

PTB 20188

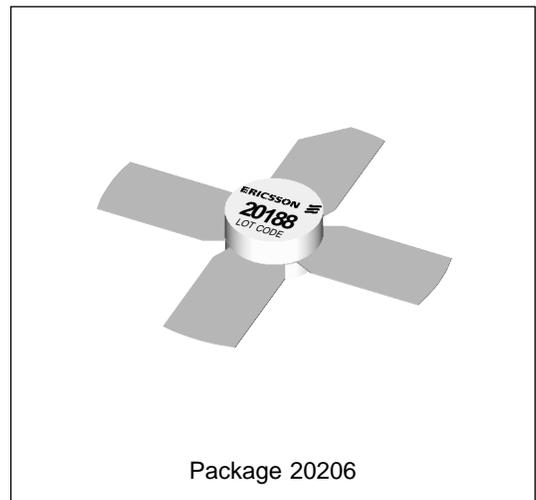
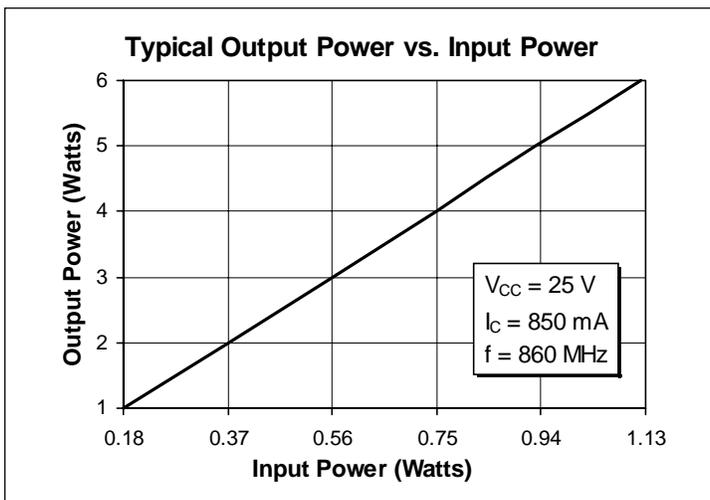
4 Watts P-Sync, 470–860 MHz

UHF TV Linear Power Transistor

Description

The 20188 is an NPN common emitter UHF power transistor intended for 25 Vdc class A operation from 470 to 860 MHz. It is rated at 4 watts output power, and 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.

- 4 Watts (P-sync), 470–860 MHz
- Class A Characteristics
- Gold Metallization
- Silicon Nitride Passivated



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	6.7	Adc
Total Device Dissipation at $T_{flange} = 25^\circ C$ Above $25^\circ C$ derate by	P_D	65 0.4	Watts W/ $^\circ C$
Storage Temperature Range	T_{STG}	-40 to +150	$^\circ C$
Thermal Resistance ($T_{flange} = 70^\circ C$)	$R_{\theta JC}$	4.5	$^\circ C/W$

Electrical Characteristics (100% Tested)

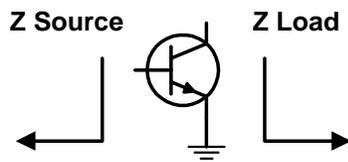
Characteristic	Conditions	Symbol	Min	Typ	Max	Units
Breakdown Voltage C to E	$I_B = 0 \text{ A}, I_C = 50 \text{ mA}$	$V_{(BR)CEO}$	25	30	—	Volts
Breakdown Voltage C to E	$V_{BE} = 0 \text{ V}, I_C = 50 \text{ mA}$	$V_{(BR)CES}$	55	70	—	Volts
Breakdown Voltage E to B	$I_C = 0 \text{ A}, I_E = 5 \text{ mA}$	$V_{(BR)EBO}$	3.5	5	—	Volts
DC Current Gain	$V_{CE} = 5 \text{ V}, I_C = 250 \text{ mA}$	h_{FE}	20	50	100	—

RF Specifications

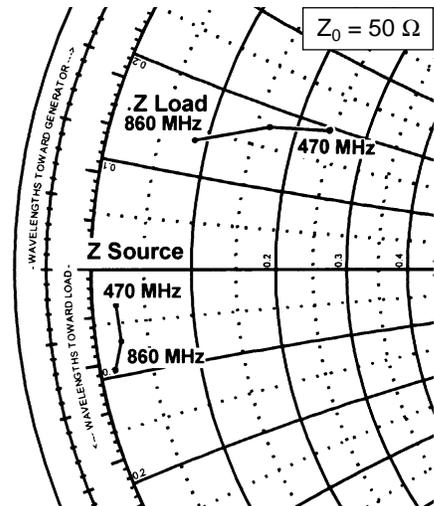
Characteristic	Symbol	Min	Typ	Max	Units
Gain $(V_{CC} = 25 \text{ Vdc}, I_C = 850 \text{ mA}, P_{Out} = 4 \text{ W(P-sync)}, f_1 = 860 \text{ MHz},$ $\text{Vision} = -8\text{dB}, f_2 = 863.5 \text{ MHz}, \text{Subcarrier} = -16\text{dB},$ $f_3 = 864.5 \text{ MHz}, \text{Sound} = -7\text{dB})$	G_{pe}	7.0	—	—	dB
Intermodulation Distortion $(V_{CC} = 25 \text{ Vdc}, I_C = 850 \text{ mA}, P_{Out} = 4 \text{ W(P-sync)}, f_1 = 860 \text{ MHz},$ $\text{Vision} = -8\text{dB}, f_2 = 863.5 \text{ MHz}, \text{Subcarrier} = -16\text{dB},$ $f_3 = 864.5 \text{ MHz}, \text{Sound} = -7\text{dB})$	IMD	—	—	-58	dBc
Load Mismatch Tolerance $(V_{CC} = 25 \text{ Vdc}, I_C = 850 \text{ mA}, P_{Out} = 4 \text{ W(P-sync)}, f_1 = 860 \text{ MHz},$ $\text{Vision} = -8\text{dB}, f_2 = 863.5 \text{ MHz}, \text{Subcarrier} = -16\text{dB},$ $f_3 = 864.5 \text{ MHz}, \text{Sound} = -7\text{dB}$ —all phase angles at frequency of test)	Ψ	—	—	3:1	—

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

$(V_{CC} = 25 \text{ Vdc}, I_C = 850 \text{ mA}, P_{Out} = 4 \text{ W(P-sync)})$



Frequency MHz	Z Source		Z Load	
	R	jX	R	jX
470	1.1	-1.7	12.2	+9.8
665	1.2	-3.4	8.3	+8.8
860	0.7	-4.7	4.3	+6.9



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