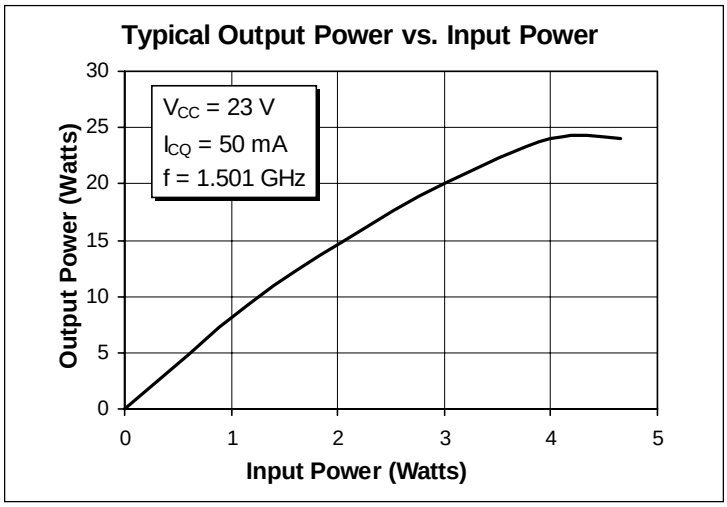
ERICSSON

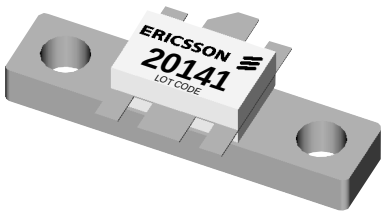
PTB 20141
18 Watts, 1.465–1.513 GHz
Cellular Radio RF Power Transistor

Description

The 20141 is a class AB, NPN, common emitter RF power transistor intended for 23 Vdc operation from 1.465 to 1.513 GHz. Rated at 18 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.

- 18 Watts, 1.465–1.513 GHz
- Class AB Characteristics
- 45% Min Collector Efficiency at 9 Watts
- Gold Metallization
- Silicon Nitride Passivated





Package 20201

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	2.0	Adc
Total Device Dissipation at T_{flange} = 25°C Above 25°C derate by	P_D	51.5 0.29	Watts W/°C
Storage Temperature Range	T_{STG}	–40 to +150	°C
Thermal Resistance (T_{flange} = 70°C)	$R_{\theta JC}$	3.5	°C/W

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Electrical Characteristics (100% Tested)

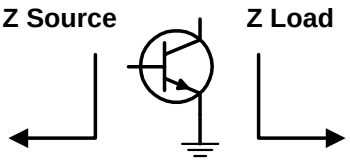
Characteristic	Conditions	Symbol	Min	Typ	Max	Units
Breakdown Voltage C to E	I_B = 0 A, I_C = 40 mA, R_{BE} = 22 Ω	$V_{(BR)CER}$	50	—	—	Volts
Breakdown Voltage C to E	V_{BE} = 0 V, I_C = 40 mA	$V_{(BR)CES}$	50	—	—	Volts
Breakdown Voltage E to B	I_C = 0 A, I_E = 5 mA	$V_{(BR)EBO}$	4	5	—	Volts
DC Current Gain	V_{CE} = 5 V, I_C = 1 A	h_{FE}	20	40	120	—

RF Specifications (100% Tested)

Characteristic	Symbol	Min	Typ	Max	Units
Gain (V_{CC} = 23 Vdc, P_{out} = 9 W, I_{CQ} = 50 mA, f = 1.513 GHz)	G_{pe}	8.5	—	—	dB
Collector Efficiency (V_{CC} = 23 Vdc, P_{out} = 9 W, I_{CQ} = 50 mA, f = 1.513 GHz)	η_C	45	—	—	%
Intermodulation Distortion (V_{CC} = 23 Vdc, P_{out} = 9 W(PEP), I_{CQ} = 50 mA, f_1 = 1.500 GHz, f_2 = 1.501 GHz)	IMD	—	-29	—	dBc
Load Mismatch Tolerance (V_{CC} = 23 Vdc, P_{out} = 9 W, I_{CQ} = 50 mA, f = 1.513 GHz—all phase angles at frequency of test)	Ψ	—	—	5:1	—

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

(V_{CC} = 23 Vdc, P_{out} = 9 W, I_{CQ} = 50 mA)



Frequency	Z Source		Z Load	
GHz	R	jX	R	jX
1.465	3.9	-5.6	3.1	-0.56
1.489	3.4	-4.5	3.0	-0.39
1.513	2.9	-3.4	2.9	-0.20

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