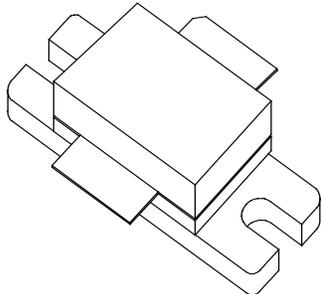




## ITC1100

### 1000 WATT, 50V, Pulsed Avionics 1030 MHz

|                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            |                                                                                                                                                                 |
|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <p><b>GENERAL DESCRIPTION</b></p> <p>The ITC1100 is a common base bipolar transistor. It is designed for pulsed interrogator systems in the frequency band of 1030 MHz. The device has gold thin-film metallization for proven high MTF. The transistor includes input returns for improved output rise time. Low thermal resistance package reduces junction temperature which extends the life time of the product.</p>                                                                                                                                                                                                                                                                                                  | <p><b>CASE OUTLINE</b><br/><b>55SW, Style 1</b><br/><b>Common Base</b></p>  |
| <p><b>ABSOLUTE MAXIMUM RATINGS</b></p> <p><b>Power Dissipation</b></p> <p>Device Dissipation<sup>1</sup> @25°C (P<sub>d</sub>)                      3400 W</p> <p>Thermal Resistance<sup>1</sup> (θ<sub>JC</sub>)                                .08°C/W</p> <p><b>Voltage and Current</b></p> <p>Collector-Base Voltage                                      65V</p> <p>Emitter-Base Voltage                                        3.5V</p> <p>Collector Current<sup>1</sup>                                            80A</p> <p><b>Temperatures</b></p> <p>Storage Temperature                                        -40 to +150°C</p> <p>Operating Junction Temperature<sup>1</sup>                      +200°C</p> |                                                                                                                                                                 |

#### ELECTRICAL CHARACTERISTICS @ 25°C

| SYMBOL                         | CHARACTERISTICS                      | TEST CONDITIONS                         | MIN | TYP | MAX | UNITS |
|--------------------------------|--------------------------------------|-----------------------------------------|-----|-----|-----|-------|
| BV <sub>ebo</sub> <sup>2</sup> | Emitter-Base Breakdown(open)         | I <sub>e</sub> =50mA                    | 3.5 |     |     | V     |
| BV <sub>ces</sub>              | Collector-Emitter Breakdown(shorted) | I <sub>c</sub> =30mA                    | 65  |     |     | V     |
| BV <sub>ceo</sub> <sup>2</sup> | Collector-Emitter Breakdown (open)   | I <sub>c</sub> =30mA                    | 30  |     |     | V     |
| h <sub>FE</sub> <sup>2</sup>   | DC Current Gain                      | I <sub>c</sub> =5A, V <sub>ce</sub> =5V | 20  |     | 100 | β     |

