

**RF & MICROWAVE TRANSISTORS
 S-BAND RADAR APPLICATIONS**

PRELIMINARY DATA

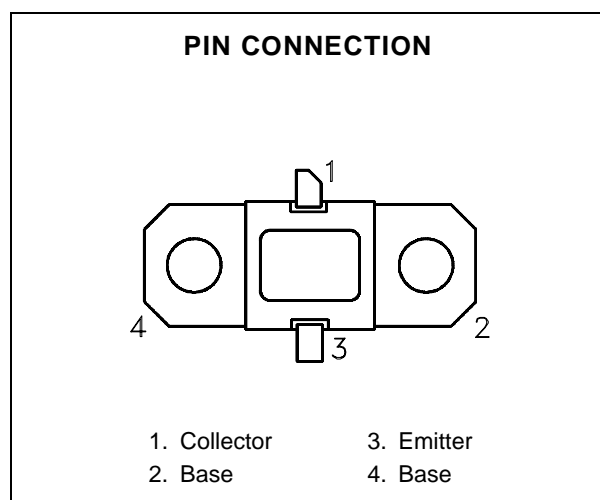
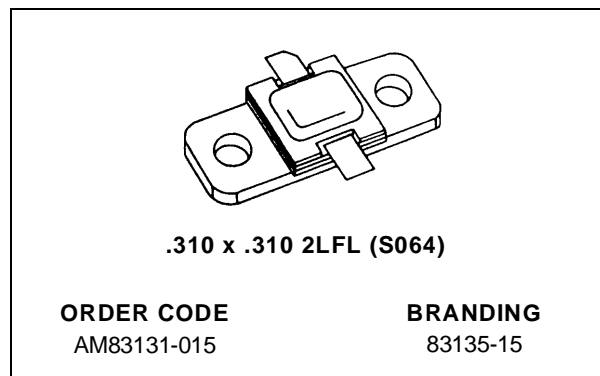
- REFRACTORY/GOLD METALLIZATION
- EMITTER SITE BALLASTED
- LOW THERMAL RESISTANCE
- INPUT/OUTPUT MATCHING
- OVERLAY GEOMETRY
- METAL/CERAMIC HERMETIC PACKAGE
- P_{OUT} = 15 W MIN. WITH 5.2 dB GAIN

DESCRIPTION

The AM83135-015 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 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 AM83135-015 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.


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

Symbol	Parameter	Value	Unit
P _{DISS}	Power Dissipation* (T _C ≤ 50°C)	71	W
I _C	Device Current*	3.0	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*	2.8	°C/W
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*Applies only to rated RF amplifier operation

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

STATIC

Symbol	Test Conditions			Value			Unit
				Min.	Typ.	Max.	
BV_{CBO}	$I_{\text{C}} = 10 \text{ mA}$	$I_{\text{E}} = 0 \text{ mA}$	55	—	—	V	
BV_{EBO}	$I_{\text{E}} = 2 \text{ mA}$	$I_{\text{C}} = 0 \text{ mA}$	3.5	—	—	V	
BV_{CER}	$I_{\text{C}} = 10 \text{ mA}$	$R_{\text{BE}} = 10 \Omega$	55	—	—	V	
I_{CES}	$V_{\text{BE}} = 0 \text{ V}$	$V_{\text{CE}} = 40 \text{ V}$	—	—	8	mA	
h_{FE}	$V_{\text{CE}} = 5 \text{ V}$	$I_{\text{C}} = 1 \text{ A}$	30	—	300	—	

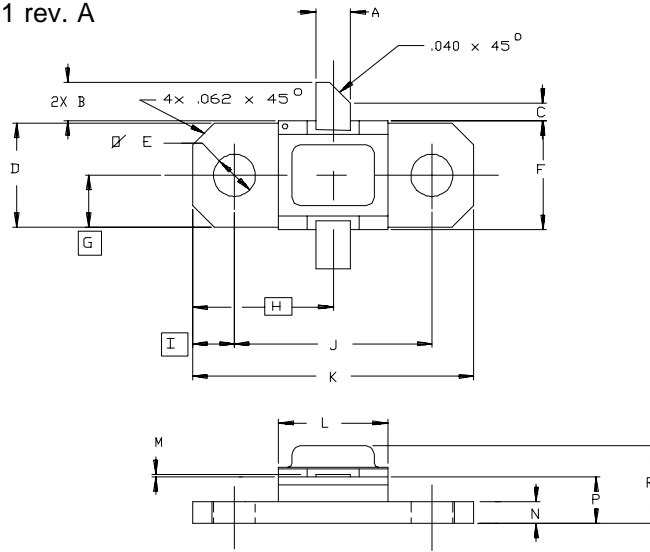
DYNAMIC

Symbol	Test Conditions			Value			Unit
				Min.	Typ.	Max.	
P_{OUT}	$f = 3.1 - 3.5 \text{ GHz}$	$P_{\text{IN}} = 4.5 \text{ W}$	$V_{\text{CC}} = 40 \text{ V}$	15	—	—	W
η_{C}	$f = 3.1 - 3.5 \text{ GHz}$	$P_{\text{OUT}} = 15 \text{ W}$	$V_{\text{CC}} = 40 \text{ V}$	30	—	—	%
P_{G}	$f = 3.1 - 3.5 \text{ GHz}$	$P_{\text{OUT}} = 15 \text{ W}$	$V_{\text{CC}} = 40 \text{ V}$	5.2	—	—	dB

Note: Pulse Width = $100\mu\text{s}$
Duty Cycle = 10%

PACKAGE MECHANICAL DATA

Ref.: Dwg. No. 12-0221 rev. A



SGS-THOMSON MICROELECTRONICS			CONT'D	
	MINIMUM Inches/mm	MAXIMUM Inches/mm	MINIMUM Inches/mm	MAXIMUM Inches/mm
A	.095/2,41	.105/2,67	K	.790/20,07
B	.100/2,54	.120/3,05	L	.300/7,62
C	.050/1,27		M	.003/0,08
D	.286/7,26	.306/7,77	N	.052/1,32
E	.110/2,79	.130/3,30	P	.118/3,00
F	.306/7,77	.318/8,08	R	.230/5,84
G	.148/3,76			
H	.400/10,16			
I	.119/3,02			
J	.552/14,02	.572/14,53		

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