

Wireless Bipolar Power Transistor 40W, 850-1450MHz, 28V

M/A-COM Products
Released - Rev. 02.11

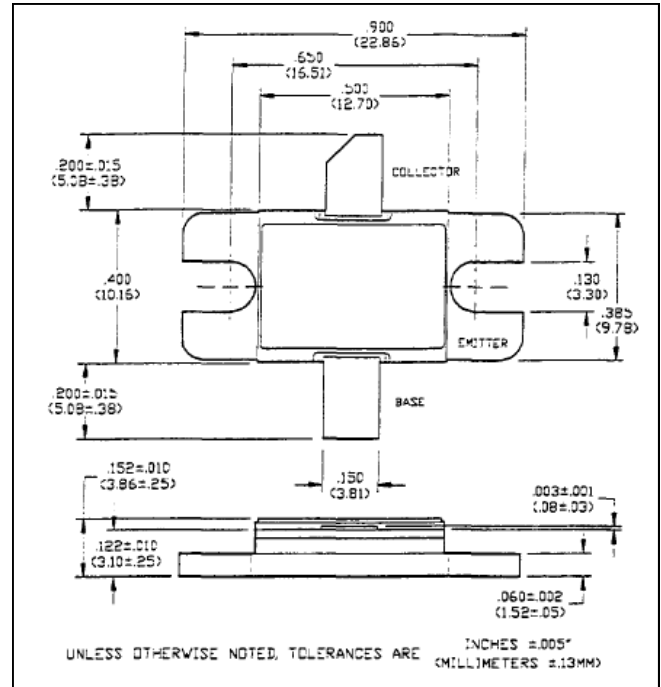
Features

- NPN silicon microwave power transistor
- Common emitter configuration
- Broadband Class AB operation
- Interdigitated geometry
- Diffused emitter ballasting resistors
- Gold metalization system
- Internal input and output impedance matching
- Hermetic metal / ceramic package

ABSOLUTE MAXIMUM RATING AT 25°C

Parameter	Symbol	Rating	Units
Collector-Base Voltage	V_{CBO}	56	V
Collector-Emitter Voltage	V_{CES}	56	V
Emitter-Base Voltage	V_{EBO}	3.0	V
Collector Current	I_C	5.6	A
Total Power Dissipation	P_{TOT}	175	W
Junction Temperature	T_J	200	°C
Storage Temperature	T_{STG}	-55 to + 200	°C
Thermal Resistance	θ_{JC}	1.0	°C/W

Outline Drawing¹



Notes: (unless otherwise specified)

1. Tolerances are: inches \pm .005" (millimeters \pm 0.13mm)

ELECTRICAL SPECIFICATIONS AT 25°C

Parameter	Symbol	Min	Max	Units	Test Conditions
Collector-Emitter Breakdown Voltage	BV_{CES}	56	-	V	$I_C = 50\text{mA}$
Collector-Emitter Leakage Current	I_{CES}	-	5.0	mA	$V_{CE} = 28\text{V}$
Collector-Base Breakdown Voltage	BV_{CBO}	56	-	V	$I_C = 50\text{mA}$
Emitter-Base Breakdown Voltage	BV_{EBO}	3.0	-	V	$I_B = 10\text{mA}$
DC Forward Current Gain	h_{FE}	15	100	-	$V_{CE} = 5.0\text{V}, I_C = 0.5\text{A}$
Input Power	P_{IN}	5.5	8.8	W	$V_{CC} = 28\text{V}, I_{CQ} = 12\text{mA}, P_{out} = 42\text{W}, F = 1450\text{MHz}$
Collector Current	I_C	-	3.75	A	$V_{CC} = 28\text{V}, I_{CQ} = 12\text{mA}, P_{out} = 42\text{W}, F = 1450\text{MHz}$
Input Return Loss	RL	10	-	dB	$V_{CC} = 28\text{V}, I_{CQ} = 12\text{mA}, P_{out} = 42\text{W}, F = 1450\text{MHz}$
Saturated Output Power	P_{SAT}	50	-	W	$V_{CC} = 28\text{V}, I_{CQ} = 12\text{mA}, F = 1450\text{MHz}$
Load Mismatch Tolerance	VSWR-T	-	3.1	-	$V_{CC} = 28\text{V}, I_{CQ} = 12\text{mA}, P_{out} = 42\text{W}, F = 1450\text{MHz}$
Load Mismatch Tolerance	IMD ₃	-	1.5:1	-	$V_{CC} = 28\text{V}, I_{CQ} = 12\text{mA}, P_{out} = 42\text{W}, F = 850\text{MHz}$

TYPICAL OPTIMUM DEVICE IMPEDANCES

F (MHz)	Z_{IN} (Ω)	Z_{OF} (Ω)
850	2.0 - j3.6	3.0 - j4.9
950	2.4 - j2.5	2.3 - j3.1
1050	3.1 - j1.8	2.0 - j2.0
1150	3.5 - j1.9	1.8 - j1.4
1250	3.3 - j2.4	1.7 - j0.9
1350	2.5 - j2.4	1.4 - j0.5
1450	1.7 - j1.8	1.2 - j0.1

