

PTB 20079

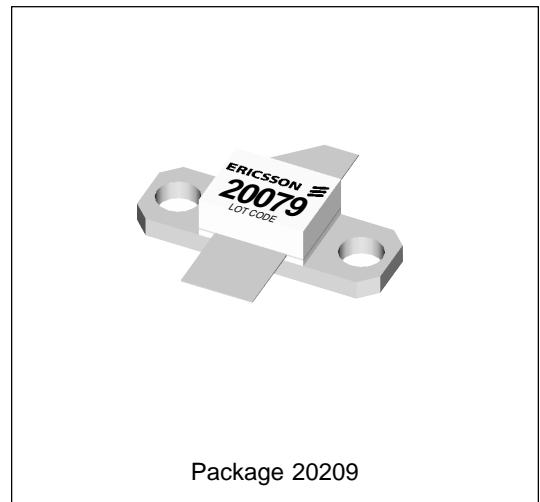
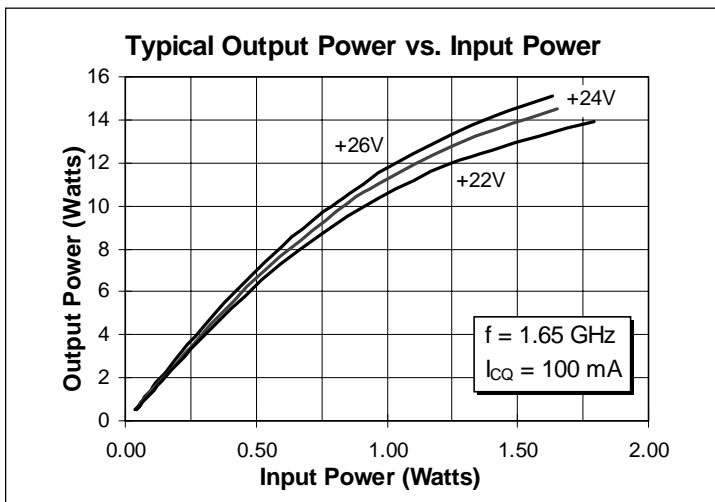
10 Watts, 1.6–1.7 GHz

INMARSAT RF Power Transistor

Description

The 20079 is a class A/AB, NPN, silicon bipolar junction, internally-matched, common emitter RF Power transistor intended for 26 Vdc operation across 1.6 to 1.7 GHz frequency band. It is rated at 10 Watts minimum output power for PEP applications. Ion implantation, nitride surface passivation and gold metallization ensure excellent device reliability. 100% lot traceability is standard.

- 10 Watts, 1.6–1.7 GHz
- Class A/AB Characteristics
- 38% Collector Efficiency at 10 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	1.4	Adc
Total Device Dissipation at $T_{flange} = 25^\circ C$ Above $25^\circ C$ derate by	P_D	52 0.29	Watts W/°C
Storage Temperature Range	T_{STG}	-40 to +150	°C
Thermal Resistance ($T_{flange} = 70^\circ C$)	$R_{\theta JC}$	3.4	°C/W

Electrical Characteristics (100% Tested)

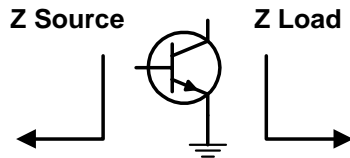
Characteristic	Conditions	Symbol	Min	Typ	Max	Units
Breakdown Voltage C to E	$I_C = 15 \text{ mA}$, $R_{BE} = 22 \Omega$	$V_{(BR)CER}$	55	—	—	Vdc
Breakdown Voltage E to B	$I_E = 10 \text{ mA}$	$V_{(BR)EBO}$	4.0	—	—	Vdc
DC Current Gain	$I_C = 1 \text{ A}$, $V_{CE} = 5 \text{ V}$	h_{FE}	20	—	100	—

RF Specifications (100% Tested)

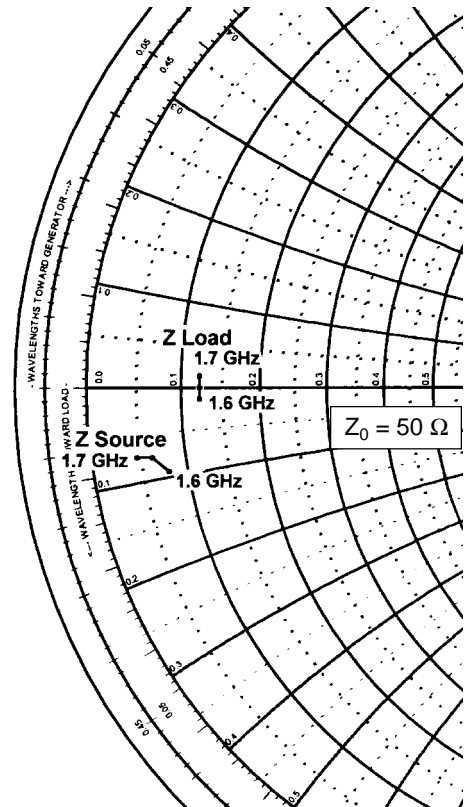
Characteristic	Symbol	Min	Typ	Max	Units
Power Gain, Common-Emitter ($V_{CC} = 26 \text{ Vdc}$, $P_{OUT} = 3 \text{ W}$, $I_{CQ} = 120 \text{ mA}$, $f = 1.65 \text{ GHz}$)	G_{pe}	10.5	11	—	dB
Efficiency ($V_{CC} = 26 \text{ Vdc}$, $P_{OUT} = 10 \text{ W}$, $I_{CQ} = 120 \text{ mA}$, $f = 1.65 \text{ GHz}$)	η_C	37	40	—	%
Power Output at 1 dB Compression ($V_{CC} = 26 \text{ Vdc}$, $I_{CQ} = 120 \text{ mA}$, $f = 1.65 \text{ GHz}$)	P-1dB	10.0	12	—	Watts

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

$V_{CC} = 26 \text{ Vdc}$, $P_{OUT} = 10 \text{ W}$, $I_{CQ} = 120 \text{ mA}$



Frequency GHz	Z Source		Z Load	
	R	jX	R	jX
1.6	3.9	-4.7	6.1	-0.7
1.65	3.1	-3.8	6.1	0.0
1.7	2.3	-3.7	6.1	0.7



Typical Performance

