



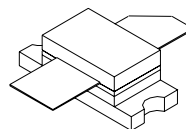
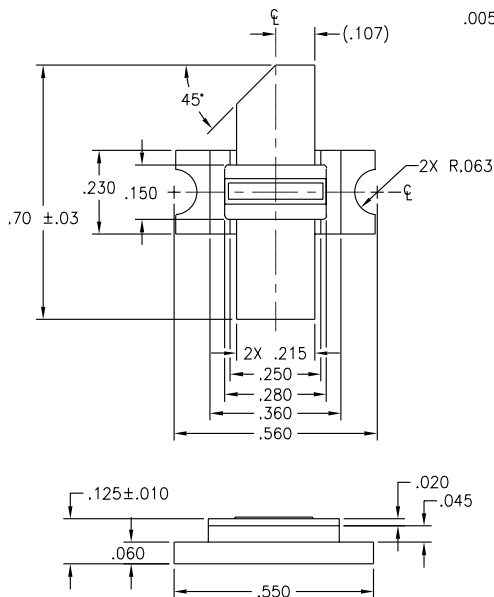
UPB2010B 10W, 2.0GHz, 24V Broadband RF Power NPN Bipolar Transistor

Description

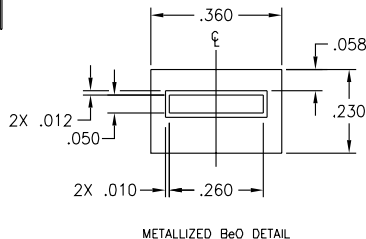
This device is designed for base station applications up to frequencies of 2.0GHz. Rated with a minimum output power of 10W, it is ideal for CDMA, TDMA, GSM, FM, Single or Multi-Carrier Power Amplifiers in Class A or AB operation.

- Industry standard package.
- Low intermodulation distortion of -30dBc at 10W (PEP).
- Gold Metalization, Gold Bond Wires, Gold-Plated Packages.

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Package Type 440031



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Maximum Ratings

Rating	Symbol	Value	Unit
Collector-Emitter Voltage	V_{CEO}	27	V_{DC}
Collector-Base Voltage	V_{CES}	60	V_{DC}
Emitter-Base Voltage	V_{EBO}	3.0	V_{DC}
Collector Current - Continuous	I_C	1.7	A_{DC}
Total Device Dissipation @ $T_C = 70^\circ C$ Derate above $70^\circ C$	P_D	26 0.25	Watts $W/^\circ C$
Maximum Junction Temperature	T_J	175	$^\circ C$
Storage Temperature Range	T_{STG}	-60 to +150	$^\circ C$

Thermal Characteristics

Characteristics	Symbol	Maximum	Unit
Thermal Resistance, Junction to Case	Θ_{JC}	4.0	$^\circ C/W$

Electrical DC Characteristics ($T_C=25^\circ C$ unless otherwise specified)

