

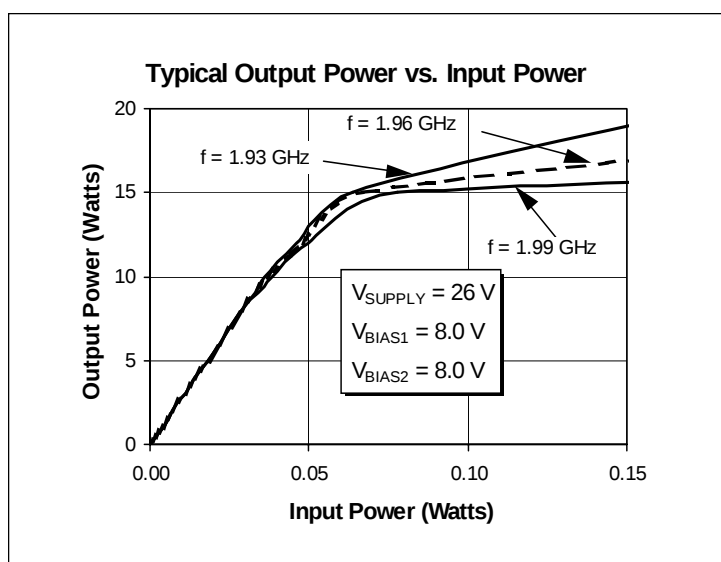
PTH 32001

10 Watts, 1.9–2.0 GHz

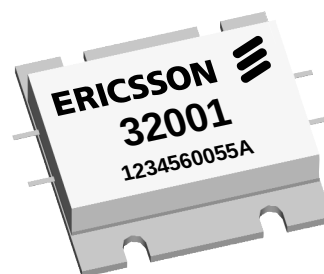
50-Ohm High-Gain Power Hybrid

Description

The PTH 32001 is a high-gain 50-ohm power hybrid intended for applications requiring linear amplification and high gain in the PCS 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 32001 simplifies system design and saves space with an overall footprint of 1.21 square inch.



- Performance at 1.93 to 1.99 GHz,
 $V_{SUPPLY} = 26\text{ V}$, $V_{BIAS(1)} = 8.0\text{ V}$, $V_{BIAS(2)} = 8.0\text{ V}$
 - Power Gain = +25 dB Typ
 - Output Power = 14 Watts (P-1dB) Typ
 - Small Signal Flatness = $\pm 0.15\text{ dB}$ 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): $V_{SUPPLY} = 26\text{ V}$, $V_{BIAS(1)} = 8\text{ V}$, $I_{DQ(1)} = 270\text{ mA}$, $V_{BIAS(2)} = 8\text{ V}$, $I_{DQ(2)} = 230\text{ mA}$, Total $I_{DQ} = 500\text{ mA}$	Symbol	Min	Typ	Max	Units
Frequency Range		f	1930	—	1990	MHz
Output Power at 1 dB Compressed $f_C = 1.93\text{--}1.99\text{ GHz}$		P-1dB	10	14	—	W
Input VSWR $V_{DS}(\text{Nom.}) = 26\text{ V}$, $V_{BIAS(1)} = 8.0\text{ V}$, $V_{BIAS(2)} = 8.0\text{ V}$		VSWR	—	1.2:1	1.5:1	—
VSWR Mismatch $V_{DS}(\text{Nom.}) = 26\text{ V}$, $V_{BIAS(1)} = 8.0\text{ V}$, $V_{BIAS(2)} = 8.0\text{ V}$		VSWR	—	5:1	—	—

Table continued on next page

All published data at $T_{CASE} = 25^\circ\text{C}$ unless otherwise indicated.

