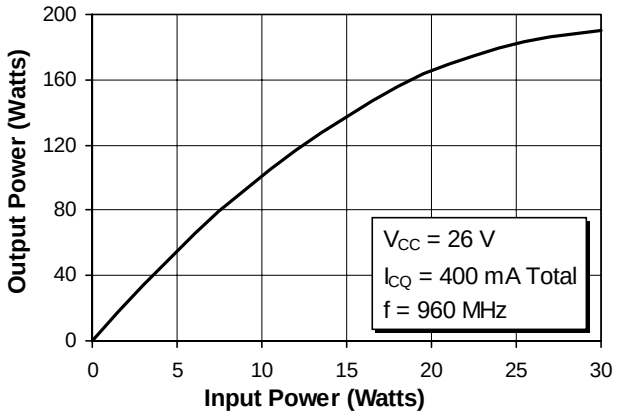
ERICSSON

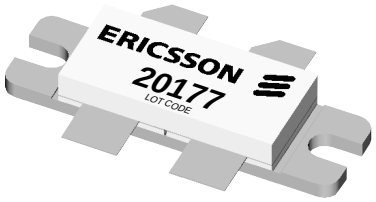
PTB 20177
150 Watts, 925–960 MHz
Cellular Radio RF Power Transistor

Description

The 20177 is a class AB, NPN, common emitter RF power transistor intended for 26 Vdc operation from 925 to 960 MHz. 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.

- 26 Volt, 960 MHz Characteristics
  - Output Power = 150 Watts (PEP)
  - Collector Efficiency = 50 Min at 150 Watts
  - IMD = -28 dBc Max at 150 Watts (PEP)
- Class AB Characteristics
- 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	25.0	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)

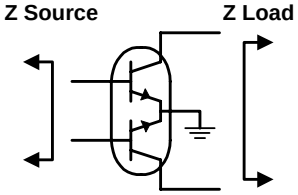
Characteristic	Conditions	Symbol	Min	Typ	Max	Units
Breakdown Voltage C to E	I_B = 0 A, I_C = 100 mA	$V_{(BR)CEO}$	25	30	—	Volts
Breakdown Voltage C to E	V_{BE} = 0 V, I_C = 100 mA	$V_{(BR)CES}$	55	70	—	Volts
Breakdown Voltage E to B	I_C = 0 A, I_E = 5 mA	$V_{(BR)EBO}$	3.5	5	—	Volts
DC Current Gain	V_{CE}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

RF Specifications (100% Tested)

Characteristic	Symbol	Min	Typ	Max	Units
Gain (V_{CC} = 26 Vdc, P_{out} = 150 W, I_{CQ} = 400 mA Total, f = 960 MHz)	G_{pe}	7.5	8.5	—	dB
Gain at PEP (V_{CC} = 26 Vdc, P_{out} = 150 W(PEP), I_{CQ} = 400 mA Total, f = 960 MHz)	G_{pe}	8	9	—	dB
Collector Efficiency (V_{CC} = 26 Vdc, P_{out} = 150 W, I_{CQ} = 400 mA Total, f = 960 MHz)	η_C	50	—	—	%
Collector Efficiency at PEP (V_{CC} = 26 Vdc, P_{out} = 150 W(PEP), I_{CQ} = 400 mA Total, f = 960 MHz)	η_C	35	—	—	%
Intermodulation Distortion (V_{CC} = 26 Vdc, P_{out} = 150 W(PEP), I_{CQ} = 400 mA Total, f_1 = 959.9 MHz, f_2 = 960.0 MHz)	IMD	—	-30	-28	dBc
Load Mismatch Tolerance (V_{CC} = 26 Vdc, P_{out} = 150 W(PEP), I_{CQ} = 400 mA Total, f = 960 MHz—all phase angles at frequency of test)	Ψ	—	—	5:1	—

