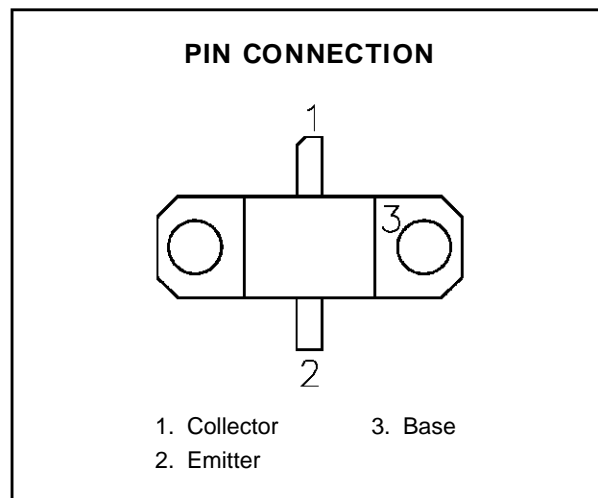
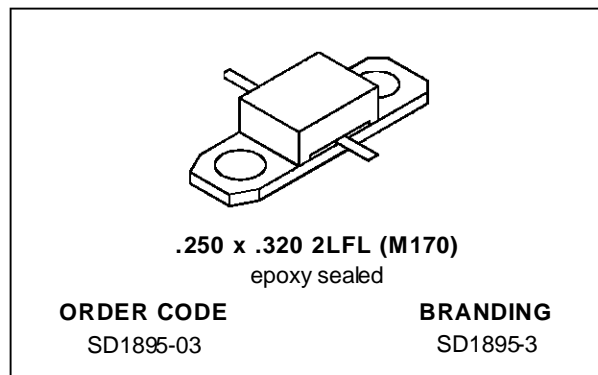


**RF & MICROWAVE TRANSISTORS  
1.6 GHz SATCOM APPLICATIONS**

- 1.65 GHz
- 28 VOLTS
- OVERLAY DIE GEOMETRY
- ALL GOLD METALLIZED SYSTEM
- HIGH RELIABILITY AND RUGGEDNESS
- COMMON BASE
- $P_{OUT} = 15$  W MIN. WITH 9.2 dB GAIN


**DESCRIPTION**

The SD1895-03 is a 28 V silicon NPN planar transistor designed for INMARSAT and other 1.6 GHz SATCOM applications. This device utilizes polysilicon site ballasting with a gold metallized die to achieve high reliability and ruggedness.

**ABSOLUTE MAXIMUM RATINGS** ( $T_{case} = 25^{\circ}C$ )

Symbol	Parameter	Value	Unit
$V_{CBO}$	Collector-Base Voltage	45	V
$V_{CEO}$	Collector-Emitter Voltage	15	V
$V_{EBO}$	Emitter-Base Voltage	3.0	V
$I_C$	Device Current	3.0	A
$P_{DISS}$	Power Dissipation	37.2	W
$T_J$	Junction Temperature	+200	$^{\circ}C$
$T_{STG}$	Storage Temperature	- 65 to +150	$^{\circ}C$

**THERMAL DATA**

$R_{TH(j-c)}$	Junction-Case Thermal Resistance	4.7	$^{\circ}C/W$
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## SD1895-03

### ELECTRICAL SPECIFICATIONS ( $T_{\text{case}} = 25^{\circ}\text{C}$ )

#### STATIC

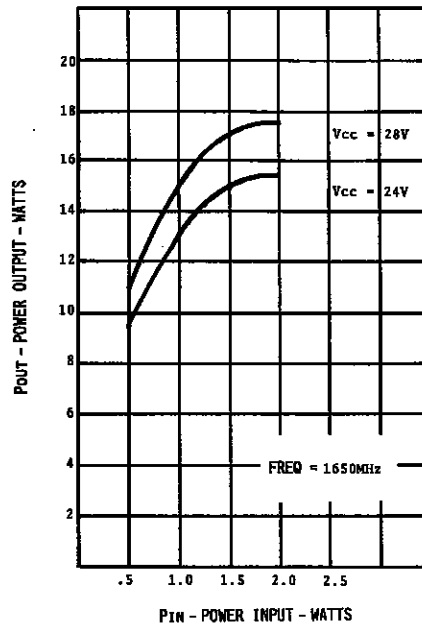
Symbol	Test Conditions		Value			Unit
			Min.	Typ.	Max.	
$BV_{\text{CBO}}$	$I_{\text{C}} = 5 \text{ mA}$	$I_{\text{E}} = 0 \text{ mA}$	45	—	—	V
$BV_{\text{CEO}}$	$I_{\text{C}} = 5 \text{ mA}$	$I_{\text{B}} = 0 \text{ mA}$	12	—	—	V
$BV_{\text{EBO}}$	$I_{\text{E}} = 5 \text{ mA}$	$I_{\text{C}} = 0 \text{ mA}$	3.0	—	—	V
$h_{\text{FE}}$	$V_{\text{CE}} = 5 \text{ V}$	$I_{\text{C}} = 1 \text{ A}$	15	—	150	—

