



3134-100M

100 Watts, 36 Volts, 100 μ s, 10%
Radar 3100-3400 MHz

GENERAL DESCRIPTION

The 3134-100M is an internally matched, COMMON BASE bipolar transistor capable of providing 100 Watts of pulsed RF output power at 100 μ s pulse width, 10% duty factor across the 3100 to 3400 MHz band. This hermetically solder-sealed transistor is specifically designed for S-band radar applications. It utilizes gold metallization and emitter ballasting to provide high reliability and supreme ruggedness.

CASE OUTLINE

55KS-1
Common Base

ABSOLUTE MAXIMUM RATINGS

Maximum Voltage and Current

Collector to Base Voltage (BV_{ces}) 65 V

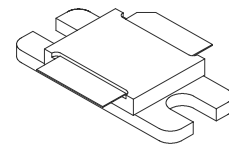
Emitter to Base Voltage (BV_{ebo}) 3.0 V

Collector Current (I_c) 17 A

Maximum Temperatures

Storage Temperature -65 to +200 °C

Operating Junction Temperature +200 °C



ELECTRICAL CHARACTERISTICS @ 25°C

SYMBOL	CHARACTERISTICS	TEST CONDITIONS	MIN	TYP	MAX	UNITS
P_{out}	Power Output	F=3100-3400 MHz	100		135	W
Gain	Power Gain	$V_{cc} = 36V$	8.0		9.3	
η_c	Collector Efficiency	Pulse Width = 100 us	40			%
Droop	Droop	Duty Cycle = 10%			0.5	dB
IRL	Input Return Loss	$P_{in} = 16W$			-7	dB
VSWR-S	Stability		1.5:1			
VSWR-T	Survivability		2.0:1			

FUNCTIONAL CHARACTERISTICS @ 25°C

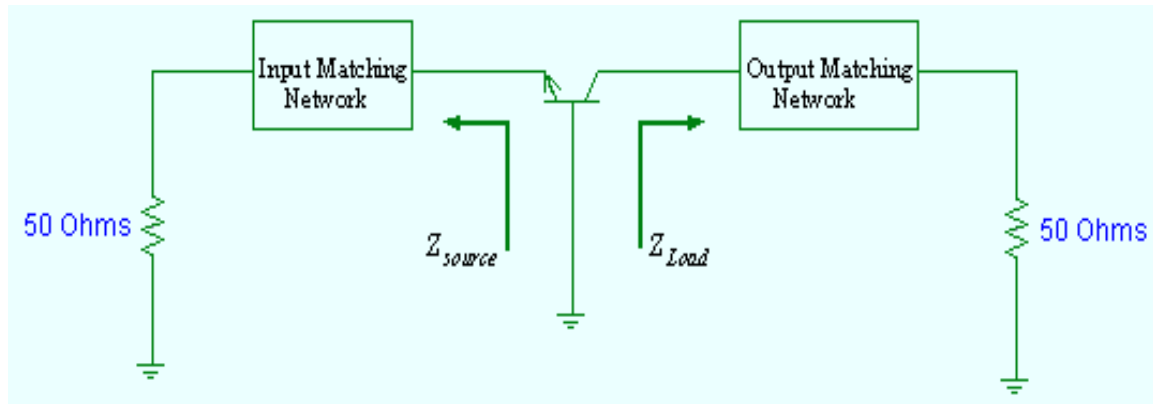
SYMBOL	CHARACTERISTICS	TEST CONDITIONS	MIN	TYP	MAX	UNITS
BV_{ebo}	Emitter to Base Breakdown	$I_e = 30\text{ mA}$	3.0			V
BV_{ces}	Collector to Emitter Breakdown	$I_c = 60\text{ mA}$	65			V
I_{ces}	Collector to Emitter Leakage	$V_{ce} = 36\text{ V}$			5	mA
θ_{jc}	Thermal Resistance				0.35	°C/W
Tstg	Storage Temperature		-65		200	°C

