

THOMSON-CSF COMPONENTS CORPORATION

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## VHF COMMUNICATIONS TRANSISTOR

## DESCRIPTION

The SD1220-1 is an epitaxial silicon NPN-planar transistor designed primarily for 12.5 volt AM class C rf amplifiers functional in the aviation band 118-136 MHz and for 28V FM class C rf amplifiers utilized in ground station transmitters. This device utilizes emitter ballasting resistors and improved metalization systems to achieve optimum load mismatch capability.

## FEATURES

- Designed for VHF 12.5 V AM and 28 V FM transmitters
- 7.0 Watts (min.) with greater than 8.4 dB gain at 28 volts
- Withstands severe mismatch under operating conditions
- Low inductance stripline package
- All leads electrically isolated from flange

## ABSOLUTE MAX. RATING

$V_{CBO}$	: Collector-Base Voltage	65.0 V
$V_{CEO}$	: Collector-Emitter Voltage	35.0 V
$V_{EBO}$	: Emitter-Base Voltage	4.0 V
$I_C$	: Collector Current (max.)	1.0 A
PT.	: Total Device Dissipation @ +25°C	15.0 W
$\phi_{jc}$	: Thermal Resistance	11.7° C/W
$T_j$	: Junction Temperature (operating)	+200°C
$T_s$	: Storage Temperature	-65°C to +200°C

## ELECTRICAL CHARACTERISTICS

Characteristics	Symbol	Test Conditions	Min.	Typ.	Max.	Unit
Collector-Emitter Breakdown Voltage*	$BV_{CEO}$	$I_C = 200 \text{ mA}, I_b = 0$	35.0	—	—	$V_{dc}$
Collector-Emitter Breakdown Voltage*	$BV_{CES}$	$I_C = 200 \text{ mA}, V_{be} = 0$	65.0	—	—	$V_{dc}$
Emitter-Base Breakdown Voltage	$BV_{EBO}$	$I_e = 5 \text{ mA}, I_C = 0$	4.0	—	—	$V_{dc}$
Collector Cut-Off Current	$I_{CBO}$	$V_{cb} = 30 \text{ V}, I_e = 0$	—	—	1.0	mA
DC Current Gain	$h_{FE}$	$V_{ce} = 5 \text{ V}, I_C = 100 \text{ mA}$	5.0	—	—	—
Collector Cut Off Current	$I_{CES}$	$V_{ce} = 30 \text{ V}$	—	—	10.0	mA

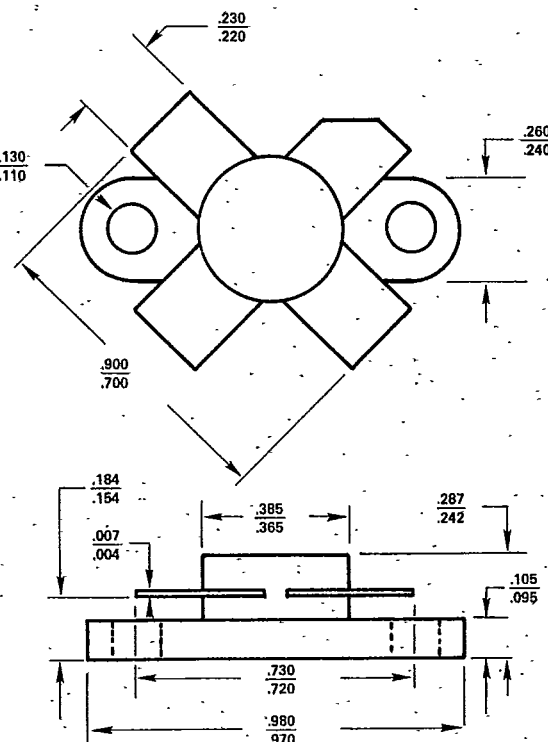
\*Pulsed through 25 MH Inductor

## RF CHARACTERISTICS: LARGE SIGNAL

Amplifier Power Out	$P_o$	$F_o = 175 \text{ MHz}, V_{ce} = 28 \text{ V}$	7.0	—	—	Watts
Amplifier Power Gain	$P_g$	$P_o = 7.0 \text{ W}, I_C = 0.42 \text{ A}$	8.4	—	—	dB
Collector Efficiency	$\eta$	$P_o = 7.0 \text{ W}, V_{ce} = 28 \text{ V}$	60.0	—	—	%
Impedances—Input	$Z_{in}$		—	—	—	ohms
Impedances—Output	$Z_{out}$		—	—	—	ohms

## RF CHARACTERISTICS: LARGE SIGNAL

Amplifier Power-Out	$P_o$	$F_o = 175 \text{ MHz}, V_{ce} = 13.6 \text{ V}$	—	3.0	—	Watts
Amplifier Power Gain	$P_g$	$P_o = 3.0 \text{ W}, I_C = 0.44 \text{ A}$	8.2	—	—	dB
Collector Efficiency	$\eta_c$	$P_o = 3.0 \text{ W}, V_{ce} = 13.6 \text{ V}$	50.0	—	—	%



.380 4LFL

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