

MICROWAVE POWER TRANSISTOR

PH1214-30

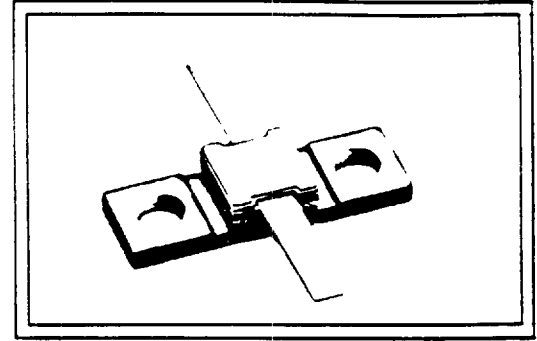
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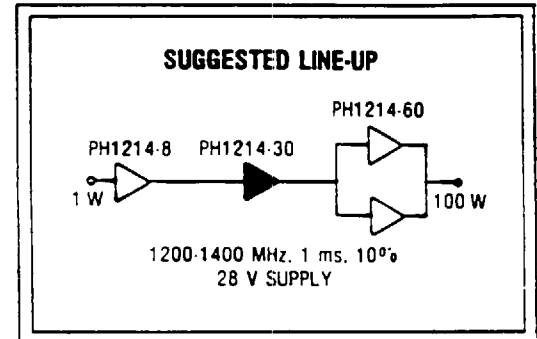
The PH1214-30 is an internally matched high power transistor designed for long pulse or CW applications from 1200 to 1400 MHz. Internal matching both at the input and the output increase device impedances and facilitate broadband operation. This bipolar device features multicell chip design for high gain and low thermal resistance. All gold metallization and the fully hermetic metal/ceramic package insure long term reliability.



- PULSE OR CW L-BAND APPLICATIONS
- 1200-1400 MHz, OVER 30W OUTPUT
- INTERNALLY MATCHED FOR BROADBAND OPERATION
- GOLD METALLIZATION, EMITTER BALLASTED
- HERMETIC METAL/CERAMIC PACKAGE
- COMMON BASE CONFIGURATION
- HIGHER GAIN THAN COMPETITIVE DEVICES
- LOW THERMAL RESISTANCE

ABSOLUTE MAXIMUM RATINGS

Parameter	Symbol	Value	Units
Collector — Base Voltage	V_{CBO}	58	V_{DC}
Emitter — Base Voltage	V_{EBO}	3.5	V_{DC}
RF Input Power (Peak)	P_{IN}	10	W
Collector Current (Peak)	I_C	3	A
CW Device Dissipation at 25°C Case Temperature	P_D	50	W
CW Device Dissipation Derating Above 25°C	P_D/T_C	0.3	W/°C
Operating Temperature Range	T_{OPER}	-55 to +125	°C
Storage Temperature Range	T_{STG}	-65 to +150	°C

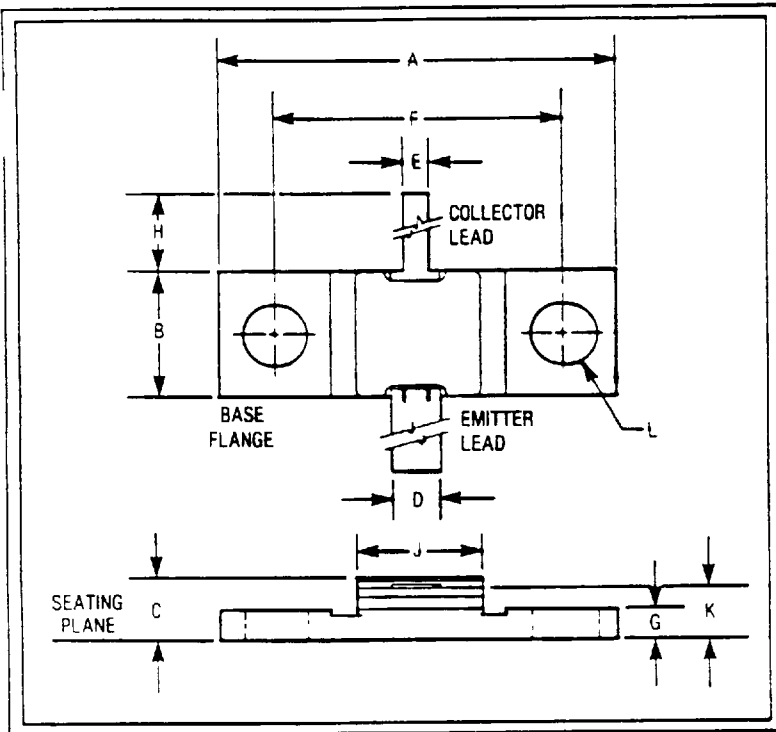


ELECTRICAL CHARACTERISTICS AT 25°C

Parameter	Symbol	Min.	Max.	Units	Test Conditions
Emitter — Base Breakdown Voltage	BV_{EBO}	3.5	—	V_{DC}	$I_E = 5 \text{ mA}, I_C = 0$
Collector — Base Breakdown Voltage	BV_{CBO}	58	—	V_{DC}	$I_C = 25 \text{ mA}, I_E = 0$
Collector Cutoff Current	I_{CES}	—	3	mA	$V_{CE} = 28V, V_{BE} = 0$
DC Current Gain	HFE	20	100	—	$I_C = 250 \text{ mA}, V_{CE} = 5V$
Output Capacitance ¹	C_{OB}	—	25	pF	$V_{CB} = 28V, f = 1 \text{ MHz}$
Thermal Resistance	$\theta_{J/C}$	—	1.5	°C/W	$P_O = 30W, f = 1200-1400 \text{ MHz}, PW = 1 \text{ ms}, DF = 10\%, V_{CC} = 28V$
Output Power	P_{OUT}	30	—	W	$P_{IN} = 5W, f = 1200-1400 \text{ MHz}, PW = 1 \text{ ms}, DF = 10\%, V_{CC} = 28V$
Power Gain	G_p	7.8	—	dB	$P_O = 30W, f = 1200-1400 \text{ MHz}, PW = 1 \text{ ms}, DF = 10\%, V_{CC} = 28V$
Collector Efficiency	η_C	50	—	%	$P_O = 30W, f = 1200-1400 \text{ MHz}, PW = 1 \text{ ms}, DF = 10\%, V_{CC} = 28V$
Return Loss in Broadband Fixture	RL	10	—	dB	$P_O = 30W, f = 1200-1400 \text{ MHz}, PW = 1 \text{ ms}, DF = 10\%, V_{CC} = 28V$
Load Mismatch	ψ	3.1	—	—	30W equivalent drive, all phase angles, $f = 1200-1400 \text{ MHz}, PW = 1 \text{ ms}, DF = 10\%, V_{CC} = 28V$

NOTE 1 For reference only. This transistor has internal collector matching and therefore C_{OB} cannot be measured.

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DIM.	MILLIMETERS		INCHES	
	MIN.	MAX.	MIN.	MAX.
A	20.70	20.96	.815	.825
B	6.27	6.53	.247	.257
C	3.28	3.78	.129	.149
D	2.41	2.67	.095	.105
E	1.14	1.40	.045	.055
F	14.35	14.61	.565	.575
G	1.40	1.65	.055	.065
H	9.14	9.40	.360	.370
J	6.17	6.53	.243	.257
K	2.54	2.95	.100	.116
L	2.92	3.18	.115	.125

FIGURE 8. Typical Device Impedances

