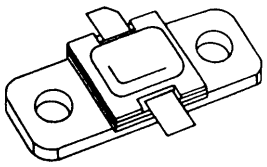
SGS-THOMSON MICROELECTRONICS

# AM83135-030

## RF & MICROWAVE TRANSISTORS S-BAND RADAR APPLICATIONS

PRELIMINARY DATA

- REFRACTORY/GOLD METALLIZATION
- EMITTER SITE BALLASTED
- LOW THERMAL RESISTANCE
- INPUT/OUTPUT MATCHING
- OVERLAY GEOMETRY
- METAL/CERAMIC HERMETIC PACKAGE
- $P_{OUT}$ = 30 W MIN. WITH 5.5 dB GAIN



**.310 x .310 2LFL (S064)**
hermetically sealed

| ORDER CODE | BRANDING |
|---|---|
| AM83135-030 | AM83135-30 |

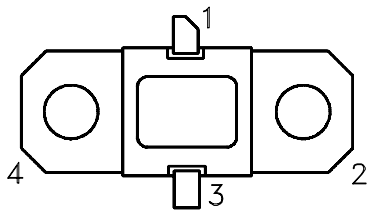
### DESCRIPTION

The AM83135-030 device is a high power silicon bipolar NPN transistor specifically designed for S-Band radar pulsed output and driver applications.

This device is characterized at 100µsec pulse width and 10% duty cycle, but is capable of operation over a range of pulse widths, duty cycles, and temperatures, and withstand a 3:1 output VSWR with a + 1 dB input overdrive. Low RF thermal resistance, refractory/gold metallization, and computerized automatic wire bonding techniques ensure high reliability and product consistency (including phase characteristics).

The AM83135-030 is supplied in the IMPAC™ Hermetic Metal/Ceramic package with internal Input/Output impedance matching circuitry, and is intended for military and other high reliability applications.

### PIN CONNECTION




1. Collector
2. Base
3. Emitter
4. Base

### ABSOLUTE MAXIMUM RATINGS ($T_{case}$ = 25°C)

| Symbol | Parameter | Value | Unit |
|---|---|---|---|
| $P_{DISS}$ | Power Dissipation* ($T_C \leq 50^{\circ}C$) | 133 | W |
| $I_C$ | Device Current* | 6.0 | A |
| $V_{CC}$ | Collector-Supply Voltage* | 46 | V |
| $T_J$ | Junction Temperature (Pulsed RF Operation) | 250 | °C |
| $T_{STG}$ | Storage Temperature | – 65 to +200 | °C |

### THERMAL DATA

| | | | |
|---|---|---|---|
| $R_{TH(j-c)}$ | Junction-Case Thermal Resistance* | 1.5 | °C/W |

*Applies only to rated RF amplifier operation

## ELECTRICAL SPECIFICATIONS ($T_{case}$ = 25°C)

STATIC

| Symbol | Test Conditions | | Value | | | Unit |
|---|---|---|---|---|---|---|
| | | | Min. | Typ. | Max. | |
| $BV_{CBO}$ | $I_C$ = 20mA | $I_E$ = 0mA | 55 | — | — | V |
| $BV_{EBO}$ | $I_E$ = 4mA | $I_C$ = 0mA | 3.5 | — | — | V |
| $BV_{CER}$ | IC = 20mA | $R_{BE}$ = 10Ω | 55 | — | — | V |
| $I_{CES}$ | $V_{BE}$ = 0V | $V_{CE}$ = 40V | — | — | 15 | mA |
| $h_{FE}$ | $V_{CE}$ = 5V | $I_C$ = 2A | 30 | — | 300 | — |

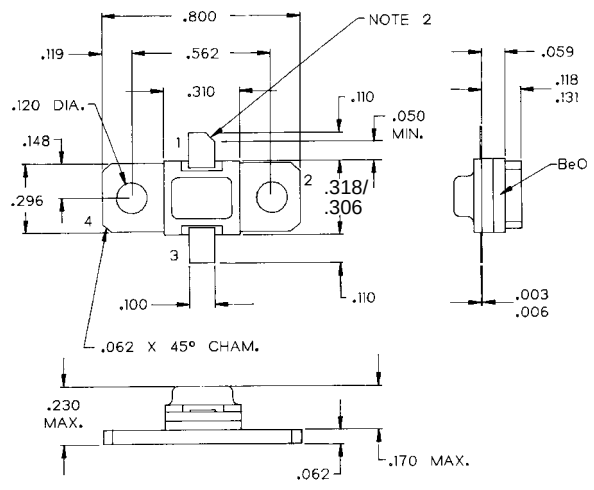
DYNAMIC

| Symbol | Test Conditions | | | Value | | | Unit |
|---|---|---|---|---|---|---|---|
| | | | | Min. | Typ. | Max. | |
| $P_{OUT}$ | f = 3.1 — 3.5GHz | $P_{IN}$ = 8.5W | $V_{CC}$ = 40V | 30 | — | — | W |
| ηc | f = 3.1 — 3.5GHz | $P_{IN}$ = 8.5W | $V_{CC}$ = 40V | 30 | — | — | % |
| $G_P$ | f = 3.1 — 3.5GHz | $P_{IN}$ = 8.5W | $V_{CC}$ = 40V | 5.5 | — | — | dB |

Note: Pulse Width = 100µSec
Duty Cycle = 10%

## PACKAGE MECHANICAL DATA

Ref.: Dwg. No.: JI33100D




NOTES:
1. ALL TOLERANCE ± .010 EXCEPT WHERE NOTED; DIMENSIONS IN INCHES.
2. COLLECTOR LEAD CHAMFER 45° NOM. X .040 NOM.