



# SOLID STATE MICROWAVE

## SD1451

THOMSON-CSF COMPONENTS CORPORATION

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### 2-30 MHz, 12.5 V SSB POWER TRANSISTOR

#### DESCRIPTION

The SD1451 is a 12.5 volt epitaxial silicon NPN planar transistor designed primarily for SSB communications. This device utilizes emitter ballasting to achieve extreme ruggedness under severe operating conditions.

#### FEATURES

- 15 dB gain at 30 MHz and 50 W (PEP or CW)
- Emitter ballasting
- Withstands severe mismatch
- Low inductance stripline package

#### ABSOLUTE MAX. RATING

$V_{CBO}$	: Collector-Base Voltage	36.0 V
$V_{CEO}$	: Collector-Emitter Voltage	18.0 V
$V_{EBO}$	: Emitter-Base Voltage	4.0 V
$I_c$	: Collector Current (max.)	10.0 A
PT.	: Total Device Dissipation @ 25°C	175.0 W
$\phi_{jc}$	: Thermal Resistance	1° C/W
$T_j$	: Junction Temperature	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*	$BV_{CEO}$	$I_c = 100 \text{ mA}$	18.0	—	—	$V_{dc}$
Collector-Emitter Breakdown Voltage*	$BV_{CES}$	$I_c = 100 \text{ mA}$	36.0	—	—	$V_{dc}$
Emitter-Base Breakdown Voltage	$BV_{EBO}$	$I_e = 10 \text{ mA}$	4.0	—	—	$V_{dc}$
Collector Cut Off Current	$I_{CES}$	$V_{ce} = 15.0 \text{ V}$	—	—	10.0	mA
DC Current Gain	$h_{FE}$	$V_{ce} = 5 \text{ V}, I_c = 5.0 \text{ A}$	20.0	75.0	—	—

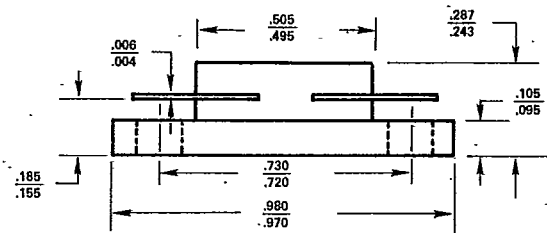
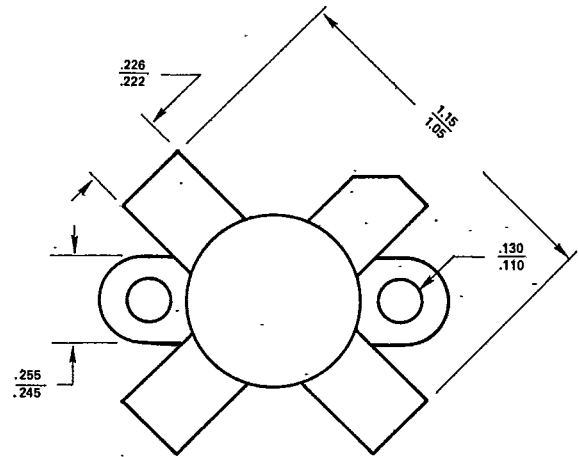
\*Pulsed through 25 MH Inductor

#### RF CHARACTERISTICS: SMALL SIGNAL

Output Capacitance	$C_{ob}$	$V_{cb} = 12.5 \text{ V}$	—	200.0	—	pF
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#### RF CHARACTERISTICS: LARGE SIGNAL

Amplifier power out	$P_o$	12.5 V/30 MHz	50.0	—	—	Watts
Amplifier power gain	$P_g$		15.0	16.0	—	dB
	IMD.	$V_{ce} = 12.5 \text{ V}$	—	-30.0	-26.0	dB
		$I_{cq} = 75 \text{ mA}$	—	—	—	—
		$f_o = 30 \text{ MHz}$	—	—	—	—
		$P_o = 50 \text{ WPEP}$	—	—	—	—



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