

PTB 20091

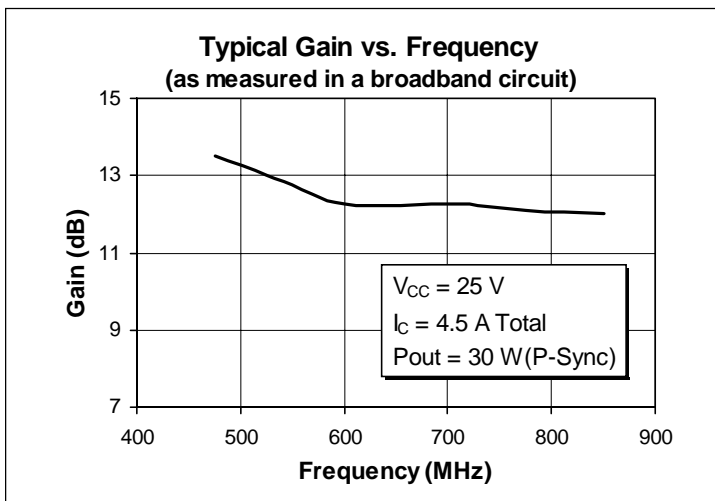
30 Watts, 470–860 MHz

UHF TV Linear Power Transistor

Description

The 20091 is an NPN, common emitter RF power transistor intended for 25 Vdc class A operation from 470 to 860 MHz. It is rated at 30 watts P-sync output power. Ion implantation, nitride surface passivation and gold metallization are used to ensure excellent device reliability. 100% lot traceability is standard.

- 30 Watts (P-Sync), 470–860 MHz
- Class A Characteristics
- Silicon Nitride Passivated
- Gold Metallization
- Excellent Linearity



Maximum Ratings

| Parameter | Symbol | Value | Unit |
|---|-----------------|-------------|------------------------------|
| Collector-Emitter Voltage | V_{CEO} | 30 | 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 $T_{flange} = 25^\circ\text{C}$ Above 25°C derate by | P_D | 150 1.33 | Watts W/ $^\circ\text{C}$ |
| Storage Temperature Range | T_{STG} | -40 to +150 | $^\circ\text{C}$ |
| Thermal Resistance ($T_{flange} = 70^\circ\text{C}$) | $R_{\theta JC}$ | .75 | $^\circ\text{C/W}$ |

Electrical Characteristics (100% Tested)

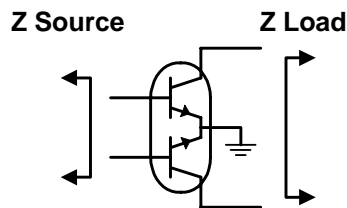
| Characteristic | Conditions | Symbol | Min | Typ | Max | Units |
|-------------------------------|--|---------------|-----|-----|-----|-------|
| Breakdown Voltage C to E | $I_B = 0\text{ A}, I_C = 100\text{ mA}$ | $V_{(BR)CEO}$ | 25 | 30 | — | Volts |
| Breakdown Voltage C to E | $V_{BE} = 0\text{ V}, I_C = 100\text{ mA}$ | $V_{(BR)CES}$ | 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 | $V_{CE} = 5\text{ V}, I_C = 1\text{ A}$ | h_{FE} | 20 | 50 | 100 | — |
| Output Capacitance (per side) | $V_{CB} = 28\text{ V}, I_E = 0\text{ A}, f = 1\text{ MHz}$ | Cob | — | 45 | — | pF |

RF Specifications (100% Tested)

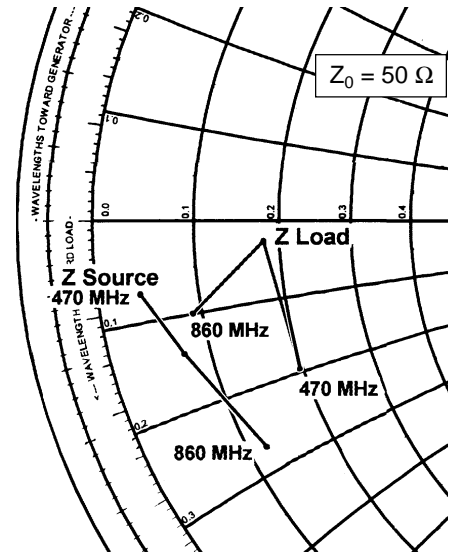
| Characteristic | Symbol | Min | Typ | Max | Units |
|--|----------|-----|-----|------|-------|
| Gain ($V_{CC} = 25\text{ Vdc}, P_{out} = 30\text{ W(P-sync)}, I_C = 4.5\text{ A Total}, f = 470\text{--}860\text{ MHz}$) | G_{pe} | 11 | 12 | — | dB |
| Intermodulation Distortion ($V_{CC} = 25\text{ Vdc}, P_{out} = 27.5\text{ W(P-sync)}, I_C = 4.5\text{ A Total}, f_1 = 860\text{ MHz}, \text{Vision} = -8\text{ dB}, f_2 = 863.5\text{ MHz}, \text{Subcarrier} = -16\text{ dB}, f_3 = 864.5\text{ MHz}, \text{Sound} = -7\text{ dB}$) | IM_3 | — | -50 | — | dBc |
| Load Mismatch Tolerance ($V_{CC} = 25\text{ Vdc}, P_{out} = 30\text{ W(P-sync)}, I_C = 4.5\text{ A Total}, f = 470\text{--}860\text{ MHz}$ —all phase angles at frequency of test) | Ψ | — | — | 10:1 | — |

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

($V_{CC} = 25\text{ Vdc}, P_{out} = 30\text{ W(P-sync)}, I_C = 4.5\text{ A Total}$)



| Frequency MHz | Z Source | | Z Load | |
|------------------|----------|-------|--------|------|
| | 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 |



Ericsson Components
RF Power Products
 675 Jarvis Drive
 Morgan Hill, CA 95037 USA
 Telephone: 408-778-9434

1-877-GOLDMOS
 (1-877-465-3667)
 e-mail: rfpower@ericsson.com
 www.ericsson.com/rfpower

Specifications subject to change without notice.
 LF
 © 1996 Ericsson Inc.
 EUS/KR 1301-PTB 20091 Uen Rev. D 09-28-98