#### FUNCTIONAL CHARACTERISTICS @ 25°C

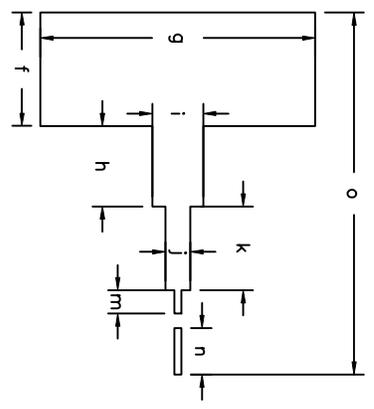
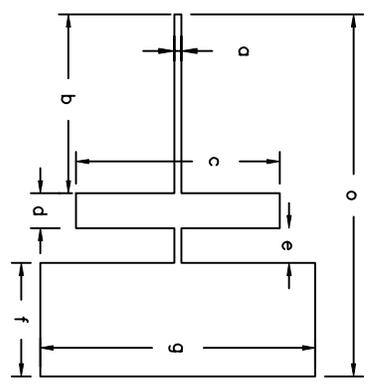
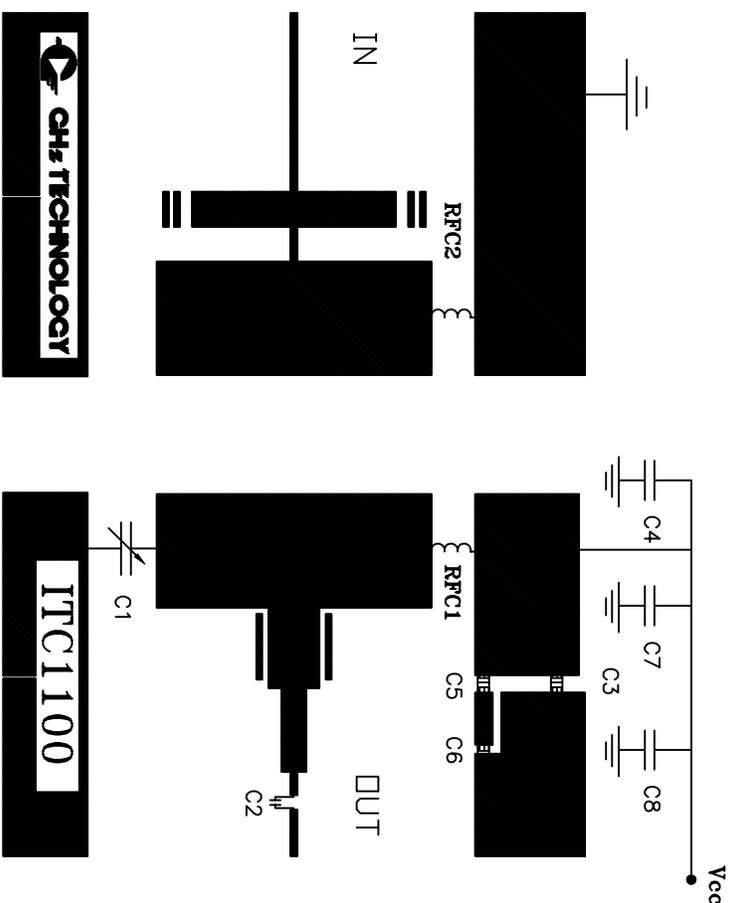
|                  |                                                                |                                                                                        |              |      |     |    |
|------------------|----------------------------------------------------------------|----------------------------------------------------------------------------------------|--------------|------|-----|----|
| G <sub>PB</sub>  | Common Base Power Gain                                         | V <sub>cc</sub> = 50V, F = 1030MHz,<br>P <sub>out</sub> =1000W Peak Min, PW=1μS, DF=1% | 10           | 10.5 |     | dB |
| η <sub>c</sub>   | Collector Efficiency                                           | V <sub>cc</sub> = 50V, F = 1030MHz,<br>P <sub>out</sub> =1000W Peak Min, PW=1μS, DF=1% | 45           | 50   |     | %  |
| t <sub>r</sub>   | Rise Time                                                      | V <sub>cc</sub> = 50V, F = 1030MHz,<br>P <sub>out</sub> =1000W Peak Min, PW=1μS, DF=1% |              | 50   | 80  | nS |
| VSWR             | Output Load Mismatch                                           | V <sub>cc</sub> = 50V, F = 1030MHz,<br>P <sub>out</sub> =1000W Peak Min, PW=1μS, DF=1% |              |      | 4:1 | Ψ  |
| Z <sub>in</sub>  | Series Input Impedance (Circuit source impedance @ test cond.) | V <sub>cc</sub> = 50V, F = 1030MHz,<br>P <sub>out</sub> =1000W Peak Min, PW=1μS, DF=1% | 0.89 – j2.3  |      |     | Ω  |
| Z <sub>out</sub> | Series Output Impedance (Circuit load impedance @ test cond.)  | V <sub>cc</sub> = 50V, F = 1030MHz,<br>P <sub>out</sub> =1000W Peak Min, PW=1μS, DF=1% | 0.54 - j2.64 |      |     | Ω  |

<sup>1</sup> At rated output power and pulse conditions

<sup>2</sup> Not measurable due to EB Returns

NOTES, UNLESS OTHERWISE SPECIFIED:

- ONLY THE ITEM DESCRIBED ON THIS DRAWING WHEN PROCURED FROM THE "APPROVED SUPPLIER LIST", IS APPROVED FOR USE IN THE APPLICATION SPECIFIED HEREON. A SUBSTITUTE ITEM SHALL NOT BE USED WITHOUT PRIOR TESTING AND APPROVAL BY GHZ.



| DIM | INCHES |
|-----|--------|
| a   | .024   |
| b   | .615   |
| c   | .700   |
| d   | .120   |
| e   | .120   |
| f   | .390   |
| g   | .945   |
| h   | .277   |
| i   | .175   |
| j   | .086   |
| k   | .288   |
| m   | .080   |
| n   | .160   |
| o   | 1.245  |

RFC1 = 3T, 0.11" DIA, 16 AWG WIRE  
 RFC2 = .075"HAIR PIN, 0.2" HEIGHT, 16 AWG WIRE

C1 = 0- 3.5 pf JOHANSON TRIMMING CAPACITOR  
 C2, C3 = 68 pf ATC  
 C4 = 1.0 Uf, 50 V  
 C5, C6 = 4.7 uf, 50 V  
 C7,C8 = 1000 uf, 63 V ELECTROLYTIC CAPACITOR  
 Vcc = 50 V

**TOLERANCES**  
 UNLESS OTHERWISE SPECIFIED  
 DIMS ±.01  
 .XXX ±.005  
 ANGLES ±5°

**MATERIAL:**  
 DurodId  
 Er = 10.2  
 H = 25 mils  
 T = 1.0 Oz

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3000 OAKMEAD VILLAGE DRIVE  
 SANTA CLARA, CA 95051-0808

ITC1100

| APPROVALS SIGNATURES | DATE | SIZE  | CAGE CODE | DOC/PART NO. | REV    |
|----------------------|------|-------|-----------|--------------|--------|
| ORIGINATOR           |      | A     | OPJR2     | ITC1100      | 1      |
| CHECKED              |      |       |           |              |        |
| APPROVED             |      |       |           |              |        |
| PRODUCT ENG.         |      |       |           |              |        |
| MANUFACTURING        |      |       |           |              |        |
| QA                   |      |       |           |              |        |
| MARKETING            |      |       |           |              |        |
| SALES                |      |       |           |              |        |
| SCALE:               | N/A  | FILE: | ITC1100   | SHEET:       | 6 OF 6 |

| REVISIONS |             | DATE | APPROVED |
|-----------|-------------|------|----------|
| LTR       | DESCRIPTION |      |          |