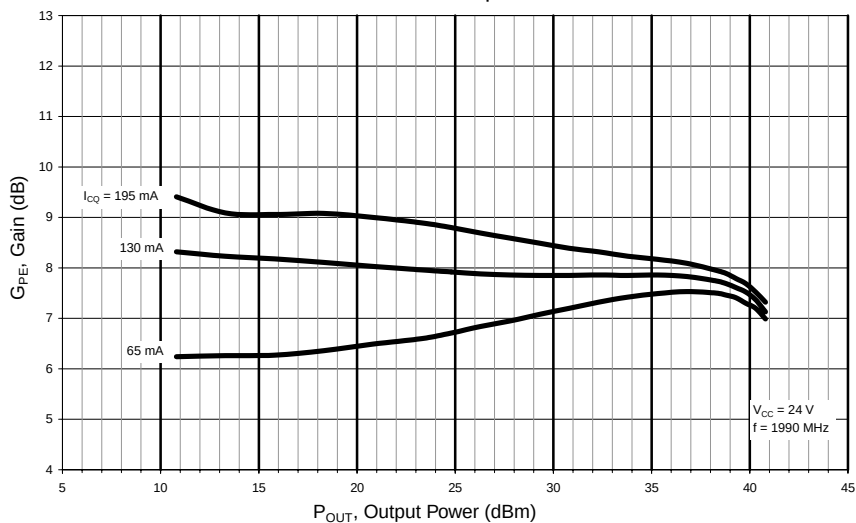
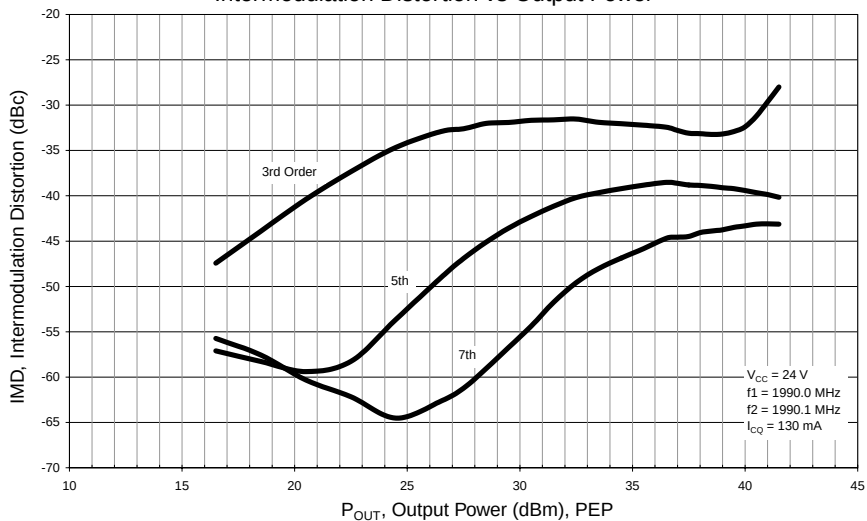
Rating	Symbol	Min	Typ	Max	Unit
Collector-Emitter Breakdown Voltage ($I_C=50mA$, $I_B=0mA$)	BV_{CEO}	26	-	-	Volts
Collector-Emitter Breakdown Voltage ($I_C=25mA$, $V_{BE}=0V$)	BV_{CES}	60	-	-	Volts
Collector-Base Breakdown Voltage ($I_C=50mA$, $I_E=0mA$)	BV_{CBO}	60	-	-	Volts
Collector-Emitter Leakage Current ($V_{CE}=27V$, $V_{BE}=0$)	I_{CES}	-	-	3.0	mA
DC Current Gain ($I_C=300mA$, $V_{CE}=5V$)	h_{FE}	20	-	100	

AC Characteristics ($T_C=25^\circ\text{C}$ unless otherwise specified)

Rating	Symbol	Min	Typ	Max	Unit
Output Capacitance ($V_{CB}=12\text{V}$, $I_E=0$, freq= 1MHz)	C_{OB}	12.5	-	14.5	pF

RF and Functional Tests ($T_C=25^\circ\text{C}$ unless otherwise specified, UltraRF Broadband Fixture)

