



PTB 20228

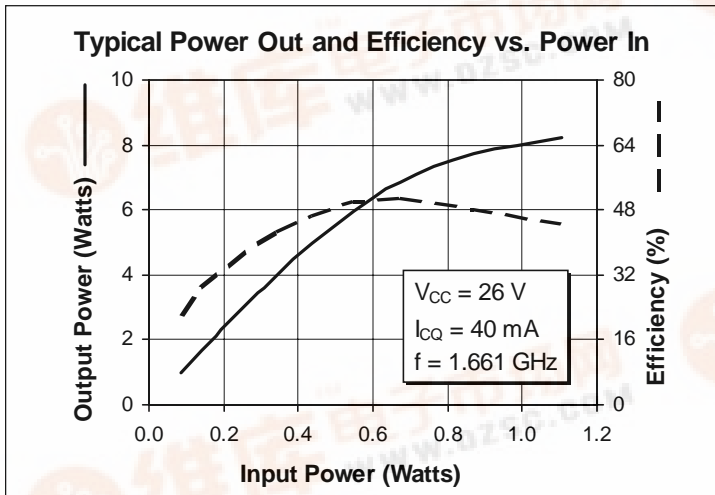
6.5 Watts, 1.62–1.66 GHz

RF Power Transistor

Description

The 20228 is a class AB, NPN, common emitter RF power transistor intended for 26 Vdc operation from 1.626 to 1.661 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.

- 6.5 Watts, 1.62–1.66 GHz
- Class AB Characteristics
- 40% Collector Efficiency at 6.5 Watts
- Surface Mountable
- Available in Tape and Reel
- 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	1.0	Adc
Total Device Dissipation at $T_{flange} = 25^\circ\text{C}$ Above 25°C derate by	P_D	19.7 0.112	Watts $\text{W}/^\circ\text{C}$
Storage Temperature Range	T_{STG}	-40 to +150	$^\circ\text{C}$
Thermal Resistance ($T_{flange} = 70^\circ\text{C}$)	$R_{\theta JC}$	8.9	$^\circ\text{C}/\text{W}$



Electrical Characteristics (100% Tested)

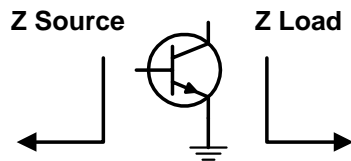
Characteristic	Conditions	Symbol	Min	Typ	Max	Units
Breakdown Voltage C to E	$I_B = 0\text{ A}, I_C = 5\text{ mA}$	$V_{(BR)CEO}$	20	—	—	Volts
Breakdown Voltage C to E	$V_{BE} = 0\text{ V}, I_C = 5\text{ mA}$	$V_{(BR)CES}$	50	—	—	Volts
Breakdown Voltage C to E	$I_B = 0\text{ A}, I_C = 5\text{ mA}, R_{BE} = 22\ \Omega$	$V_{(BR)CER}$	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	$V_{CE} = 5\text{ V}, I_C = 250\text{ mA}$	h_{FE}	20	40	—	—
Output Capacitance	$V_{CB} = 26\text{ V}, I_e = 0, f = 1\text{ MHz}$	C_{ob}		6.1		pF

RF Specifications (100% Tested)

Characteristic	Symbol	Min	Typ	Max	Units
Gain ($V_{CC} = 26\text{ Vdc}, P_{Out} = 4\text{ W}, I_{CQ} = 40\text{ mA}, f = 1.626\text{ \& } 1.661\text{ GHz}$)	G_{pe}	8.5	9.5	—	dB
Gain Compression ($V_{CC} = 26\text{ Vdc}, I_{CQ} = 40\text{ mA}, f = 1.661\text{ GHz}$)	P-1dB	6.5	—	—	Watts
Collector Efficiency ($V_{CC} = 26\text{ Vdc}, P_{Out} = 6.5\text{ W}, I_{CQ} = 40\text{ mA}, f = 1.626\text{ \& } 1.661\text{ GHz}$)	η_C	40	—	—	%
Load Mismatch Tolerance ($V_{CC} = 26\text{ Vdc}, P_{Out} = 6.5\text{ W}, I_{CQ} = 40\text{ mA}, f = 1.661\text{ GHz}$ —all phase angles at frequency of test)	Ψ	—	—	5:1	—

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

($V_{CC} = 26\text{ Vdc}, P_{out} = 6.5\text{ W}, I_{CQ} = 40\text{ mA}$)



Frequency GHz	Z Source		Z Load	
	R	jX	R	jX
1.626	1.32	-2.29	7.02	21.19
1.640	1.27	-1.12	6.72	21.98
1.661	1.21	0.47	6.46	23.17

