

PTH 32002

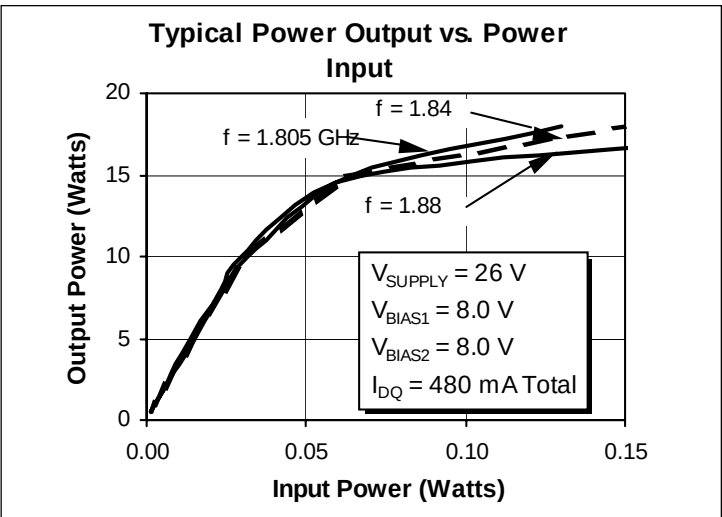
10 Watts, 1.805–1.88 GHz

50-Ohm High-Gain Power Hybrid

Description

The PTH 32002 is a high-gain 50-ohm power hybrid intended for applications requiring linear amplification and high gain in the DCS frequency range. The part is designed to operate with 50-ohm source and load impedances and includes bias circuitry with temperature compensation. This device may be used as a high-gain driver or as a final output device. The PTH 32002 simplifies system design and saves space with an overall footprint of 1.21 square inch.

- **Performance at 1.805 to 1.88 GHz,**
 $V_{SUPPLY} = 26\text{ V}$, $V_{BIAS(1)} = 8.0\text{ V}$, $V_{BIAS(2)} = 8.0\text{ V}$
 - **Power Gain = +26 dB Nom.**
 - **Output Power = 10 Watts (P-1dB) Typ**
 - **Small Signal Flatness = ±0.15 dB Typ**
- **Higher gain available with increased bias voltages**
- **Optimum performance guaranteed with bias voltages at 8.0 Volts**
- **Exceptional phase linearity and delay characteristics**



