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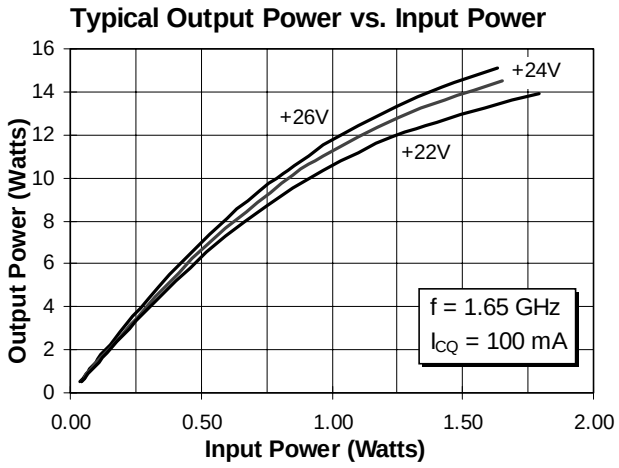
PTB 20079
10 Watts, 1.6–1.7 GHz
INMARSAT RF Power Transistor

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



Package 20209

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° C Above 25° 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° C)	$R_{\theta JC}$	3.4	°C/W

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Electrical Characteristics (100% Tested)

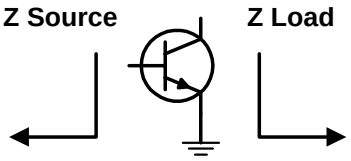
Characteristic	Conditions	Symbol	Min	Typ	Max	Units
Breakdown Voltage C to E	I_C = 15 mA, R_{BE} = 22 Ω	$V_{(BR)CER}$	55	—	—	Vdc
Breakdown Voltage E to B	I_E = 10 mA	$V_{(BR)EBO}$	4.0	—	—	Vdc
DC Current Gain	I_C = 1 A, V_{CE} = 5 V	h_{FE}	20	—	100	—

RF Specifications (100% Tested)

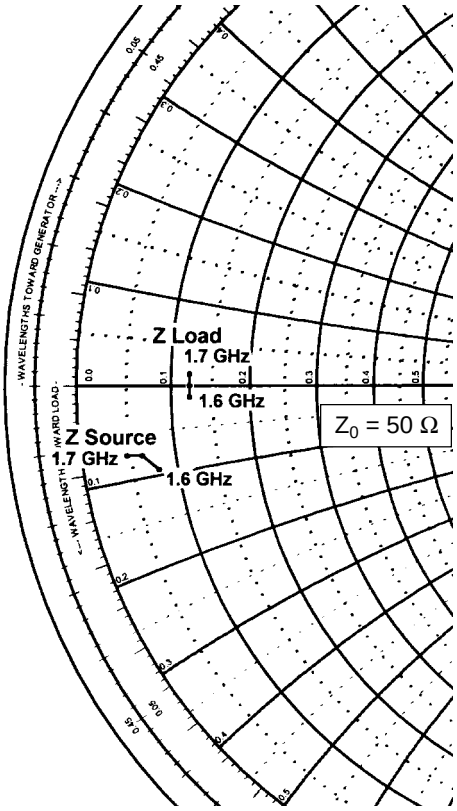
Characteristic	Symbol	Min	Typ	Max	Units
Power Gain, Common-Emitter (V_{CC} = 26 Vdc, P_{OUT} = 3 W, I_{CQ} = 120 mA, f = 1.65 GHz)	G_{pe}	10.5	11	—	dB
Efficiency (V_{CC} = 26 Vdc, P_{OUT} = 10 W, I_{CQ} = 120 mA, f = 1.65 GHz)	η_C	37	40	—	%
Power Output at 1 dB Compression (V_{CC} = 26 Vdc, I_{CQ} =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

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

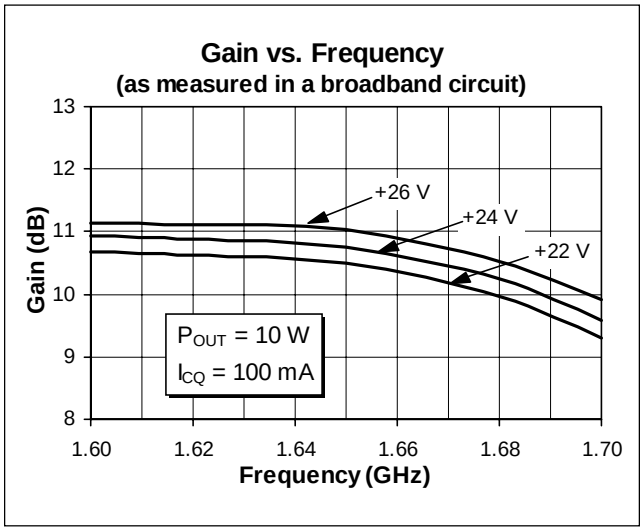
V_{CC} = 26 Vdc, P_{OUT} = 10 W, I_{CQ} = 120 mA

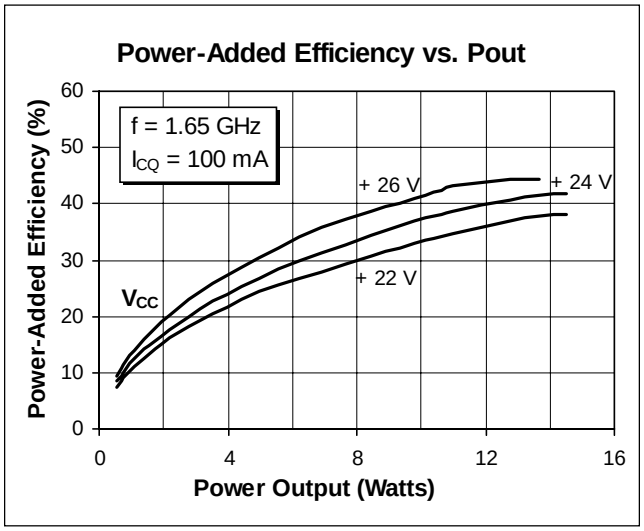


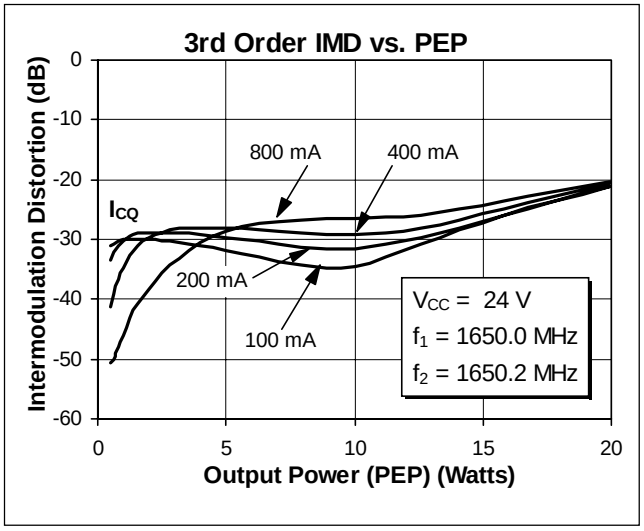
Frequency	Z Source		Z Load	
GHz	R	jX	R	jX
1.6	3.9	-4.7	6.1	-0.7
1.65	3.1	-3.8	6.1	0.0
1.7	2.3	-3.7	6.1	0.7



Typical Performance







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