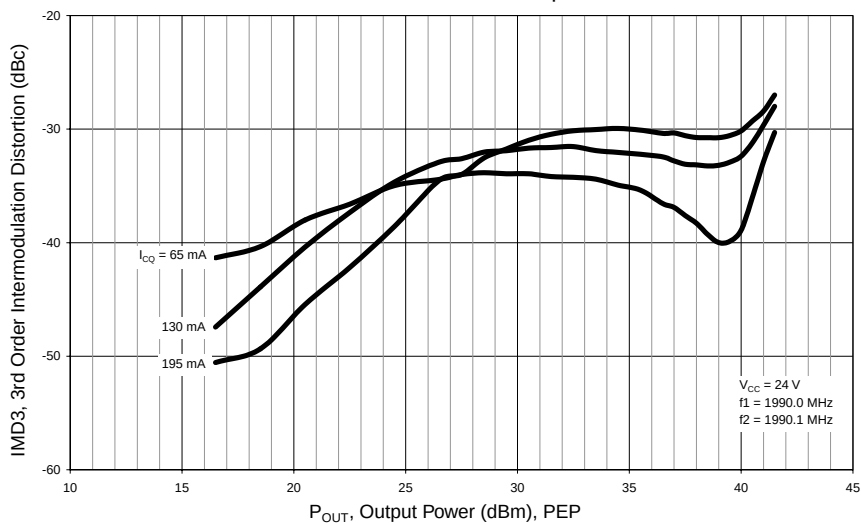
Rating	Symbol	Min	Typ	Max	Unit
Power Gain, Single Tone ($V_{CE}=24\text{V}$, $I_{CQ}=130\text{mA}$, $P_{OUT}=10\text{W}$, f=1990 MHz)	G_p	7.5	-	-	dB
Collector Efficiency ($V_{CE}=24\text{V}$, $I_{CQ}=130\text{mA}$, $P_{OUT}=10\text{W}$, f=1990 MHz)	η	37	45	-	%
Intermodulation Distortion, Two Tone ($V_{CE}=24\text{V}$, $I_{CQ}=130\text{mA}$, $P_{OUT}=10\text{W PEP}$ f1=1990 MHz, f2=1990.1MHz)	IMD	-	-33	-30	dBc
Load Mismatch Tolerance ($V_{DS}=24\text{V}$, $I_{DQ}=130\text{mA}$, $P_{OUT}=10\text{W}$, f=1990 MHz)	VSWR	3:1	-	-	

Power Gain vs Output Power

Intermodulation Distortion vs Output Power


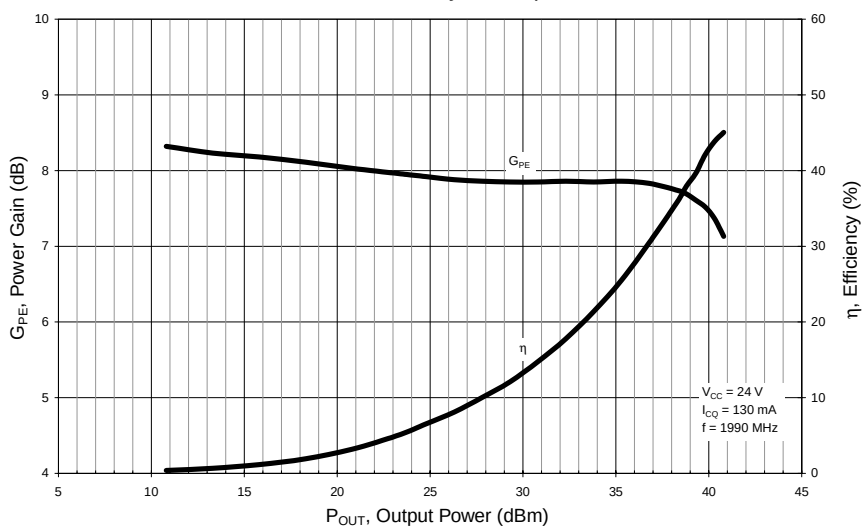
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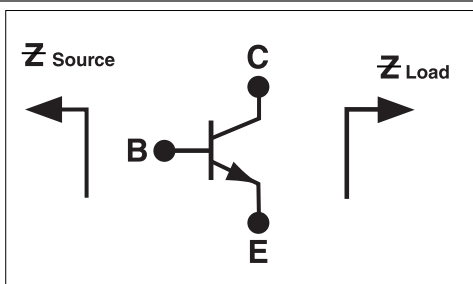
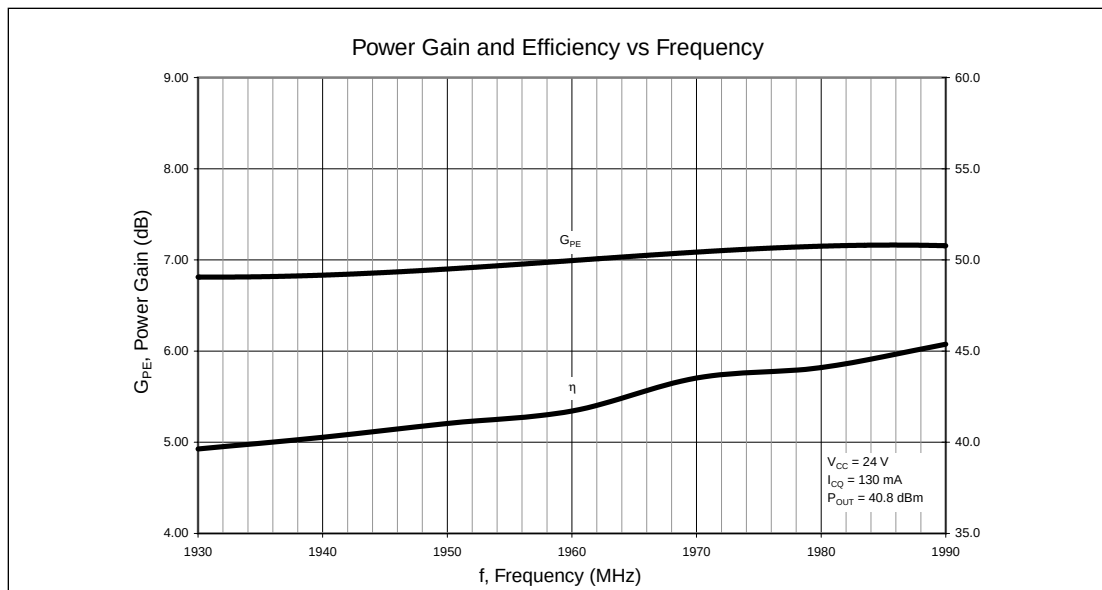
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Intermodulation Distortion vs Output Power



