

PTB 20080

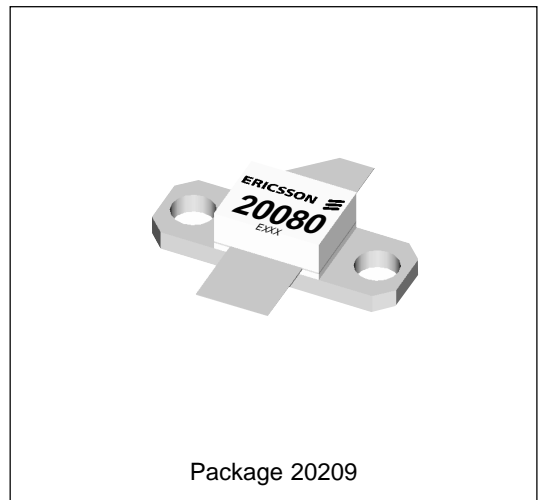
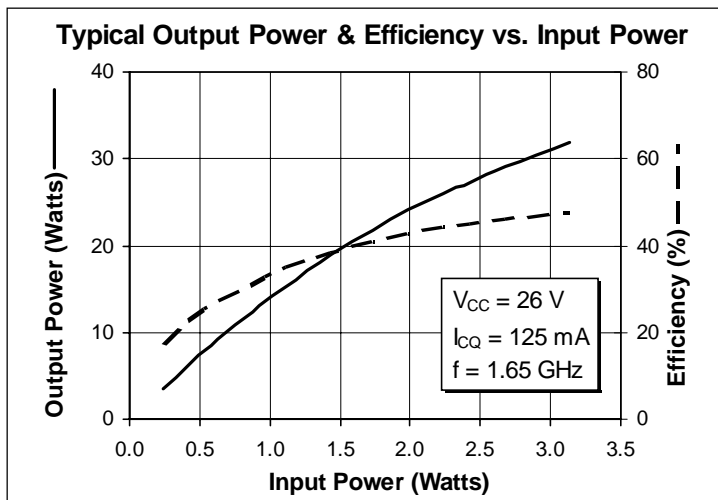
25 Watts, 1.6–1.7 GHz

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



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 $T_{flange} = 25^\circ C$	P_D	123	Watts
Above $25^\circ C$ derate by		0.7	W/°C
Storage Temperature Range	T_{STG}	150	°C
Thermal Resistance ($T_{flange} = 70^\circ C$)	$R_{\theta JC}$	1.43	°C/W

Electrical Characteristics (100% Tested)

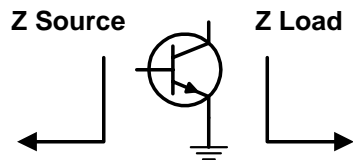
Characteristic	Conditions	Symbol	Min	Typ	Max	Units
Breakdown Voltage C to B	$V_{BE} = 0\text{ V}, I_C = 15\text{ mA}$	$V_{(BR)CES}$	50	—	—	Vdc
Breakdown Voltage E to B	$I_C = 5\text{ mA}$	$V_{(BR)EBO}$	4.0	—	—	Vdc
Cut-off Current C to E	$V_{CE} = 26\text{ V}$	I_{CES}	—	—	10	mA
DC Current Gain	$V_{CE}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

RF Specifications (100% Tested)

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

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

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



Frequency GHz	Z Source		Z Load	
	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