#### DYNAMIC

Symbol	Test Conditions			Value			Unit
				Min.	Typ.	Max.	
$P_{\text{OUT}}$	$f = 1.65 \text{ GHz}$	$P_{\text{IN}} = 2.4 \text{ W}$	$V_{\text{CE}} = 28 \text{ V}$	20	—	—	W
$G_{\text{P}}$	$f = 1.65 \text{ GHz}$	$P_{\text{IN}} = 2.4 \text{ W}$	$V_{\text{CE}} = 28 \text{ V}$	9.2	—	—	dB
$\eta_{\text{c}}$	$f = 1.65 \text{ GHz}$	$P_{\text{IN}} = 2.4 \text{ W}$	$V_{\text{CE}} = 28 \text{ V}$	48	—	—	%

#### TYPICAL PERFORMANCE

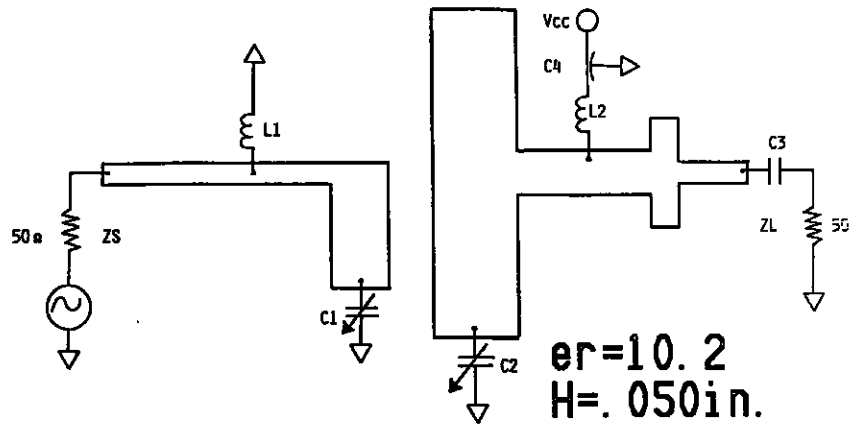
##### POWER OUTPUT vs POWER INPUT



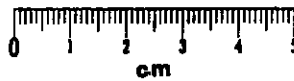
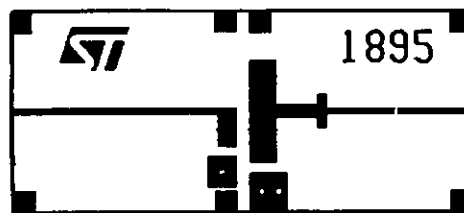
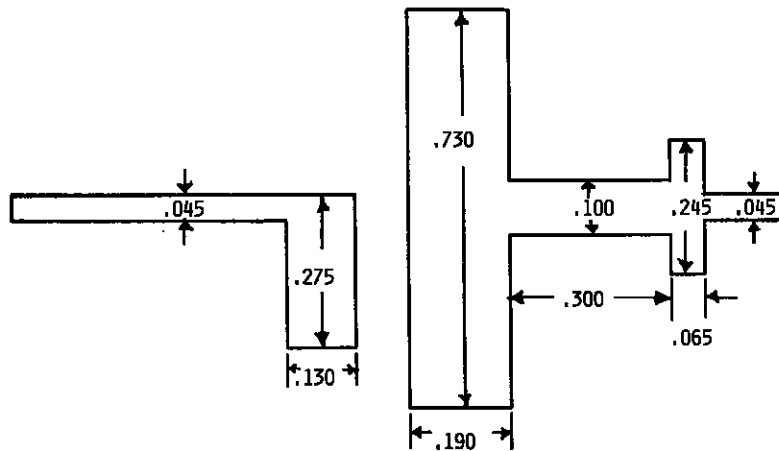
#### IMPEDANCE DATA