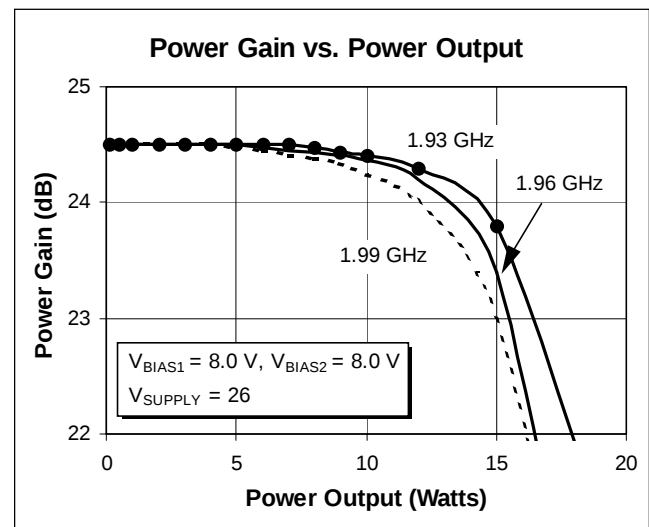
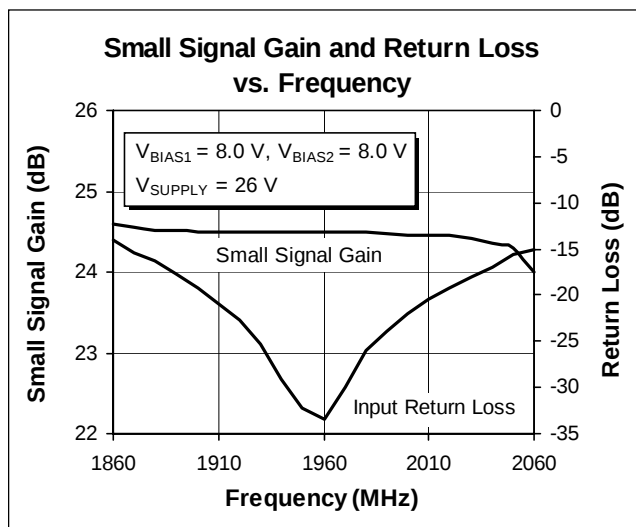
Performance Characteristics (cont.)

