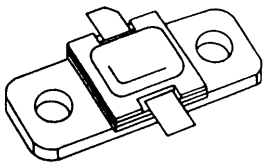
SGS-THOMSON MICROELECTRONICS

AM83135-040

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} = 40 W MIN. WITH 5.1 dB GAIN



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

ORDER CODE	BRANDING
AM83135-040	AM83135-40

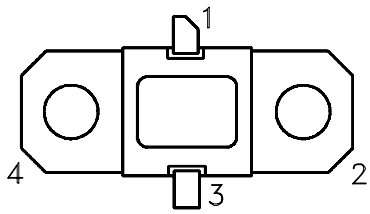
DESCRIPTION

The AM83135-040 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 10µsec pulse width and 10% duty cycle, but is capable of operation over a range of pulse widths, duty cycles, and temperatures, and can 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 AM83135-040 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* ($T_C \leq 50^{\circ}C$)	167	W
I_C	Device Current*	8.0	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*	1.2	°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 = 25mA	I_E = 0mA	55	—	—	V
BV_{EBO}	I_E = 5mA	I_C = 0mA	3.5	—	—	V
BV_{CER}	IC = 25mA	R_{BE} = 10Ω	55	—	—	V
I_{CES}	V_{BE} = 0V	V_{CE} = 40V	—	—	20	mA
h_{FE}	V_{CE} = 5V	I_C = 3A	30	—	300	—

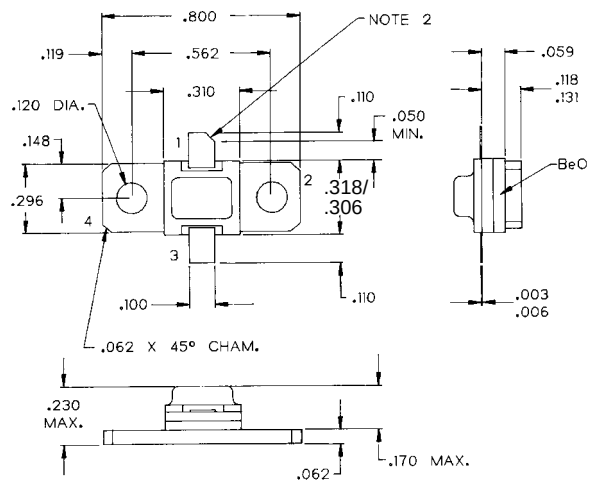
DYNAMIC

Symbol	Test Conditions			Value			Unit
				Min.	Typ.	Max.	
P_{OUT}	f = 3.1 — 3.5GHz	P_{IN} = 12.5W	V_{CC} = 40V	40	—	—	W
ηc	f = 3.1 — 3.5GHz	P_{IN} = 12.5W	V_{CC} = 40V	30	—	—	%
G_P	f = 3.1 — 3.5GHz	P_{IN} = 12.5W	V_{CC} = 40V	5.1	—	—	dB

Note: Pulse Width = 100µS
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.