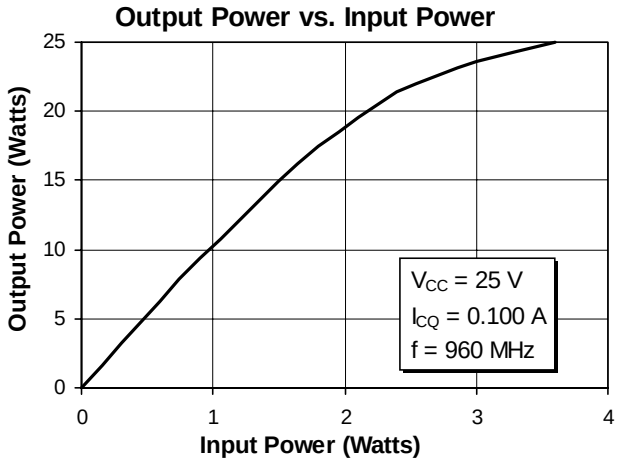
ERICSSON

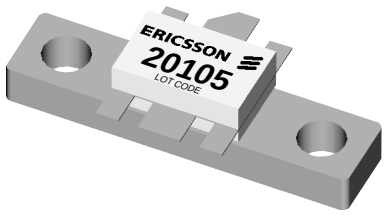
PTB 20105
20 Watts, 925–960 MHz
Cellular Radio RF Power Transistor

Description

The 20105 is a class AB, NPN, common emitter RF power transistor intended for 25 Vdc operation from 925 to 960 MHz. Rated at 20 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.

- Class AB Characteristics
- Performance at 960 MHz, 25 V_{CC}
  - Output Power = 20 W
  - Efficiency = 50% Min
- Gold Metallization
- Silicon Nitride Passivated





Package 20201

Maximum Ratings

Parameter	Symbol	Value	Unit
Collector-Emitter Voltage	V_{CER}	40	Vdc
Collector-Base Voltage	V_{CBO}	50	Vdc
Emitter-Base Voltage (collector open)	V_{EBO}	4.0	Vdc
Collector Current (continuous)	I_C	5.0	Adc
Total Device Dissipation at T_{flange} = 25°C Above 25°C derate by	P_D	70 0.4	Watts W/°C
Storage Temperature Range	T_{STG}	–40 to +150	°C
Thermal Resistance (T_{flange} = 70°C)	$R_{\theta JC}$	2.5	°C/W

9/28/98

Electrical Characteristics (100% Tested)

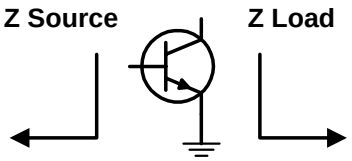
Characteristic	Conditions	Symbol	Min	Typ	Max	Units
Breakdown Voltage C to E	I_B = 0 A, I_C = 100 mA	$V_{(BR)CEO}$	25	30	—	Volts
Breakdown Voltage C to E	V_{BE} = 0 V, I_C = 100 mA	$V_{(BR)CES}$	55	70	—	Volts
Breakdown Voltage E to B	I_C = 0 A, I_E = 5 mA	$V_{(BR)EBO}$	3.5	5.0	—	Volts
DC Current Gain	V_{CE} = 5 V, I_C = 1 A	h_{FE}	20	50	120	—

RF Specifications (100% Tested)

Characteristic	Symbol	Min	Typ	Max	Units
Gain (V_{CC} = 25 Vdc, P_{out} = 20 W, I_{CQ} = 100 mA, f = 960 MHz)	G_{pe}	9	10	—	dB
Collector Efficiency (V_{CC} = 25 Vdc, P_{out} = 20 W, I_{CQ} = 100 mA, f = 960 MHz)	η_C	50	—	—	%
Load Mismatch Tolerance (V_{CC} = 25 Vdc, P_{out} = 20 W, I_{CQ} = 100 mA, f = 960 MHz—all phase angles at frequency of test)	Ψ	—	—	30:1	—

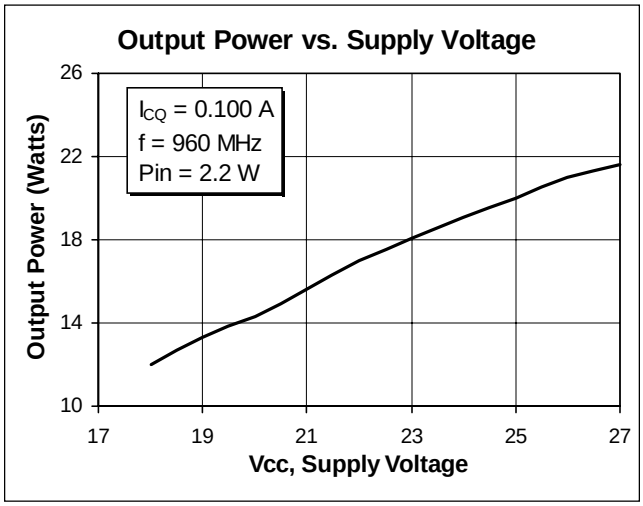
Impedance Data (data shown for fixed-tuned broadband circuit)

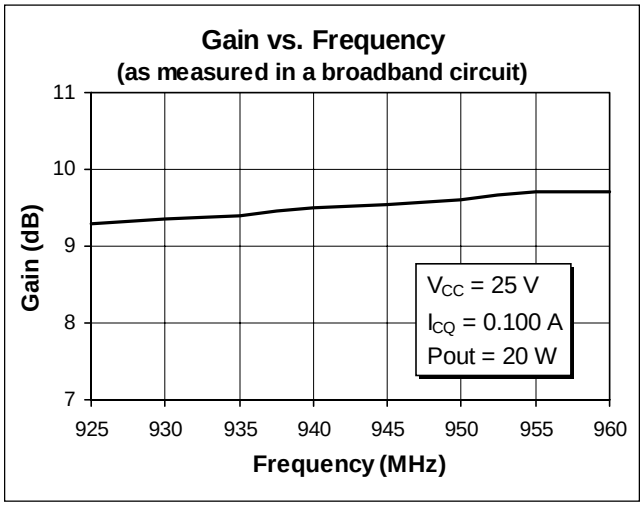
(V_{CC} = 25 Vdc, P_{out} = 20 W, I_{CQ} = 100 mA)

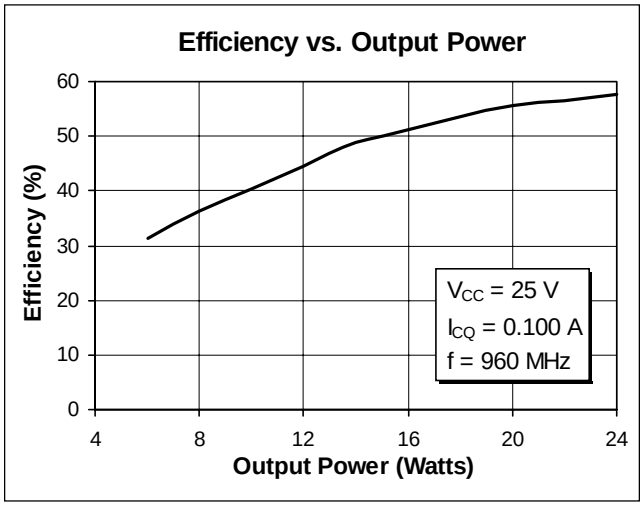


Frequency	Z Source		Z Load	
MHz	R	jX	R	jX
925	3.1	-1.8	3.1	1.4
942	3.0	-1.5	2.9	1.4
960	2.9	-1.2	2.7	1.4

Typical Performance







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