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Input and Output Impedance

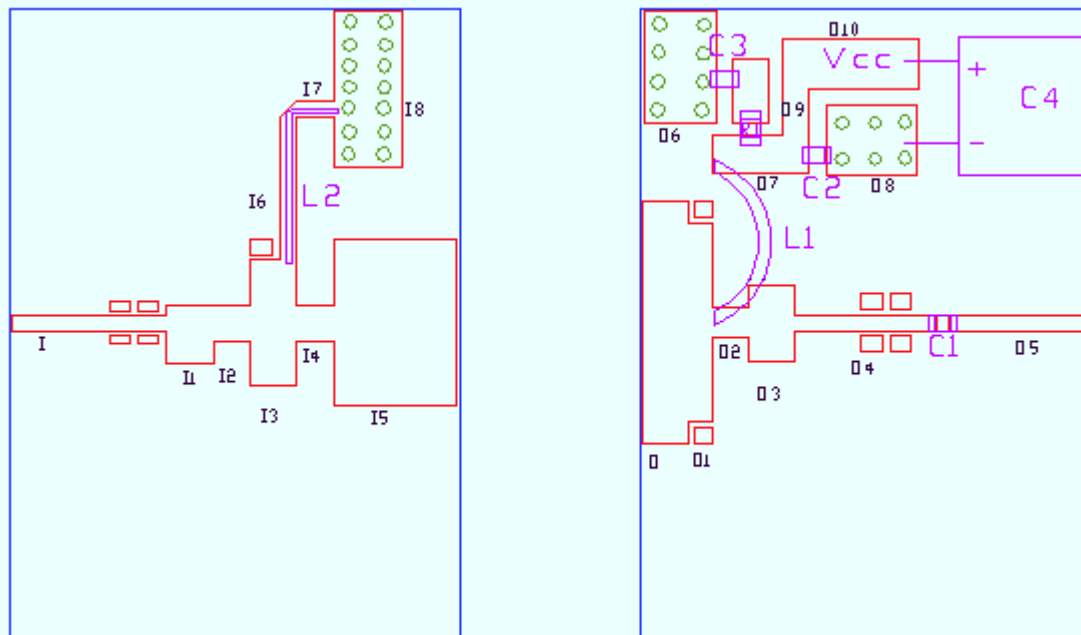


Impedance Data		
Freq (GHz)	Zsource	Zload
3.1	12.15 – j3.61	4.16 - j5.98
3.2	11.78 - j5.17	4.17 - j5.69
3.3	10.84 - j6.46	4.21 - j5.42
3.4	9.58 - j7.29	4.26 - j5.16



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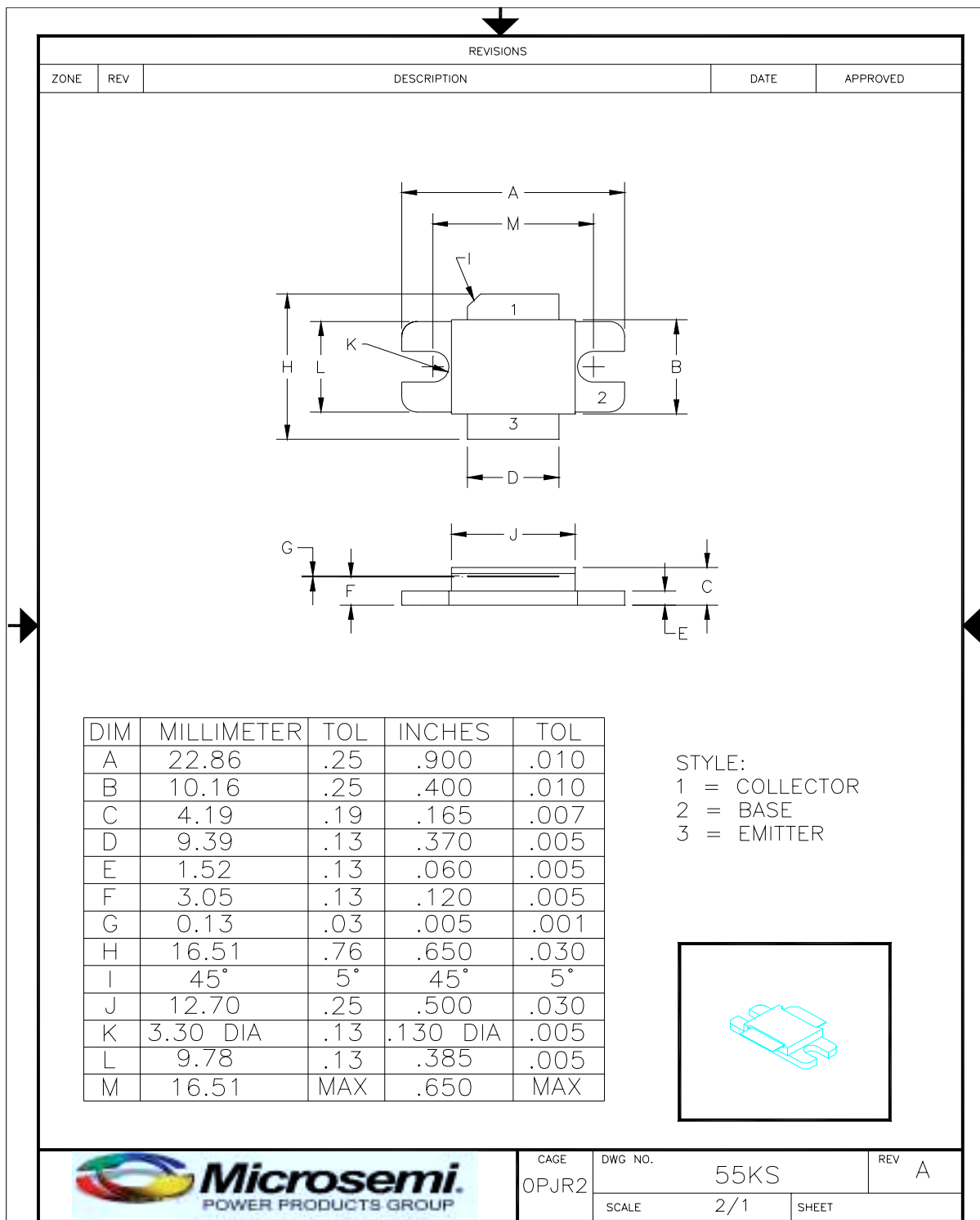
Broadband Test Circuit



Input Matching Network			Output Matching Network			Circuit Components & Value	
Item	W(mil)	L(mil)	Item	W(mil)	L(mil)	Item	Value
I	35	342	0	542	103	C1	9.1pF (A size)
I1	128	106	01	442	50	C2	100pF (A size)
I2	80	82	02	65	83	C3	10,000pF (B size)
I3	280	100	03	170	102	C4	1,000uF (Electrolytic)
I4	80	85	04	35	318	R1	8.2 Ohms (size 8050)
I5	370	275	05	35	310	L1	20 AWG, L=550mils
I6	35	320	06	252	164	L2	20 AWG, L=550mils
I7	35	85	07	86	216	Board	Duroid 6006 @25 Mils Thickness, Er=6.15
I8	348	154	08	152	200		
			09	215	56		
			010	112	240		



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