

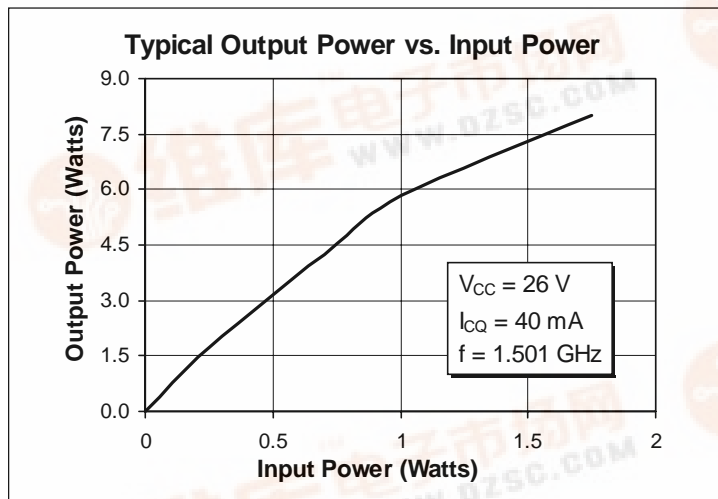


# PTB 20051 6 Watts, 1.465–1.513 GHz Cellular Radio RF Power Transistor

## Description

The 20051 is a class AB, NPN, common emitter RF power transistor intended for 26 Vdc operation from 1.465 to 1.513 GHz. Rated at 6 watts minimum output power, it may be used for both CW and PEP applications. Ion implantation, nitride surface passivation and gold metallization are used to ensure excellent device reliability. 100% lot traceability is standard.

- 6 Watts, 1.465–1.513 GHz
- Class AB Characteristics
- 35% Collector Efficiency at 4 Watts
- Gold Metallization
- Silicon Nitride Passivated



## Maximum Ratings

Parameter	Symbol	Value	Unit
Collector-Emitter Voltage	$V_{CER}$	50	Vdc
Collector-Base Voltage	$V_{CBO}$	50	Vdc
Emitter-Base Voltage (collector open)	$V_{EBO}$	4.0	Vdc
Collector Current (continuous)	$I_C$	0.7	Adc
Total Device Dissipation at $T_{flange} = 25^\circ\text{C}$ Above $25^\circ\text{C}$ derate by	$P_D$	28 0.16	Watts W/ $^\circ\text{C}$
Storage Temperature Range	$T_{STG}$	-40 to +150	$^\circ\text{C}$
Thermal Resistance ( $T_{flange} = 70^\circ\text{C}$ )	$R_{\theta JC}$	6.2	$^\circ\text{C}/\text{W}$

# PTB 20051



## Electrical Characteristics (100% Tested)

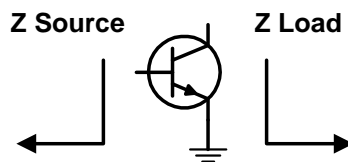
Characteristic	Conditions	Symbol	Min	Typ	Max	Units
Breakdown Voltage C to E	$I_B = 0\text{ A}$ , $I_C = 10\text{ mA}$ , $R_{BE} = 22\ \Omega$	$V_{(BR)CER}$	50	—	—	Volts
Breakdown Voltage C to E	$V_{BE} = 0\text{ V}$ , $I_C = 10\text{ mA}$	$V_{(BR)CES}$	50	—	—	Volts
Breakdown Voltage E to B	$I_C = 0\text{ A}$ , $I_E = 5\text{ mA}$	$V_{(BR)EBO}$	4	5	—	Volts
DC Current Gain	$V_{CE} = 10\text{ V}$ , $I_C = 0.7\text{ A}$	$h_{FE}$	20	50	120	—

## RF Specifications (100% Tested)

Characteristic	Symbol	Min	Typ	Max	Units
<b>Gain</b> ( $V_{CC} = 26\text{ Vdc}$ , $P_{out} = 4\text{ W}$ , $I_{CQ} = 40\text{ mA}$ , $f = 1.501\text{ GHz}$ )	$G_{pe}$	8.0	—	—	dB
<b>Power Output at 1 dB Compression</b> ( $V_{CC} = 26\text{ Vdc}$ , $I_{CQ} = 40\text{ mA}$ , $f = 1.501\text{ GHz}$ )	P-1dB	6.5	—	—	Watts
<b>Collector Efficiency</b> ( $V_{CC} = 26\text{ Vdc}$ , $P_{out} = 4\text{ W}$ , $I_{CQ} = 40\text{ mA}$ , $f = 1.501\text{ GHz}$ )	$\eta_C$	35	—	—	%
<b>Load Mismatch Tolerance</b> ( $V_{CC} = 26\text{ Vdc}$ , $P_{out} = 4\text{ W}$ , $I_{CQ} = 40\text{ mA}$ , $f = 1.501\text{ GHz}$ —all phase angles at frequency of test)	$\Psi$	—	—	5:1	—

## Impedance Data (data shown for fixed-tuned broadband circuit)

( $V_{CC} = 26\text{ Vdc}$ ,  $P_{out} = 4\text{ W}$ ,  $I_{CQ} = 40\text{ mA}$ )



Frequency GHz	Z Source		Z Load	
	R	jX	R	jX
1.465	10.7	11.2	11.9	21.0
1.489	9.4	11.8	10.2	20.3
1.513	8.1	12.8	9.7	18.3