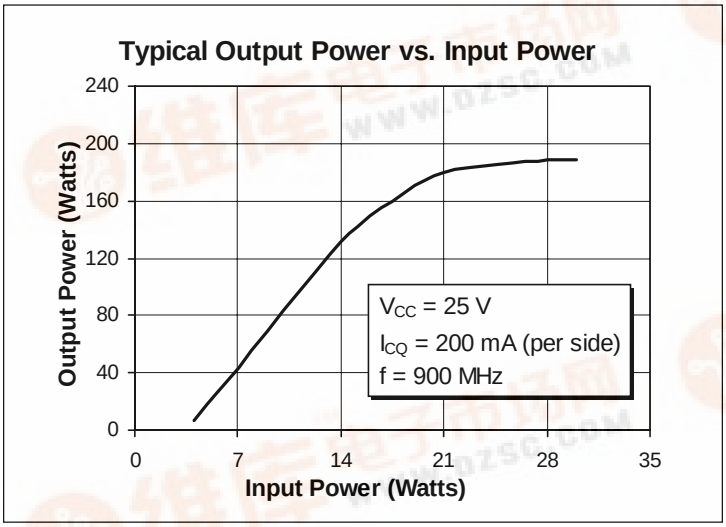
ERICSSON

PTB 20017
150 Watts, 860–900 MHz
Cellular Radio RF Power Transistor

Description

The 20017 is a class AB, NPN, common emitter RF power transistor intended for 25 Vdc operation across the 860 to 900 MHz cellular radio frequency band. Rated at 150 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.

- 150 Watts, 860–900 MHz
- Class AB Characteristics
- 50% Collector Efficiency at 150 Watts
- Gold Metallization
- Silicon Nitride Passivated



Package 20224

Maximum Ratings

Parameter	Symbol	Value	Unit
Collector-Emitter Voltage	V_{CER}	40	Vdc
Collector-Base Voltage	V_{CBO}	60	Vdc
Emitter-Base Voltage (collector open)	V_{EBO}	4.0	Vdc
Collector Current (continuous)	I_C	25	Adc
Total Device Dissipation at T_{flange} = 25°C Above 25°C derate by	P_D	330 1.89	Watts W/°C
Storage Temperature Range	T_{STG}	–40 to +150	°C
Thermal Resistance (T_{flange} = 70°C)	$R_{\theta JC}$	0.53	°C/W

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Electrical Characteristics (100% Tested)

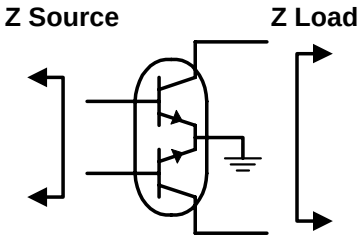
Characteristic	Conditions	Symbol	Min	Typ	Max	Units
Breakdown Voltage C to E	I_B = 0 A, I_C = 100 mA	$V_{(BR)CEO}$	25	30	—	Volts
Breakdown Voltage C to E	V_{BE} = 0 V, I_C = 100 mA	$V_{(BR)CES}$	55	70	—	Volts
Breakdown Voltage E to B	I_C = 0 A, I_E = 5 mA	$V_{(BR)EBO}$	3.5	5	—	Volts
DC Current Gain	V_{CE}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

RF Specifications (100% Tested)

Characteristic	Symbol	Min	Typ	Max	Units
Gain (V_{CC} = 25 Vdc, P_{out} = 150 W, I_{CQ} = 200 mA per side, f = 900 MHz)	G_{pe}	8.0	9.0	—	dB
Collector Efficiency (V_{CC} = 25 Vdc, P_{out} = 150 W, I_{CQ} = 200 mA per side, f = 900 MHz)	η_C	50	—	—	%
Intermodulation Distortion (V_{CC} = 25 Vdc, P_{out} = 150 W(PEP), I_{CQ} = 200 mA per side, f_1 = 899 MHz, f_2 = 900 MHz)	IMD	—	-28	—	dBc
Load Mismatch Tolerance (V_{CC} = 25 Vdc, P_{out} = 150 W(PEP), I_{CQ} = 200 mA per side f = 900 MHz—all phase angles at frequency of test)	Ψ	—	—	5:1	—

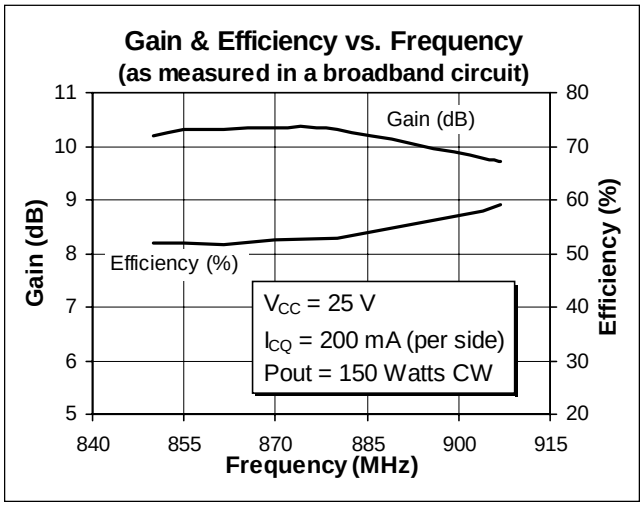
Impedance Data (data shown for fixed-tuned broadband circuit)

(V_{CC} = 25 Vdc, P_{out} = 150 W, I_{CQ} = 200 mA per side)



Frequency	Z Source		Z Load	
MHz	R	jX	R	jX
860	3.4	-6.7	3.5	-3.1
880	3.1	-6.1	3.4	-2.6
900	2.9	-5.6	3.2	-2.1

Typical Performance



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