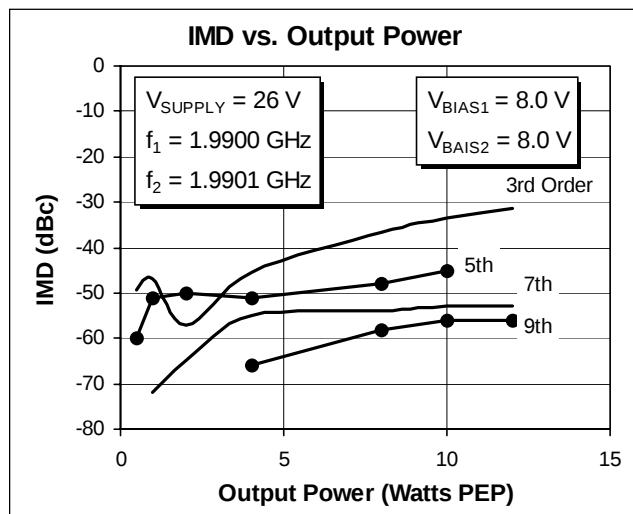
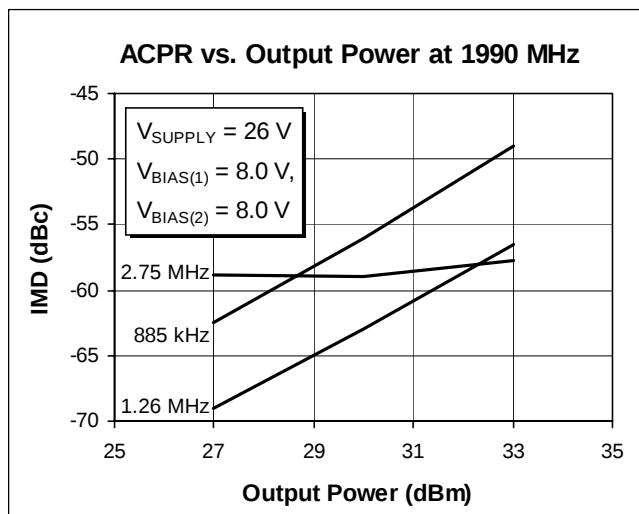
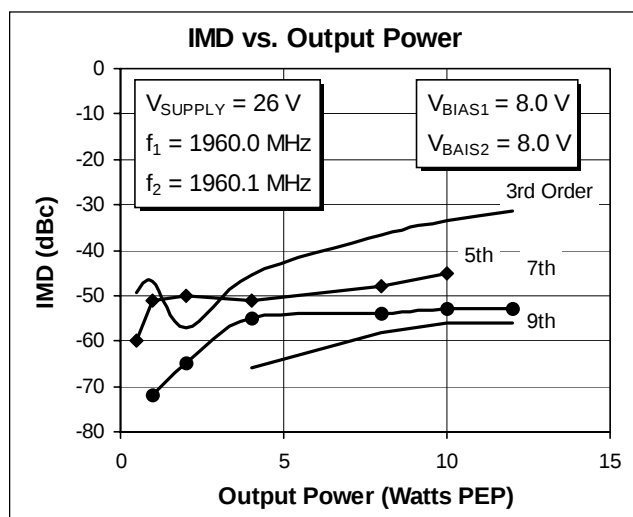
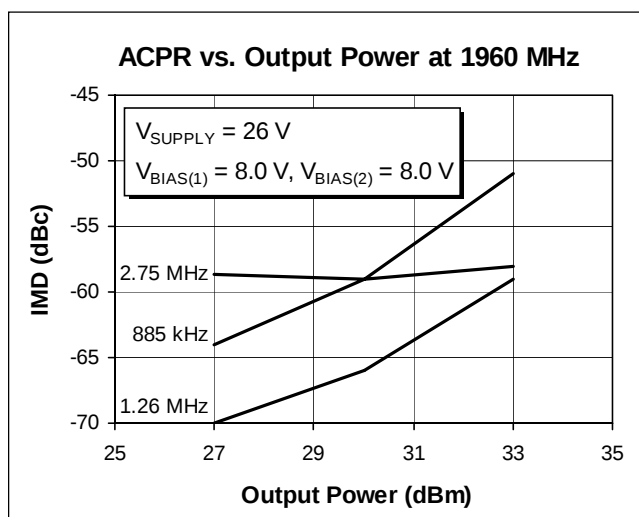
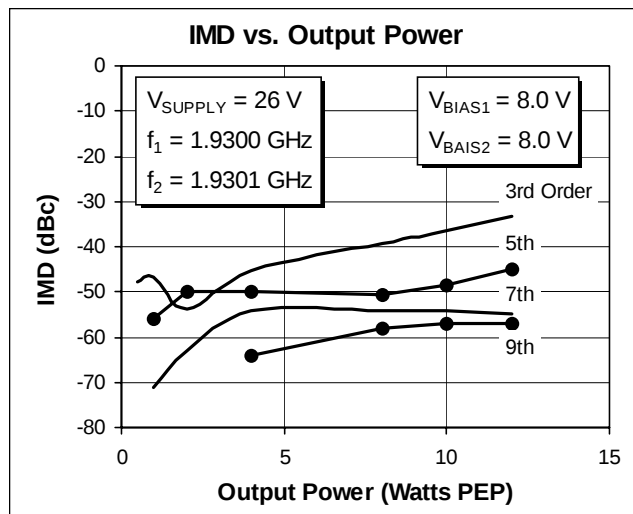
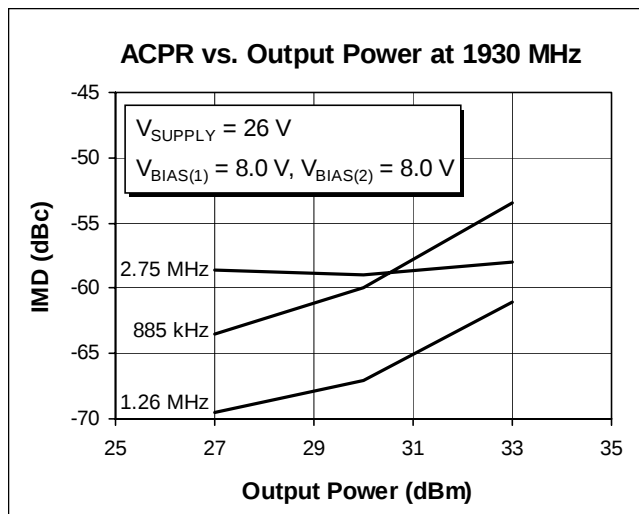
Parameter	Conditions (unless noted): $V_{SUPPLY} = 26$, $V_{BIAS(1)} = 8$ V, $I_{DQ(1)} = 270$ mA, $V_{BIAS(2)} = 8$ V, $I_{DQ(2)} = 230$, Total $I_{DQ} = 500$ mA	Symbol	Min	Typ	Max	Units
Small Signal Gain V_{DS} (Nom.) = 26 V, $V_{BIAS(1)} = 8.0$ V, $V_{BIAS(2)} = 8.0$ V		P_g	23	25	—	dB
Gain Flatness V_{DS} (Nom.) = 26 V, $V_{BIAS(1)} = 8.0$ V, $V_{BIAS(2)} = 8.0$ V		—	—	± 0.15	± 0.2	dB