Package J

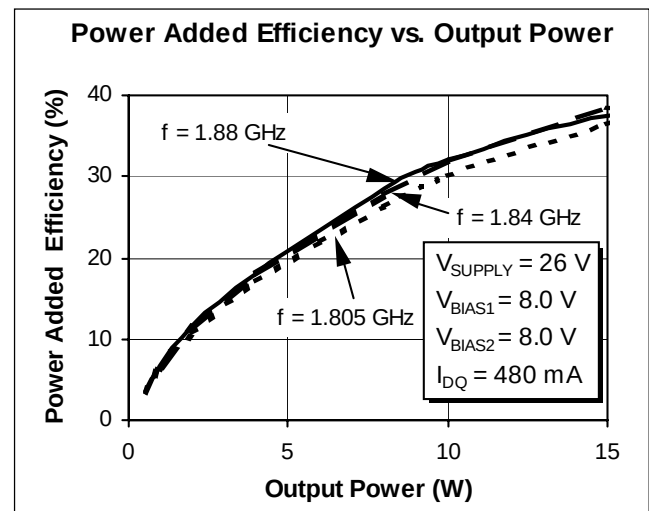
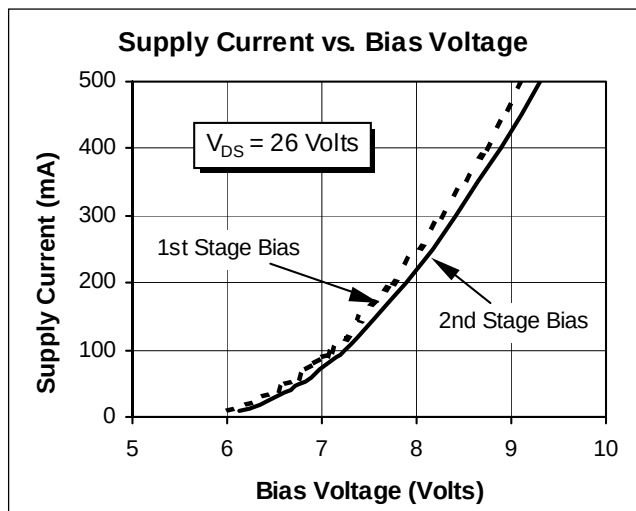
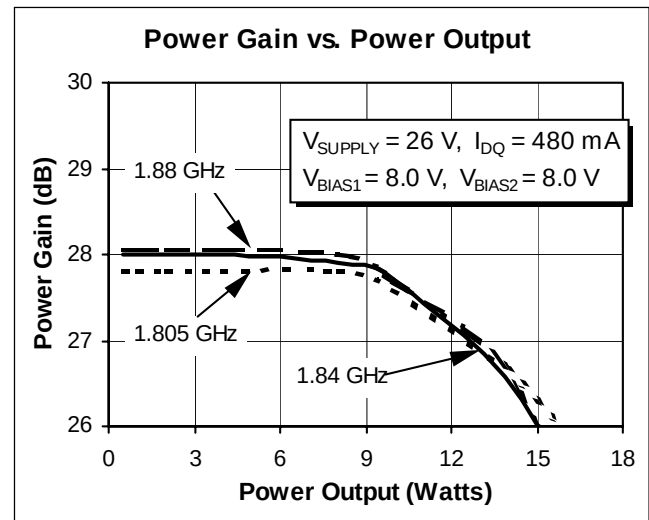
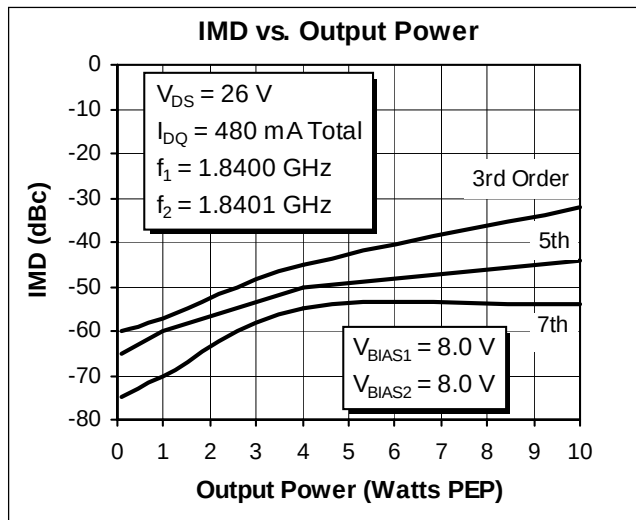
Performance Characteristics

