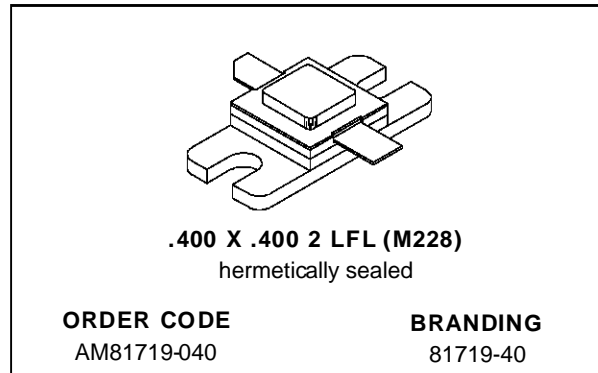


RF & MICROWAVE TRANSISTORS TELEMETRY APPLICATIONS

PRELIMINARY DATA

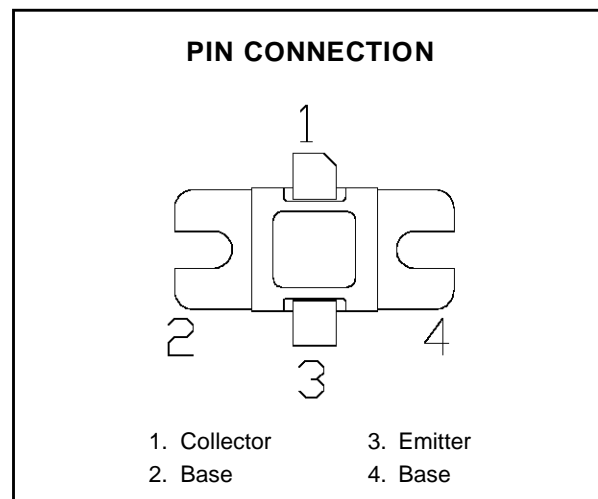
- REFRACTORY/GOLD METALLIZATION
- EMITTER SITE BALLASTED
- INPUT/OUTPUT MATCHING
- OVERLAY GEOMETRY
- METAL/CERAMIC HERMETIC PACKAGE
- $P_{OUT} = 40$ W MIN. WITH 7 dB GAIN



DESCRIPTION

The AM81719-040 is a high power silicon NPN bipolar transistor designed for Class C, CW communications and telemetry applications in the 1.75 - 1.85 GHz frequency range.

An emitter-ballasted refractory-gold overlay die geometry with computerized automatic wire-bonding is employed to ensure long-term reliability and product consistency.



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

| Symbol | Parameter | Value | Unit |
|------------|---------------------------|--------------|-------------|
| P_{DISS} | Power Dissipation* | 79.5 | W |
| I_C | Device Current* | 4.8 | A |
| V_{CC} | Collector-Supply Voltage* | 30 | V |
| T_J | Junction Temperature | 200 | $^{\circ}C$ |
| T_{STG} | Storage Temperature | - 65 to +200 | $^{\circ}C$ |

THERMAL DATA

| | | | |
|---------------|-----------------------------------|-----|---------------|
| $R_{TH(j-c)}$ | Junction-Case Thermal Resistance* | 2.2 | $^{\circ}C/W$ |
|---------------|-----------------------------------|-----|---------------|

