

PTB 20162

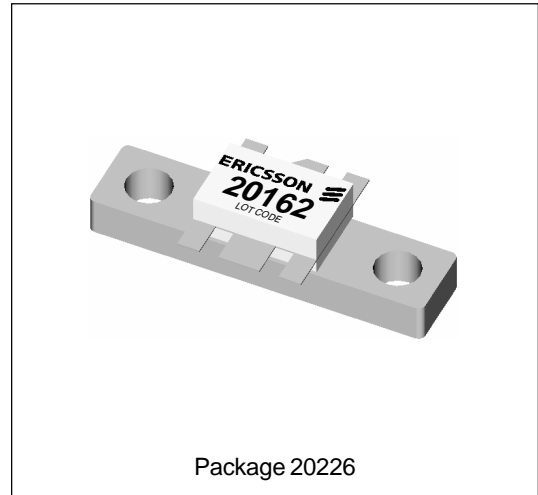
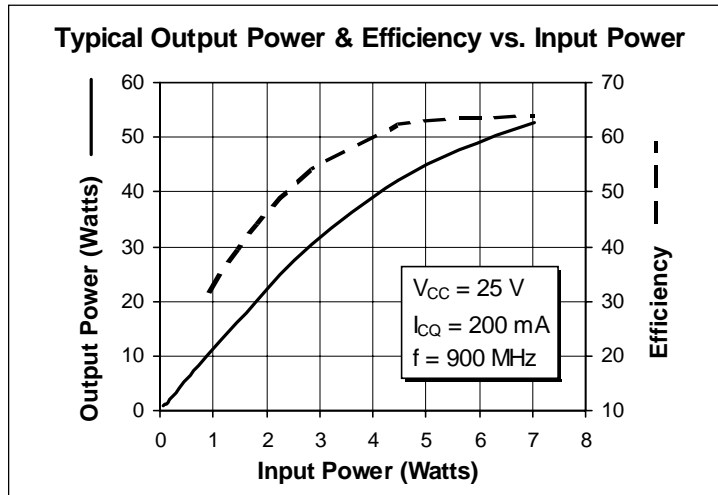
40 Watts, 470–900 MHz

RF Power Transistor

Description

The 20162 is an NPN common emitter RF power transistor intended for 25 Vdc class AB operation from 470 to 900 MHz. Rated at 40 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.

- 40 Watts, 470–900 MHz
- Class AB Characteristics
- 50% Min Collector Efficiency at 40 Watts
- Gold Metallization
- Silicon Nitride Passivated



Maximum Ratings

Parameter	Symbol	Value	Unit
Collector-Emitter Voltage	V_{CER}	50	Vdc
Collector-Base Voltage	V_{CBO}	50	Vdc
Emitter-Base Voltage (collector open)	V_{EBO}	4.0	Vdc
Collector Current (continuous)	I_C	10.0	Adc
Total Device Dissipation at $T_{flange} = 25^{\circ}C$ Above $25^{\circ}C$ derate by	P_D	80 0.45	Watts W/ $^{\circ}C$
Storage Temperature Range	T_{STG}	-40 to +150	$^{\circ}C$
Thermal Resistance ($T_{flange} = 70^{\circ}C$)	$R_{\theta JC}$	2.2	$^{\circ}C/W$

Electrical Characteristics (100% Tested)

Characteristic	Conditions	Symbol	Min	Typ	Max	Units
Breakdown Voltage C to E	$I_B = 0 \text{ A}$, $I_C = 50 \text{ mA}$, $R_{BE} = 22 \Omega$	$V_{(BR)CER}$	50	—	—	Volts
Breakdown Voltage C to E	$V_{BE} = 0 \text{ V}$, $I_C = 50 \text{ mA}$	$V_{(BR)CES}$	50	—	—	Volts
Breakdown Voltage E to B	$I_C = 0 \text{ A}$, $I_E = 20 \text{ mA}$	$V_{(BR)EBO}$	4.0	5	—	Volts
DC Current Gain	$V_{CE} = 5 \text{ V}$, $I_C = 1 \text{ A}$	h_{FE}	20	50	100	—

RF Specifications (100% Tested)

Characteristic	Symbol	Min	Typ	Max	Units
Gain ($V_{CC} = 25 \text{ Vdc}$, $P_{out} = 40 \text{ W}$, $I_{CQ} = 200 \text{ mA}$, $f = 900 \text{ MHz}$)	G_{pe}	8.0	9.5	—	dB
Collector Efficiency ($V_{CC} = 25 \text{ Vdc}$, $P_{out} = 40 \text{ W}$, $I_{CQ} = 200 \text{ mA}$, $f = 900 \text{ MHz}$)	η_C	50	—	—	%
Power Output at 1 dB Compression ($V_{CC} = 25 \text{ Vdc}$, $I_{CQ} = 200 \text{ mA}$, $f = 900 \text{ MHz}$)	P-1dB	40	45	—	Watts
Intermodulation Distortion ($V_{CC} = 25 \text{ Vdc}$, $P_{out} = 30 \text{ W(PEP)}$, $I_{CQ} = 60 \text{ mA}$, $f_1 = 899 \text{ MHz}$, $f_2 = 900 \text{ MHz}$)	IMD	-32	-35	—	dBc
Load Mismatch Tolerance ($V_{CC} = 25 \text{ Vdc}$, $P_{out} = 40 \text{ W(CW)}$, $I_{CQ} = 200 \text{ mA}$, $f = 900 \text{ MHz}$ —all phase angles at frequency of test)	Ψ	—	—	30:1	—

Typical Performance

