

PTB 20220

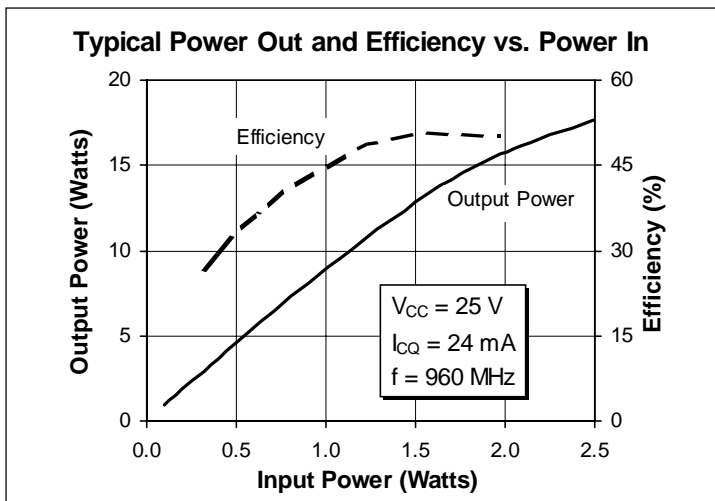
15 Watts, 915–960 MHz

Cellular Radio RF Power Transistor

Description

The 20220 is a class AB, NPN, common emitter RF power transistor intended for 25 Vdc operation across the 915 to 960 MHz frequency band. Rated at 15 watts minimum output power for PEP applications, it may be used for both CW and PEP applications. Ion implantation, nitride surface passivation and gold metallization ensure excellent device reliability. 100% lot traceability is standard.

- 15 Watts, 915–960 MHz
- Class AB Characteristics
- 50% Collector Efficiency at 15 Watts
- Surface Mountable
- Gold Metallization
- Silicon Nitride Passivated



Maximum Ratings

Parameter	Symbol	Value	Unit
Collector-Emitter Voltage	V_{CER}	65	Vdc
Collector-Base Voltage	V_{CBO}	65	Vdc
Emitter-Base Voltage (collector open)	V_{EBO}	4.0	Vdc
Collector Current (continuous)	I_C	4.0	Adc
Total Device Dissipation at $T_{flange} = 25^\circ\text{C}$ Above 25°C derate by	P_D	37 0.21	Watts W/ $^\circ\text{C}$
Storage Temperature Range	T_{STG}	-40 to +150	$^\circ\text{C}$
Thermal Resistance	$R_{\theta JC}$	4.7	$^\circ\text{C/W}$

Electrical Characteristics (100% Tested)

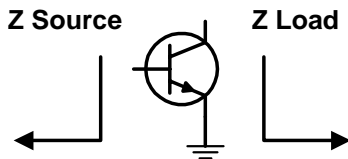
Characteristic	Conditions	Symbol	Min	Typ	Max	Units
Breakdown Voltage C to E	$I_B = 0\text{ A}, I_C = 5\text{ mA}$	$V_{(BR)CEO}$	25	—	—	Volts
Breakdown Voltage C to E	$V_{BE} = 0\text{ V}, I_C = 5\text{ mA}$	$V_{(BR)CES}$	65	—	—	Volts
Breakdown Voltage E to B	$I_C = 0\text{ A}, I_E = 5\text{ mA}$	$V_{(BR)EBO}$	4	5	—	Volts
DC Current Gain	$V_{CE} = 5\text{ V}, I_C = 250\text{ mA}$	h_{FE}	35	—	—	—
Output Capacitance	$V_{CC} = 25\text{ V}, I_E = 0\text{ A}, f = 1\text{ MHz}$	Cob	—	14.1	—	pF

RF Specifications (100% Tested)

Characteristic	Symbol	Min	Typ	Max	Units
Gain ($V_{CC} = 25\text{ Vdc}, P_{out} = 5\text{ W}, I_{CQ} = 24\text{ mA}, f = 960\text{ MHz}$)	G_{pe}	8.75	—	—	dB
Gain Compression ($V_{CC} = 25\text{ Vdc}, P_{out} = 15\text{ W}, I_{CQ} = 24\text{ mA}, f = 960\text{ MHz}$)	P-1dB	15	—	—	Watts
Collector Efficiency ($V_{CC} = 25\text{ Vdc}, P_{out} = 15\text{ W}, I_{CQ} = 24\text{ mA}, f = 960\text{ MHz}$)	η_C	50	—	—	%
Load Mismatch Tolerance ($V_{CC} = 25\text{ Vdc}, P_{out} = 15\text{ W}, I_{CQ} = 24\text{ mA}, f = 960\text{ MHz}$ —all phase angles at frequency of test)	Ψ	—	—	30:1	—

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

($V_{CC} = 25\text{ Vdc}, P_{out} = 15\text{ W}, I_{CQ} = 24\text{ mA}$)



Frequency MHz	Z Source		Z Load	
	R	jX	R	jX
915	2.26	-3.40	6.12	5.42
935	1.99	-2.84	6.30	5.51
960	1.75	-2.41	6.50	5.52

