

PTB 20181

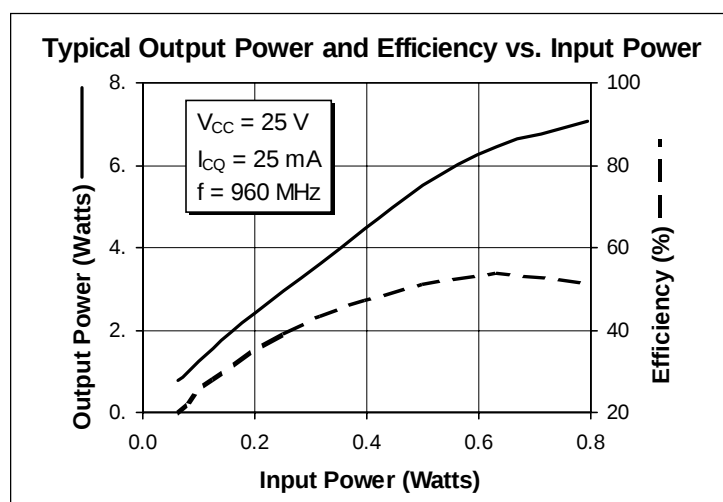
6 Watts, 915–960 MHz

Cellular Radio RF Power Transistor

Description

The 20181 is an NPN, common emitter RF power transistor intended for 25 Vdc class AB operation from 915 to 960 MHz. Rated at 6 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.

- 25 Volt, 915–960 MHz Characteristics
 - Output Power = 6 Watts
 - Gain = 9.0 dB Min at 6 Watts
- Class AB Characteristics
- Gold Metallization
- Silicon Nitride Passivated
- Surface Mountable
- Available in Tape and Reel



Maximum Ratings

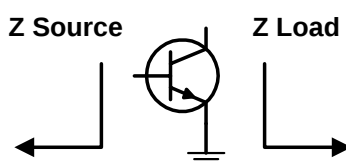
Parameter	Symbol	Value	Unit
Collector-Emitter Voltage	V_{CER}	55	Vdc
Collector-Base Voltage	V_{CBO}	60	Vdc
Emitter-Base Voltage (collector open)	V_{EBO}	4.0	Vdc
Collector Current (continuous)	I_C	1.1	Adc
Total Device Dissipation at $T_{flange} = 25^\circ\text{C}$ Above 25°C derate by	P_D	22 0.125	Watts $W/^\circ\text{C}$
Storage Temperature Range	T_{STG}	-40 to +150	$^\circ\text{C}$
Thermal Resistance ($T_{flange} = 70^\circ\text{C}$)	$R_{\theta JC}$	8.0	$^\circ\text{C/W}$

Electrical Characteristics (100% Tested)

Characteristic	Conditions	Symbol	Min	Typ	Max	Units
Breakdown Voltage C to E	$I_B = 0\text{ A}$, $I_C = 5\text{ mA}$	$V_{(BR)CEO}$	28	32	—	Volts
Breakdown Voltage C to E	$V_{BE} = 0\text{ V}$, $I_C = 5\text{ mA}$	$V_{(BR)CES}$	60	70	—	Volts
Breakdown Voltage E to B	$I_C = 0\text{ A}$, $I_E = 5\text{ mA}$	$V_{(BR)EBO}$	3.5	5	—	Volts
DC Current Gain	$V_{CE} = 5\text{ V}$, $I_C = 250\text{ mA}$	h_{FE}	20	50	120	—

RF Specifications (100% Tested)

Characteristic	Symbol	Min	Typ	Max	Units
Gain ($V_{CC} = 25\text{ Vdc}$, $P_{out} = 6\text{ W}$, $I_{CQ} = 25\text{ mA}$, $f = 960\text{ MHz}$)	G_{pe}	9	10	—	dB
Collector Efficiency ($V_{CC} = 25\text{ Vdc}$, $P_{out} = 6\text{ W}$, $I_{CQ} = 25\text{ mA}$, $f = 960\text{ MHz}$)	η_C	50	—	—	%
Load Mismatch Tolerance ($V_{CC} = 25\text{ Vdc}$, $P_{out} = 6\text{ W}$, $I_{CQ} = 25\text{ mA}$, $f = 960\text{ MHz}$ —all phase angles at frequency of test)	Ψ	—	—	30:1	—

Impedance Data (data shown for fixed-tuned broadband circuit)($V_{CC} = 25\text{ Vdc}$, $P_{out} = 6\text{ W}$, $I_{CQ} = 25\text{ mA}$)

Frequency	Z Source		Z Load	
MHz	R	jX	R	jX
915	2.5	-1.4	6.3	9.8
960	2.6	-0.8	7.0	12.4

Typical Performance