*Applies only to rated RF amplifier operation

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

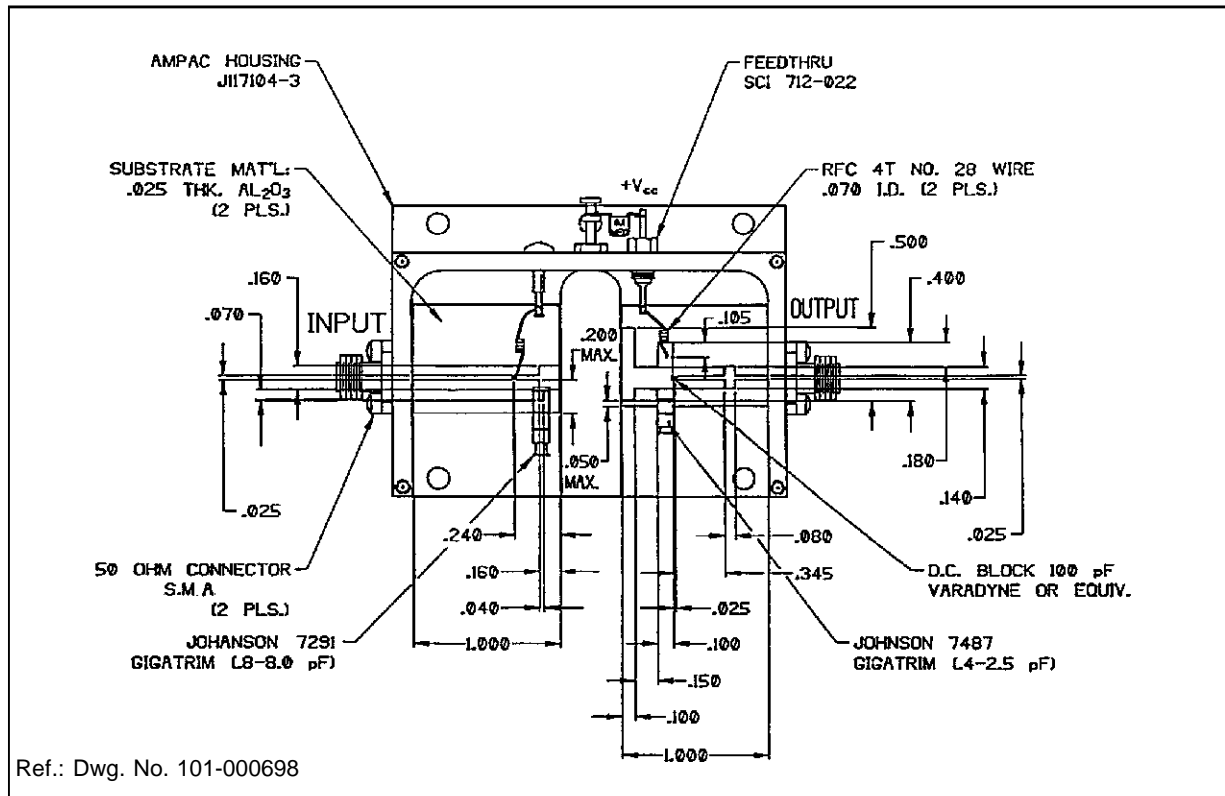
STATIC

| Symbol | Test Conditions | | Value | | | Unit |
|------------|------------------------|----------------------|-------|------|------|------|
| | | | Min. | Typ. | Max. | |
| BV_{CBO} | $I_C = 50\text{ mA}$ | $I_E = 0\text{ mA}$ | 42 | — | — | V |
| BV_{EBO} | $I_E = 4\text{ mA}$ | $I_C = 0\text{ mA}$ | 3.5 | — | — | V |
| BV_{CES} | $I_C = 80\text{ mA}$ | | 45 | — | — | V |
| I_{CBO} | $V_{CB} = 28\text{ V}$ | | — | — | 8 | mA |
| h_{FE} | $V_{CE} = 30\text{ V}$ | $I_C = 2.5\text{ A}$ | 30 | — | 300 | — |

DYNAMIC

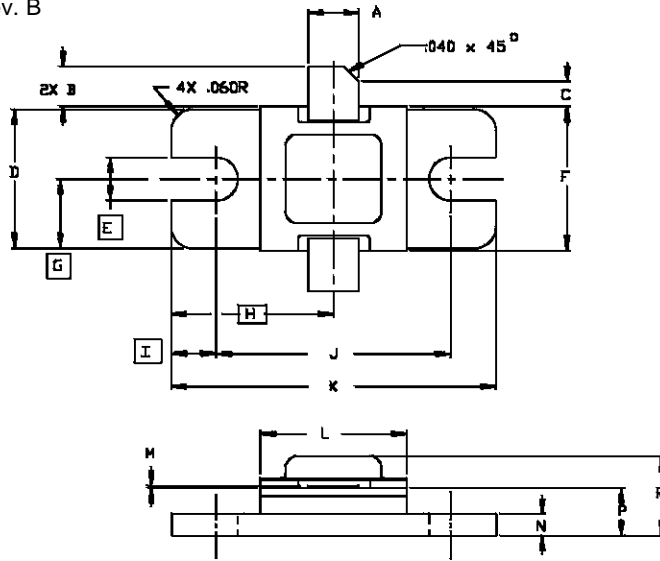
| Symbol | Test Conditions | | | Value | | | Unit |
|-----------|------------------------------|-------------------------|------------------------|-------|------|------|------|
| | | | | Min. | Typ. | Max. | |
| P_{OUT} | $f = 1750 - 1850\text{ MHz}$ | $P_{IN} = 8.0\text{ W}$ | $V_{CC} = 28\text{ V}$ | 40 | — | — | W |
| η_C | $f = 1750 - 1850\text{ MHz}$ | $P_{IN} = 8.0\text{ W}$ | $V_{CC} = 28\text{ V}$ | 43 | — | — | % |
| G_P | $f = 1750 - 1850\text{ MHz}$ | $P_{IN} = 8.0\text{ W}$ | $V_{CC} = 28\text{ V}$ | 6.7 | — | — | dB |

TEST CIRCUIT



PACKAGE MECHANICAL DATA

Ref: Dwg. No. 12-0228 rev. B



| SGS-THOMSON MICROELECTRONICS | | | CONT'D | | |
|------------------------------|----------------------|----------------------|--------|----------------------|----------------------|
| | MINIMUM Inches/mm | MAXIMUM Inches/mm | | MINIMUM Inches/mm | MAXIMUM Inches/mm |
| A | .135/3,43 | .145/3,68 | K | .890/22,61 | .910/23,11 |
| B | .100/2,54 | .120/3,05 | L | .395/10,03 | .415/10,54 |
| C | .050/1,27 | | M | .003/0,08 | .006/0,15 |
| D | .376/9,55 | .396/10,06 | N | .052/1,32 | .072/1,83 |
| E | .125/3,18 | .135/3,43 | P | .114/2,90 | .130/3,30 |
| F | .395/10,03 | .407/10,34 | R | | .230/5,84 |
| G | .193/4,90 | | | | |
| H | .450/11,43 | | | | |
| I | .125/3,18 | | | | |
| J | .640/16,26 | .660/16,76 | | | |

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