FREQ.	$Z_{\text{IN}} (\Omega)$	$Z_{\text{CL}} (\Omega)$
1.65 GHz	$17.0 + j 18.0$	$3.5 - j 2.0$

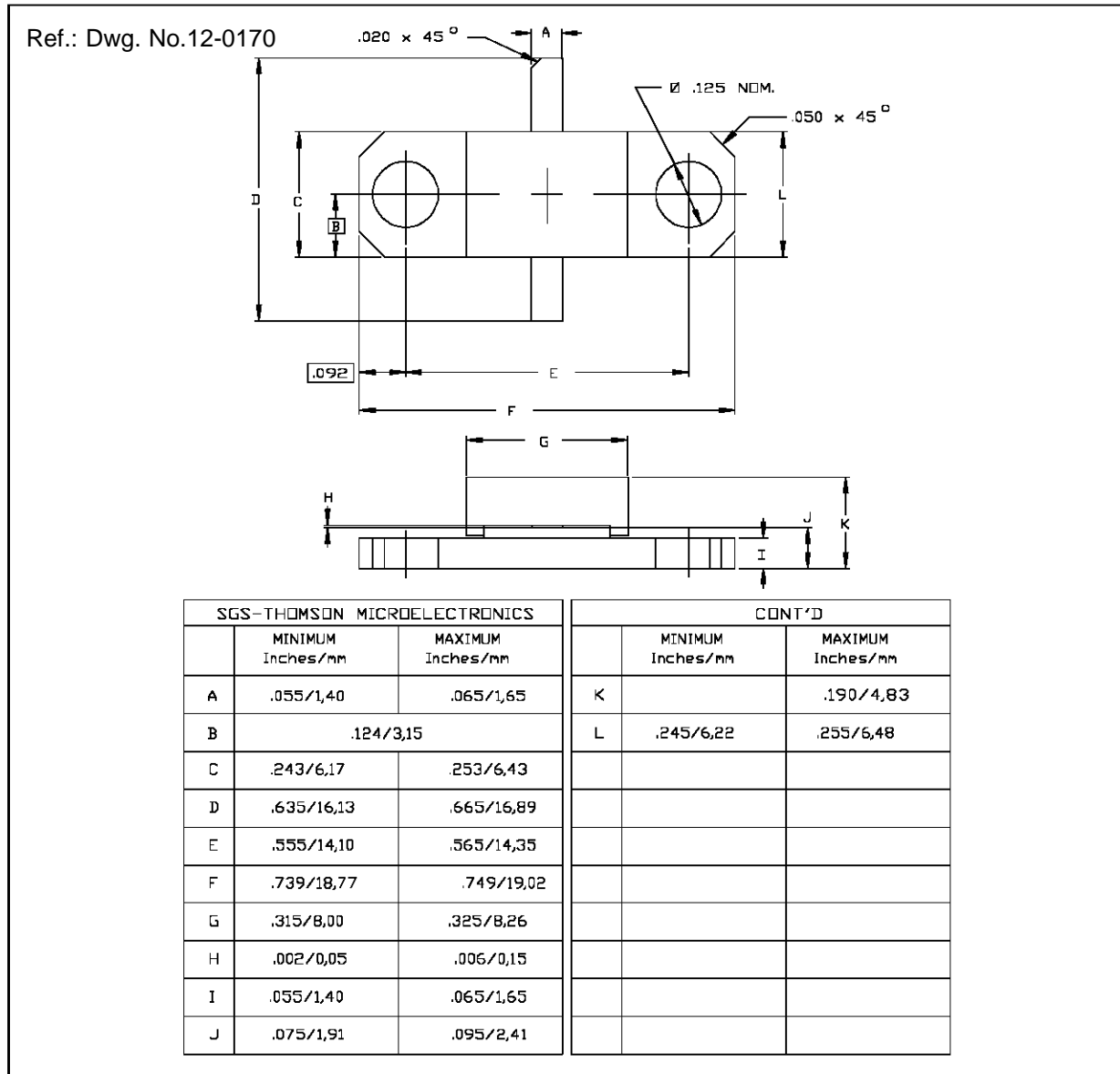
## TEST CIRCUIT



- C1, C2 : 0.4 - 2.5pF #27283 Johanson Trimmer  
 C3 : 100pF ATC 100A101KCA150 Chip Capacitor  
 C4 : 15,000pF EMI Filter Murata/Erie #9900-381-6004  
 L1, L2 : 4 Turns, #28 AWG. .080" I.D.



PACKAGE MECHANICAL DATA



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