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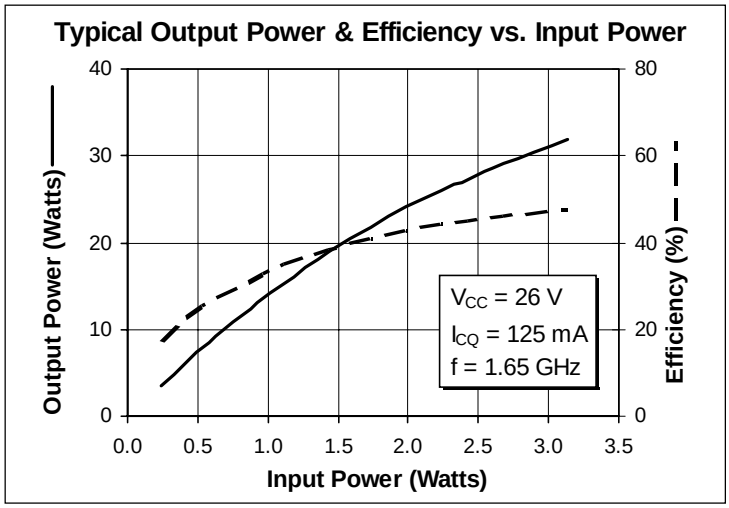
PTB 20080
25 Watts, 1.6–1.7 GHz
RF Power Transistor

Description

ThPTB 20080 is a class A/AB, NPN, silicon bipolar junction, internally-matched RF power transistor intended for 26 Vdc operation from 1.6 to 1.7 GHz. It is rated at 25 Watts minimum output power for PEP applications. Ion implantation, nitride surface passivation and gold metallization ensure excellent device reliability. 100% lot traceability is standard.

- 25 Watts, 1.6–1.7 GHz
- Class AB Characteristics
- 40% Collector Efficiency at 25 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	3.4	Adc
Total Device Dissipation at T_{flange} = 25° C Above 25° C derate by	P_D	123 0.7	Watts W/°C
Storage Temperature Range	T_{STG}	150	°C
Thermal Resistance (T_{flange} = 70°C)	$R_{\theta JC}$	1.43	°C/W

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Electrical Characteristics (100% Tested)

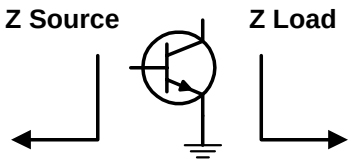
Characteristic	Conditions	Symbol	Min	Typ	Max	Units
Breakdown Voltage C to B	V_{BE} = 0 V, I_C = 15 mA	$V_{(BR)CES}$	50	—	—	Vdc
Breakdown Voltage E to B	I_C = 5 mA	$V_{(BR)EBO}$	4.0	—	—	Vdc
Cut-off Current C to E	V_{CE} = 26 V	I_{CES}	—	—	10	mA
DC Current Gain	V_{CE} = 5 V, I_C = 2 A	h_{FE}	30	—	—	—

RF Specifications (100% Tested)

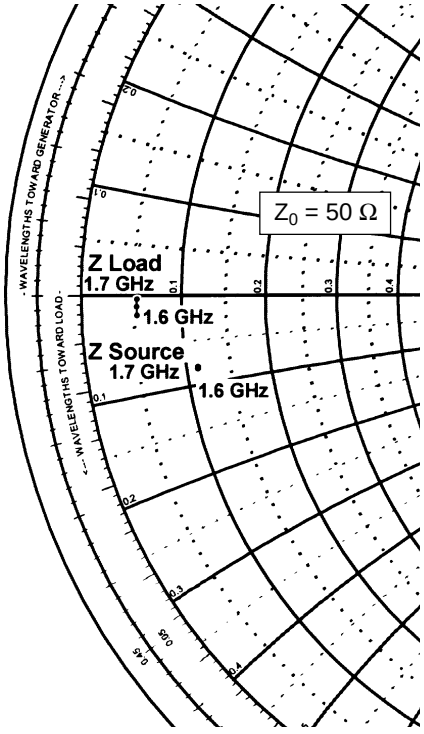
Characteristic	Symbol	Min	Typ	Max	Units
Power Gain (V_{CC} = 26 Vdc, P_{OUT} = 10 W, I_{CQ} = 125 mA, f = 1.65 GHz)	G_{pe}	10.5	11.5	—	dB
Power Output at 1 dB Compression (V_{CC} = 26 Vdc, I_{CQ} = 125 mA, f = 1.65 GHz)	P-1dB	25	—	—	Watts
Collector Efficiency (V_{CC} = 26 Vdc, P_{OUT} = 25 W, I_{CQ} = 125 mA, f = 1.65 GHz)	η_C	40	44	—	%
Load Mismatch Tolerance (V_{CC} = 26 Vdc, P_{OUT} = 25 W, I_{CQ} = 125 mA, f = 1.65 GHz—all phase angles at frequency of test)	Ψ	—	—	10:1	—

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

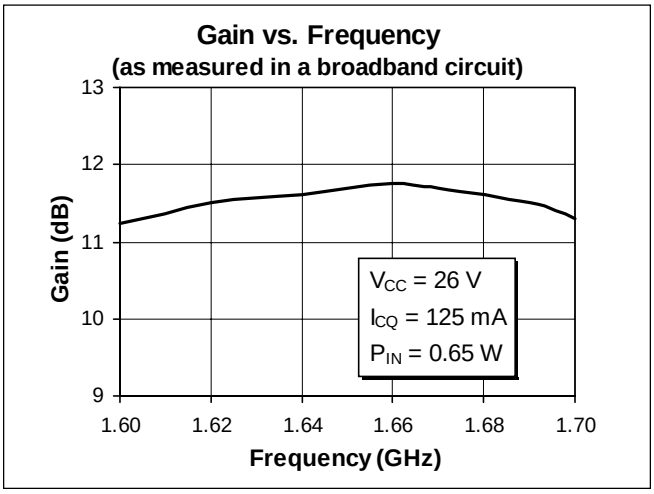
V_{CC} = 26 Vdc, P_{OUT} = 25 W, I_{CQ} = 125 mA



Frequency	Z Source		Z Load	
GHz	R	jX	R	jX
1.60	5.6	-4.1	2.6	-1.0
1.65	5.6	-4.0	2.6	-0.6
1.70	5.6	-4.0	2.7	-0.2



Typical Performance



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EUS/KR 1301-PTB 20080 Uen Rev. C 09-28-98