

# PTB 20188

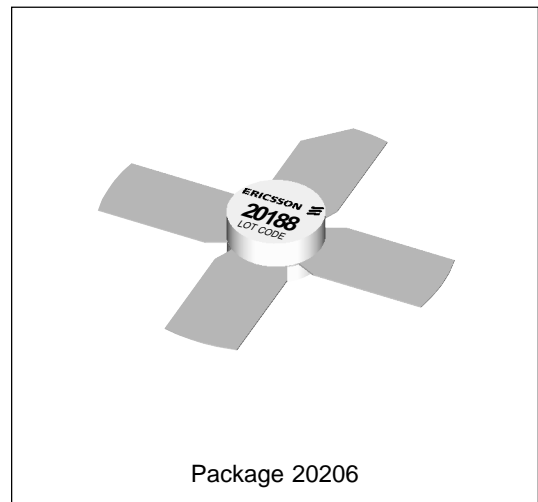
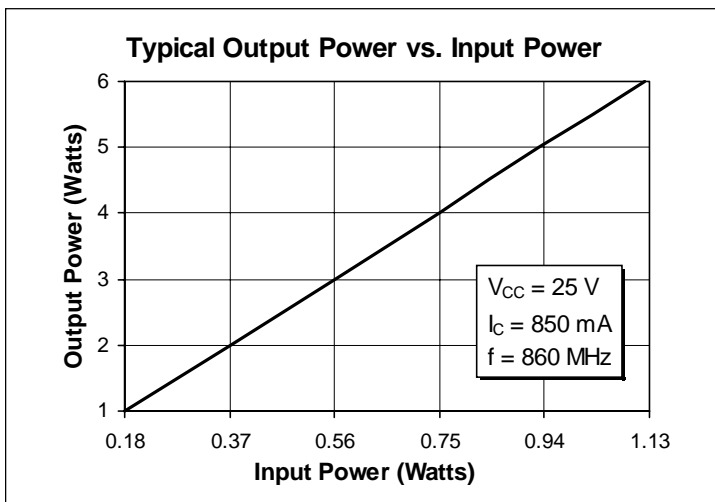
## 4 Watts P-Sync, 470–860 MHz

### 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)

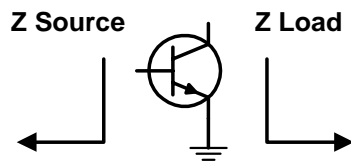
Characteristic	Conditions	Symbol	Min	Typ	Max	Units
Breakdown Voltage C to E	$I_B = 0\text{ A}, I_C = 50\text{ mA}$	$V_{(BR)CEO}$	25	30	—	Volts
Breakdown Voltage C to E	$V_{BE} = 0\text{ V}, I_C = 50\text{ mA}$	$V_{(BR)CES}$	55	70	—	Volts
Breakdown Voltage E to B	$I_C = 0\text{ A}, I_E = 5\text{ mA}$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

**RF Specifications**

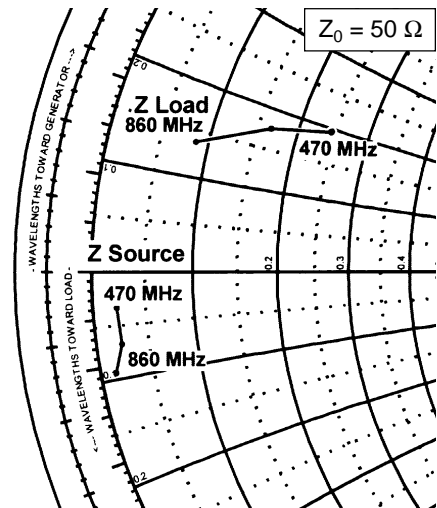
Characteristic	Symbol	Min	Typ	Max	Units
<b>Gain</b> ( $V_{CC} = 25\text{ Vdc}, I_C = 850\text{ mA}, P_{Out} = 4\text{ W(P-sync)}, f_1 = 860\text{ MHz},$ Vision = -8dB, $f_2 = 863.5\text{ MHz},$ Subcarrier = -16dB, $f_3 = 864.5\text{ MHz},$ Sound = -7dB)	$G_{pe}$	7.0	—	—	dB
<b>Intermodulation Distortion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