Power Gain & Efficiency vs Output Power

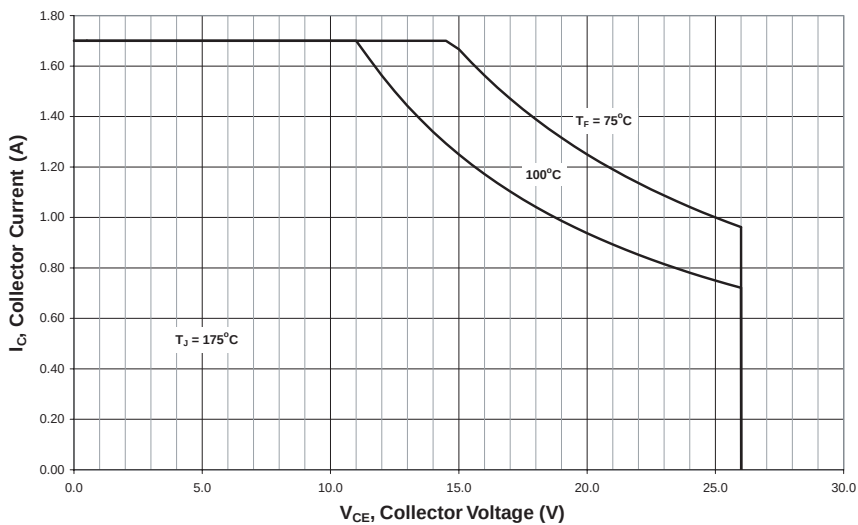




Frequency (MHz)	Z Source	Z Load
1930	4.54 - j6.26	2.93 - j.00
1960	4.50 - j6.45	2.88 - j.10
1990	4.42 - j6.63	2.79 - j.20

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DC Safe Operating Area



Mean Time To Failure