Maximum Ratings

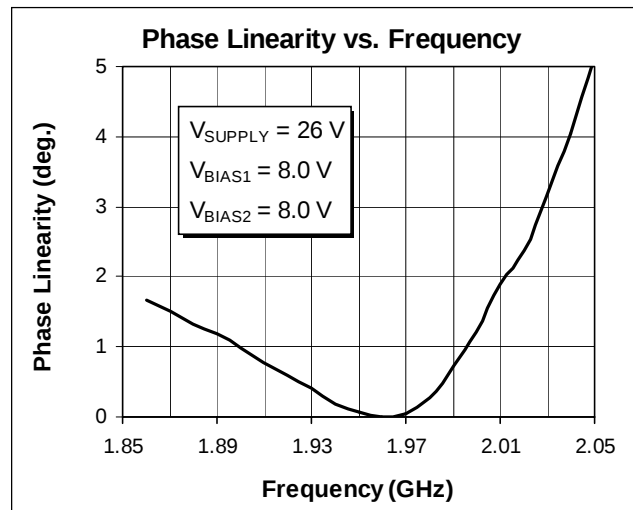
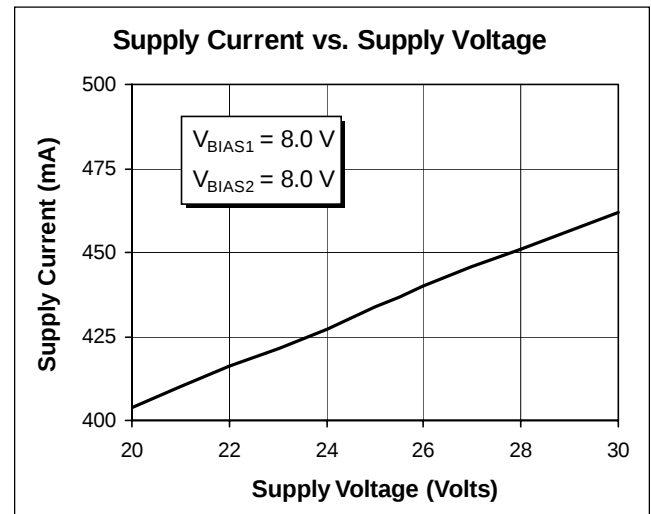
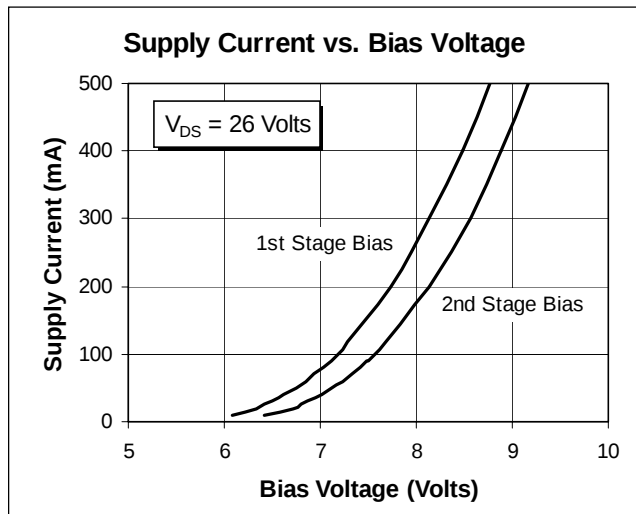
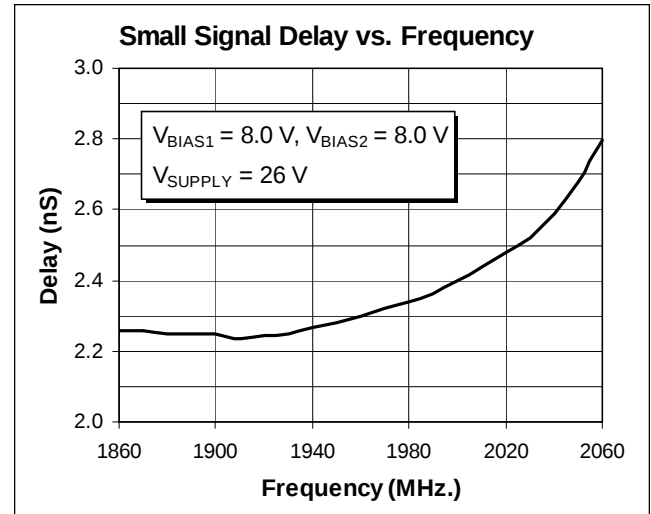
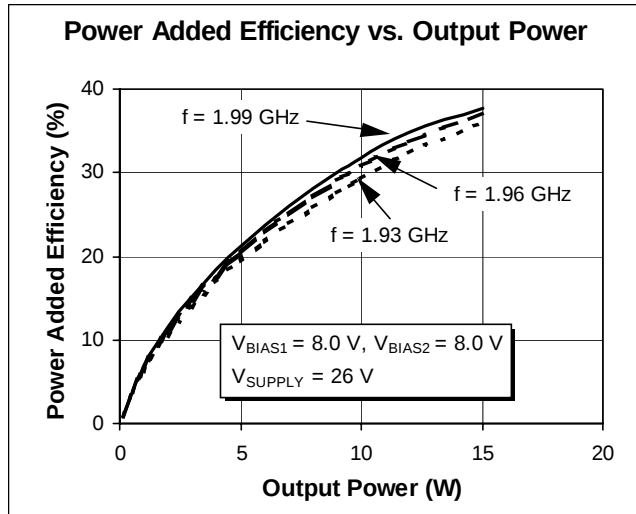
Parameter	Symbol	Value	Unit
Supply Voltage	V_{DD}	32	Vdc
Current (Stage 1)	I_{D1}	2.6	A
Current (Stage 2)	I_{D2}	2.6	A
Total Device Dissipation Above 25°C derate by	P_D	55 0.33	Watts W/°C
Operating Temperature Range	T_{CASE}	-20 to +85	°C
Storage Temperature	T_{STG}	125	°C
Thermal Resistance ($T_{CASE}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

