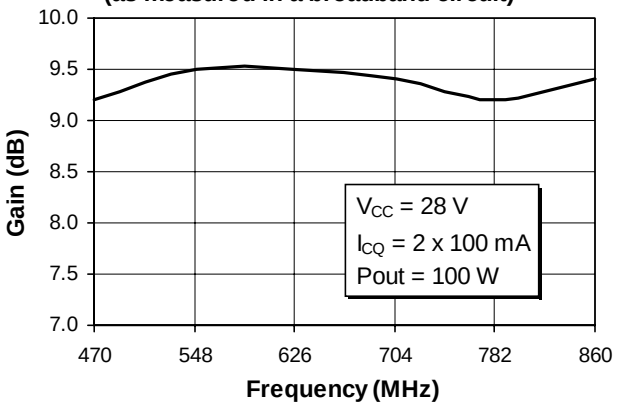
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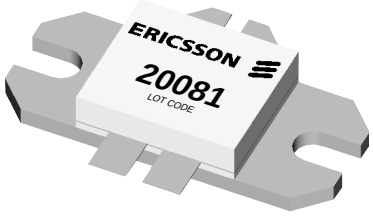
PTB 20081
150 Watts, 470–860 MHz
UHF TV Power Transistor

Description

The 20081 is a class AB, NPN, common emitter RF power transistor intended for 28 to 32 Vdc operation across the 470 to 860 MHz UHF TV frequency band. It is rated at 100 watts minimum output power. Ion implantation, nitride surface passivation and gold metallization are used to ensure excellent device reliability. 100% lot traceability is standard.

- 150 Watts (P-Sync), 470–860 MHz
- Class AB Characteristics
- 55% Collector Efficiency at 100 Watts (CW)
- Guaranteed Performance at 28 Volts, 860 MHz
  - Output Power = 125 Watts (Peak Sync)
  - Output Power = 100 Watts (CW)
  - Minimum Gain = 8.5 dB
- Guaranteed Performance at 32 Volts, 860 MHz
  - Output Power = 150 Watts (Peak Sync)





Package 20212

Maximum Ratings

Parameter	Symbol	Value	Unit
Collector-Emitter Voltage	V_{CER}	40	Vdc
Collector-Base Voltage	V_{CBO}	65	Vdc
Emitter-Base Voltage (collector open)	V_{EBO}	4.0	Vdc
Collector Current (continuous)	I_C	12	Adc
Total Device Dissipation at T_{flange} = 25°C Above 25°C derate by	P_D	233 1.33	Watts W/°C
Storage Temperature Range	T_{STG}	–40 to +150	°C
Thermal Resistance (T_{flange} = 70°C)	$R_{\theta JC}$	0.75	°C/W

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Electrical Characteristics (100% Tested)

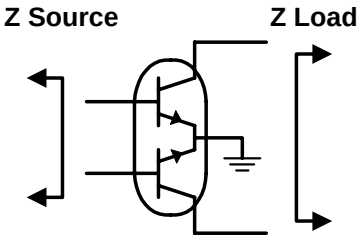
Characteristic	Conditions	Symbol	Min	Typ	Max	Units
Breakdown Voltage C to E	I_B = 0 A, I_C = 100 mA	$V_{(BR)CEO}$	25	30	—	Volts
Breakdown Voltage C to E	V_{BE} = 0 V, I_C = 100 mA	$V_{(BR)CES}$	55	70	—	Volts
Breakdown Voltage E to B	I_C = 0 A, I_E = 5 mA	$V_{(BR)EBO}$	3.5	5	—	Volts
DC Current Gain	V_{CE} = 5 V, I_C = 1 A	h_{FE}	20	50	100	—
Output Capacitance (each side)	V_{CB} = 28 V, I_E = 0 A, f = 1 MHz	Cob	—	45	—	pF