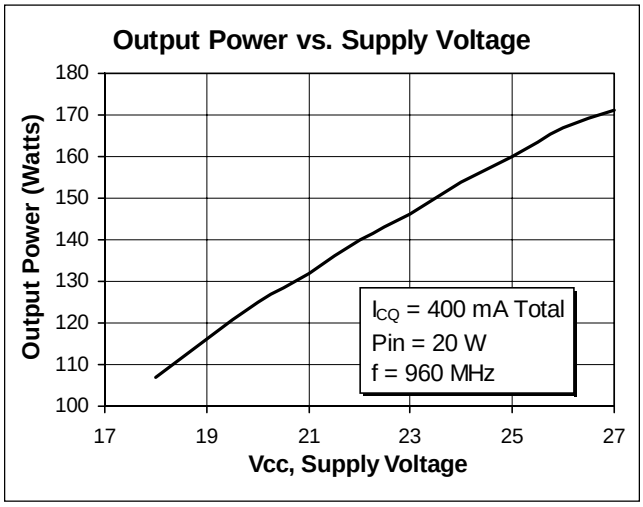
Impedance Data (data shown for fixed-tuned broadband circuit)

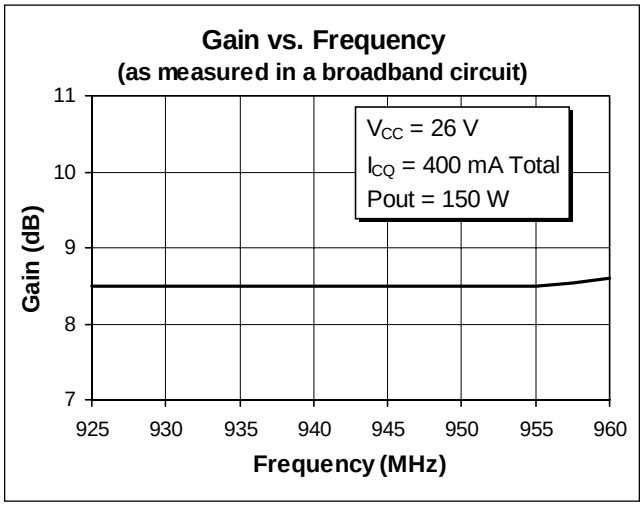
(V_{CC} = 26 Vdc, P_{out} = 150 W, I_{CQ} = 400 mA Total)

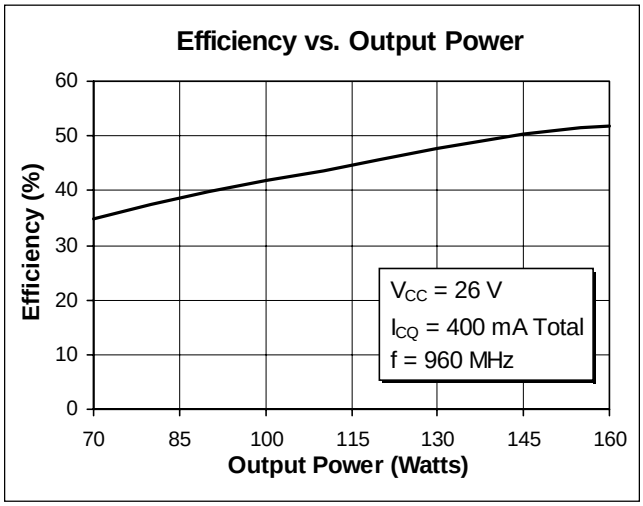


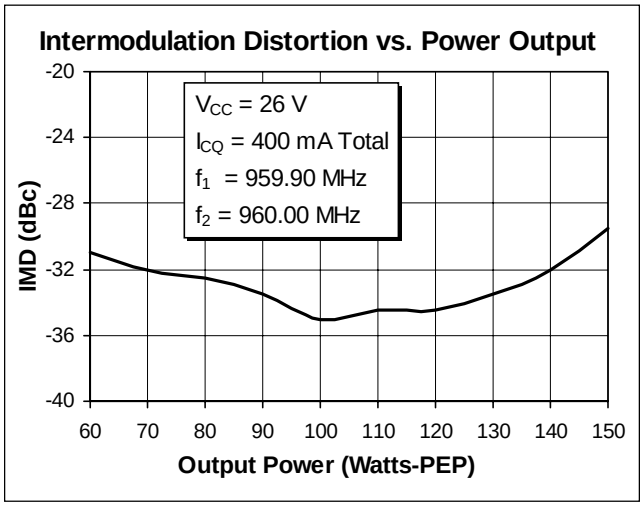
Frequency	Z Source		Z Load	
MHz	R	jX	R	jX
925	4.3	-3.6	3.8	-1.8
940	4.1	-3.6	3.5	-1.4
960	3.7	-3.4	3.1	-0.9

Typical Performance









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