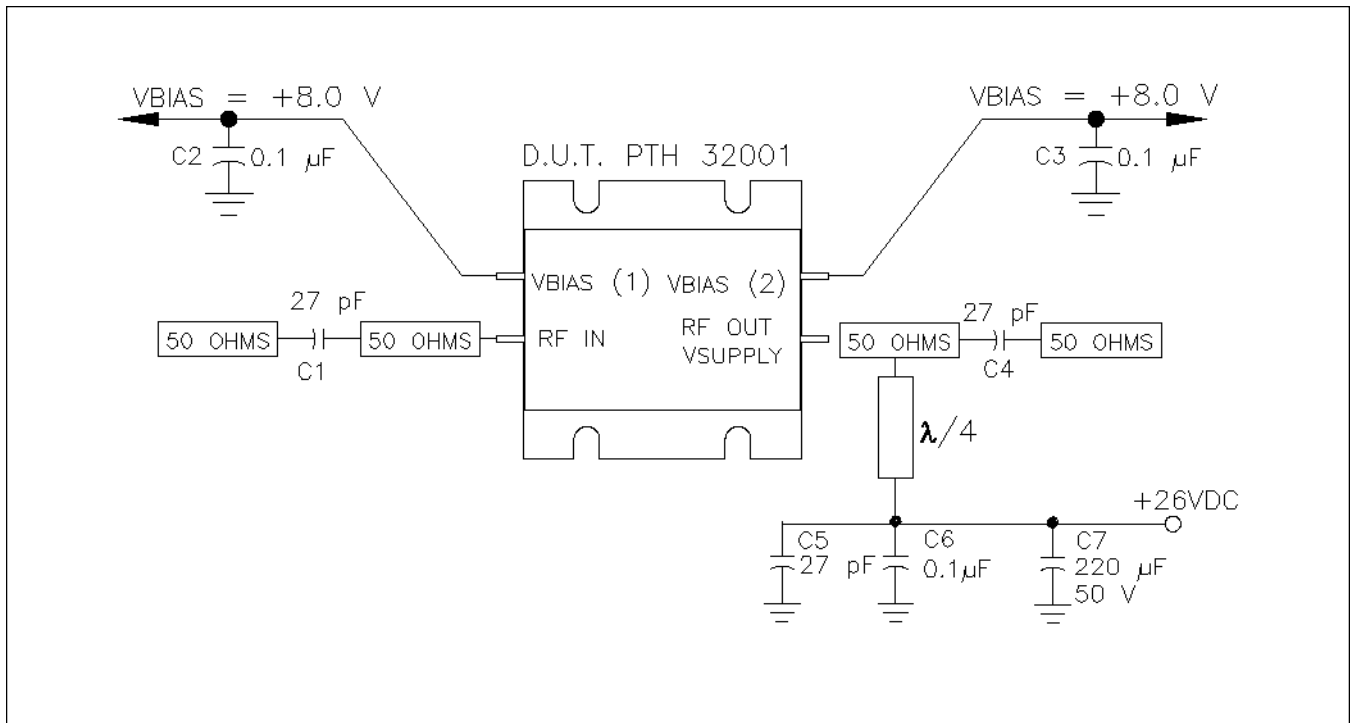
Typical Performance



Typical Performance (cont.)


Typical Performance (cont.)



Test Circuit


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 μ F	ATC
C7	220 μ F, 50 V	Digi-Key Capacitor
Circuit Board .032" thick, Rogers 4003, 1oz. copper		

Case Outline Specifications