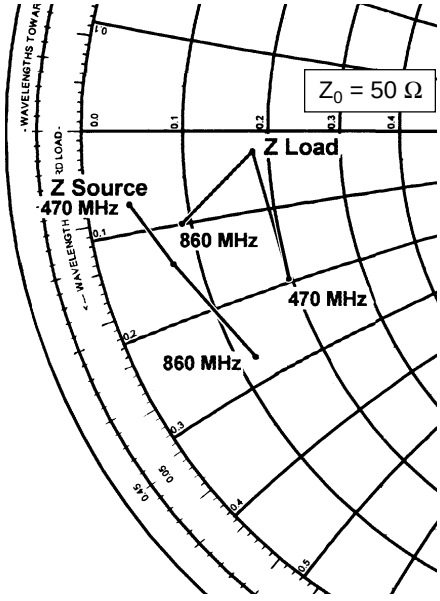
RF Specifications (100% Tested)

Characteristic	Symbol	Min	Typ	Max	Units
Power Output (V_{CC} = 28 Vdc, I_{CQ} = 2 x 100 mA, f = 860 MHz)	P_{out}	100	110	—	Watts
Power Output (P-Sync.) (V_{CC} = 28 Vdc, I_{CQ} = 2 x 100 mA, f = 860 MHz)	P_{out}	125	135	—	Watts
Power Out (P-Sync.) (V_{CC} = 32 Vdc, I_{CQ} = 2 x 100 mA, f = 860 MHz)	P_{out}	150	160	—	Watts
Gain (V_{CC} = 28 Vdc, P_{out} = 100 W, I_{CQ} = 2 x 100 mA, f = 860 MHz)	G_{pe}	8.5	9.5	—	dB
Collector Efficiency (V_{CC} = 28 Vdc, P_{out} = 100 W, I_{CQ} = 2 x 100 mA, f = 860 MHz)	η_C	55	58	—	%
Load Mismatch Tolerance (V_{CC} = 28 Vdc, P_{out} = 100 $W_{(PEP)}$, f = 860 MHz— all phase angles at frequency of test)	Ψ	—	—	10:1	—

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

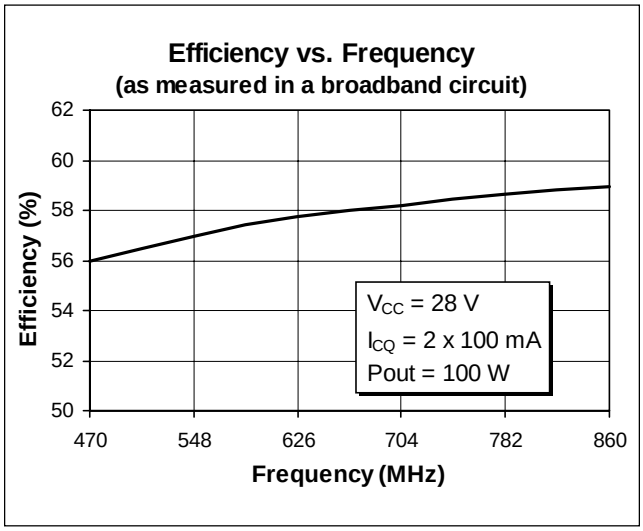
(V_{CC} = 28 Vdc, P_{out} = 100 W, I_{CQ} = 2 x 100 mA)

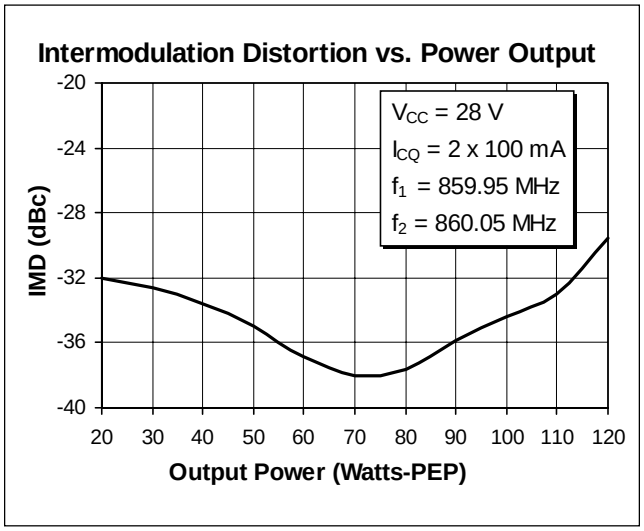




Frequency	Z Source		Z Load	
MHz	R	jX	R	jX
470	2.0	-3.6	9.8	-9.8
650	3.6	-7.0	9.0	-1.3
860	6.0	-13.5	4.5	-5.0

Typical Performance





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