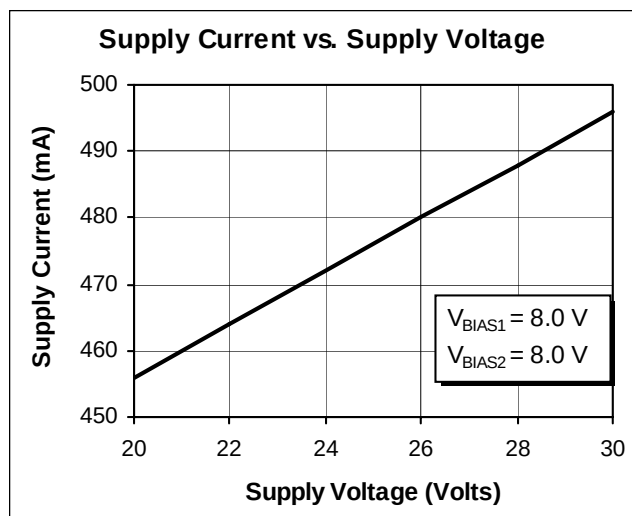
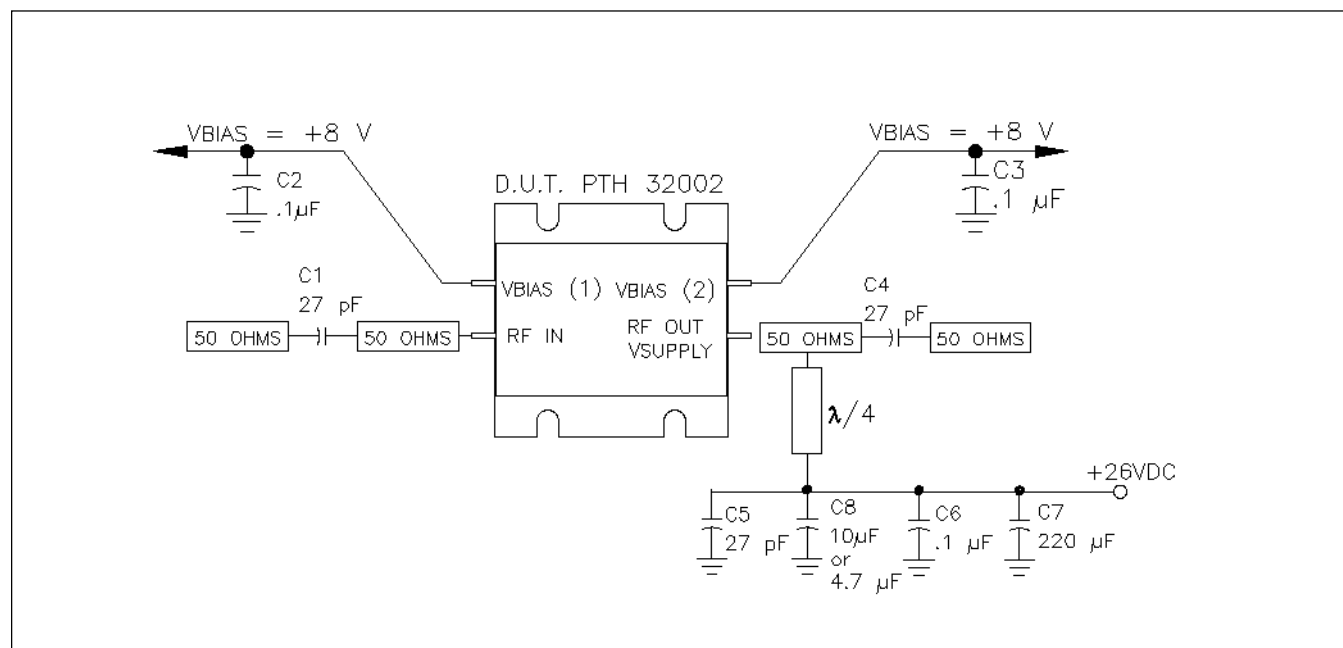
Parameter	Conditions (unless noted): $V_{SUPPLY} = 26$, $V_{BIAS(1)} = 8\text{ V}$, $I_{DQ(1)} = 270\text{ mA}$, $V_{BIAS(2)} = 8\text{ V}$, $I_{DQ(2)} = 210$, Total $I_{DQ} = 480\text{ mA}$	Symbol	Min	Typ	Max	Units
Frequency Range		f	1805	—	1880	MHz
Output Power at 1 dB Compressed ($f_C = 1840\text{ MHz}$)		P-1dB	10	13	—	W
Input VSWR		ψ	—	1.2:1	1.5:1	—
Small Signal Gain		P_g	26	29	—	dB
Gain Flatness		—	—	±0.15	±0.25	dB

Maximum Ratings

Parameter	Symbol	Value	Unit
Supply Voltage	V_{DD}	32	Vdc
Current (Stage 1)	I_{D1}	2.6	A
Current (Stage 2)	I_{D2}	2.6	A
Total Device Dissipation	P_D	55	Watts
Above 25°C derate by		0.33	W/°C
Operating Temperature Range	T_{CASE}	-20 to +85	°C
Storage Temperature	T_{STG}	125	°C
Thermal Resistance ($T_{CASE} = 70^{\circ}\text{C}$)	$R_{\theta JC}$	2.7	°C/W

Typical Performance



Typical Performance (cont.)

Test Circuit Information

Test Circuit Schematic

D.U.T.	PTH 32001	50-Ohm Power Hybrid
C1, C4, C5	27 pF	ATC 100 A
C2, C3, C6	0.1 μF	ATC
C7	220 μF, 50 V	Digi-Key Capacitor
C8	10 μF or 4.7 μF	
Circuit Board	.032" thick, Rogers 4003, 1oz. copper	

Case Outline Specifications

