\text{ V}, I_{CQ}=200\text{ mA}, P_{OUT}=45\text{ W}, f=1805, 1880\text{ MHz}$	50	-	%
R_L	Input Return Loss	$V_{CC}=25\text{ V}, I_{CQ}=200\text{ mA}, P_{OUT}=45\text{ W}, f=1805, 1880\text{ MHz}$	10	-	dB
VSWR-T	Load Mismatch Tolerance	$V_{CC}=25\text{ V}, I_{CQ}=200\text{ mA}, P_{OUT}=45\text{ W}, f=1805, 1880\text{ MHz}$	-	2:1	-

Assembly View

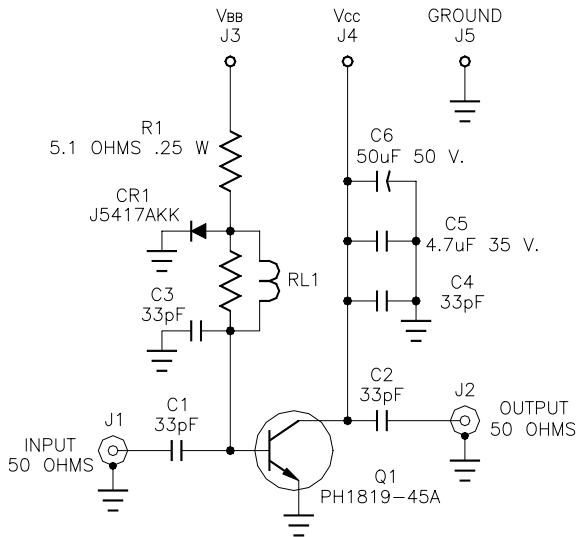


Circuit Dimensions



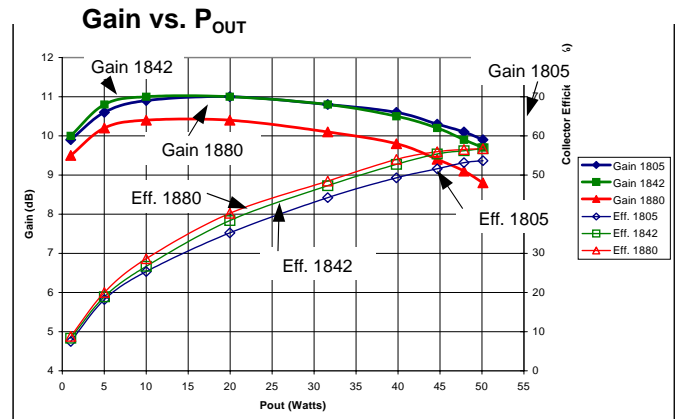
CIRCUIT DIMENSIONS

Schematic



BOARD TYPE ROGERS 6010.5 .025" THICK Er=10.5
 RL1 12 TURNS OF NO. 22 AWG ON 3 OHM .25 WATT

Typical Performance Curve



3rd Order InterModulation Distortion Two Equal Tone (100KHz Offset)

