HEWLETT PACKARD

ASP-0955
55 Watt, 900 MHz
Silicon Power Transistor

Features

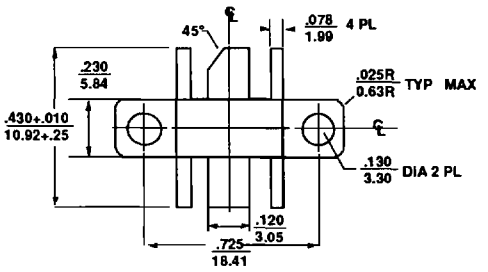
- **Power Out: 55 Watts**
- **Common Base Class C Power Transistor**
- **Frequency: 800-960 MHz**
- **Voltage: 25 V**
- **Efficiency: 50% Min.**
- **Load Mismatch Tolerance: 4.3:1**

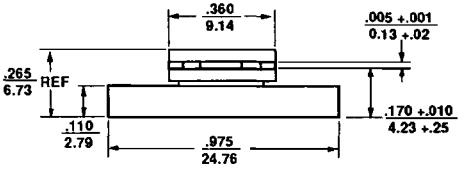
Description

The ASP-0955 is a large signal, Class C common base, NPN silicon bipolar power transistor, housed in a BeO flange package for excellent thermal transfer. This device is designed for use as a 55 W driver or output amplifier for base station applications in cellular telephone systems operating in the 830 to 960 MHz frequency range.

Excellent device uniformity, performance and reliability are produced by the use of ion-implantation, self-alignment techniques, and gold metalization in the fabrication of these devices. Emitter ballasting ensures a rugged device capable of withstanding severe load mismatches.

Power Flange

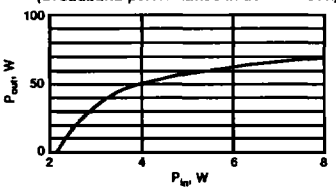




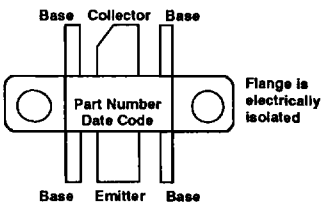
Dimensions are $\frac{in}{mm}$

Tolerances: in .xxx = ±.005 mm .xx = ±.13

Power Output vs. Power Input
V_{CE} = 25 V, f = 900 MHz
(Broadband performance in demo circuit)



Marking and Lead Configuration



Electrical Specifications, T_A = 25°C

Symbol	Parameters and Test Conditions		Units	Min.	Typ.	Max.
P_{out}	Output Power[1]	V_{CE} = 25 V, Pin = 7 W, f = 900 MHz	Watts	55	58	
G_P	Power Gain[1]	V_{CE} = 25 V, Pin = 7 W, f = 900 MHz	dB	8.9	9.2	
η_C	Collector Efficiency[1]	V_{CE} = 25 V, Pin = 7 W, f = 900 MHz	%	50	55	
	Load Mismatch Tolerance	V_{CE} = 25 V, rated P_{out}, f = 900 MHz	-	4.3:1		
BV_{CEO}	Collector-Emitter Voltage	V_{EB} = open, I_C = 50 mA	V	24	28	
BV_{CES}	Collector-Emitter Voltage	V_{EB} = 0 V, I_C = 100 mA	V	50	55	
BV_{EBO}	Emitter-Base Voltage	V_{CB} = open, I_E = 15 mA	V	3.5	4.5	
h_{FE}	Forward Current Transfer Ratio	V_{CE} = 5 V, I_C = 3 A	-	20	60	120
I_{CES}	Collector Leakage Current	V_{CE} = 26 V	mA		1	15
C_{OB}	Collector-Base Capacitance	f = 1 MHz, V_{CB} = 25 V, I_E = 0 mA	pF		62	

Notes: 1. Tuned narrow band test.

Absolute Maximum Ratings

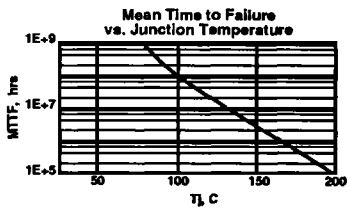
Parameter	Symbol	Absolute Maximum[1]
Emitter-Base Voltage	V_{EBO}	4.0 V
Collector-Emitter Voltage	V_{CES}	50 V
Collector Current	I_C	8.0 A
Power Dissipation[2, 3]	P_T	115 W
Junction Temperature	T_j	200°C
Storage Temperature	T_{STG}	-65 to 150°C

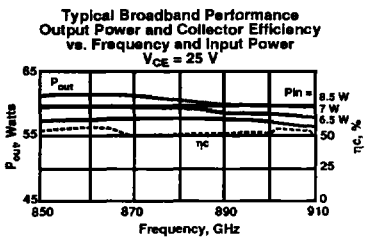
Thermal Resistance[2]: θ_{jc} = 1.2°C/W

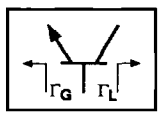
Notes:
1. Operation of this device above any one of these parameters may cause permanent damage.
2. T_{case} = 25°C
3. Derate at .83 W/°C for T_{case} > 62°C

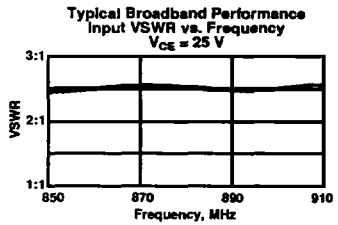
Typical Performance, T_A = 25°C

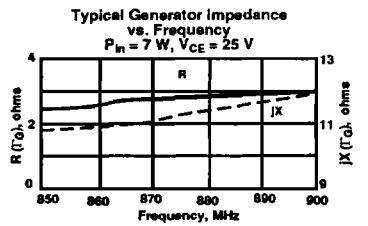
(Unless otherwise noted.)



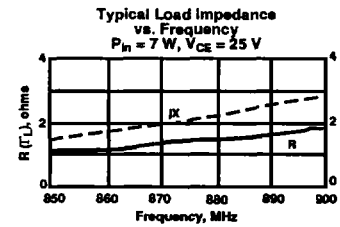




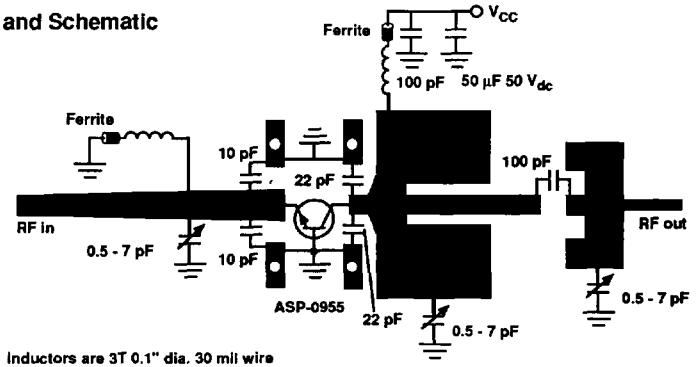




Freq.	Γ_G		Γ_L	
MHz	R	jX	R	jX
850	2.5	10.8	1.3	1.6
860	2.6	11.0	1.4	1.8
870	2.8	11.2	1.5	2.0
880	2.9	11.5	1.6	2.3
890	3.0	11.7	1.8	2.6
900	3.1	12.0	2.0	2.9



Test Circuit Layout and Schematic
850-900 MHz



(not to scale)