## CW Power Transistor

3.5W, 2.3 GHz

## M/A-COM Products

Released - Rev. 07.07

## Features

- NPN Silicon microwave power transistor
- Common base configuration
- Class C operation
- Interdigitated geometry
- Diffused emitter ballasting resistors
- Gold metalization system
- Hermetic metal/ceramic package


## ABSOLUTE MAXIMUM RATING AT $25^{\circ} \mathrm{C}$

| Parameter | Symbol | Rating | Units |
| :--- | :---: | :---: | :---: |
| Collector-Emitter Voltage | $\mathrm{V}_{\text {CES }}$ | 60 | V |
| Emitter-Base Voltage | $\mathrm{V}_{\text {EBO }}$ | 3.0 | V |
| Collector Current | $\mathrm{I}_{\mathrm{C}}$ | 0.4 | A |
| Power Dissipation | $\mathrm{P}_{\mathrm{D}}$ | 11 | W |
| Junction Temperature | $\mathrm{T}_{\mathrm{J}}$ | 200 | ${ }^{\circ} \mathrm{C}$ |
| Storage Temperature | $\mathrm{T}_{\text {STG }}$ | -65 to +200 | ${ }^{\circ} \mathrm{C}$ |
| Thermal Resistance | $\theta_{\mathrm{JC}}$ | 15 | ${ }^{\circ} \mathrm{C} / \mathrm{W}$ |

## Outline Drawing



ELECTRICAL SPECIFICATIONS AT $25^{\circ} \mathrm{C}$

| Parameter | Symbol | Min | Max | Units | Test Conditions |
| :--- | :---: | :---: | :---: | :---: | :--- |
| Collector-Emitter Breakdown Voltage | $\mathrm{BV}_{\mathrm{CES}}$ | 60 | - | V | $\mathrm{I}_{\mathrm{C}}=10 \mathrm{~mA}$ |
| Collector-Emitter Leakage Current | $\mathrm{I}_{\mathrm{CES}}$ | - | 1.0 | mA | $\mathrm{~V}_{\mathrm{CE}}=28 \mathrm{~V}$ |
| Input Power | $\mathrm{P}_{\mathrm{IN}}$ | - | 0.48 | W | $\mathrm{~V}_{\mathrm{CE}}=28 \mathrm{~V}, \mathrm{P}_{\text {out }}=3.0 \mathrm{~W}, \mathrm{~F}=2.3 \mathrm{GHz}$ |
| Power Gain | $\mathrm{G}_{\mathrm{P}}$ | 8 | - | dB | $\mathrm{V}_{\mathrm{CE}}=28 \mathrm{~V}, \mathrm{P}_{\text {out }}=3.0 \mathrm{~W}, \mathrm{~F}=2.3 \mathrm{GHz}$ |
| Collector Efficiency | DC | 30 | - | $\%$ | $\mathrm{~V}_{\mathrm{CE}}=28 \mathrm{~V}, \mathrm{P}_{\text {out }}=3.0 \mathrm{~W}, \mathrm{~F}=2.3 \mathrm{GHz}$ |
| Input Return Loss | RL | 6 | - | dB | $\mathrm{V}_{\mathrm{CE}}=28 \mathrm{~V}, \mathrm{P}_{\text {out }}=3.0 \mathrm{~W}, \mathrm{~F}=2.3 \mathrm{GHz}$ |
| Load Mismatch Tolerance | $\mathrm{VSWR}-\mathrm{T}$ | - | $3: 1$ | - | $\mathrm{V}_{\mathrm{CE}}=28 \mathrm{~V}, \mathrm{P}_{\text {out }}=3.0 \mathrm{~W}, \mathrm{~F}=2.3 \mathrm{GHz}$ |

## TEST FIXTURE IMPEDANCES

| $\mathbf{F}(\mathbf{G H z})$ | $\mathbf{Z}_{\text {IN }}(\boldsymbol{\Omega})$ | $\mathbf{Z}_{\text {LOAD }}(\boldsymbol{\Omega})$ |
| :---: | :---: | :---: |
| 2.30 | $6.5-\mathrm{j} 23.0$ | $6.3+\mathrm{j} 5.4$ |



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TEST FIXTURE DIMENSIONS


TEST FIXTURE ASSEMBLY


ADVANCED: Data Sheets contain information regarding a product M/A-COM Technology Solutions is considering for development. Performance is based on target specifications, simulated results, and/or prototype measurements. Commitment to develop is not guaranteed.
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Solutions has under development. Performance is based on engineering tests. Specifications are typical. Mechanical outline has been fixed. Engineering samples and/or test data may be available. Commitment to produce in volume is not guaranteed.

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