



PTB 20189

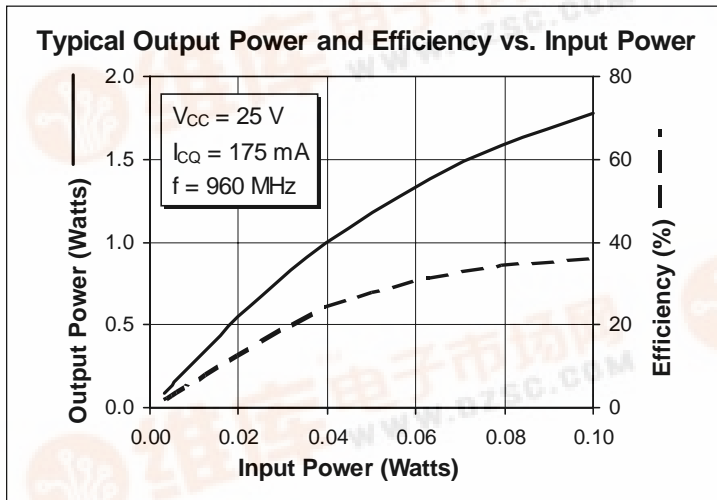
1 Watt, 900–960 MHz

Cellular Radio RF Power Transistor

Description

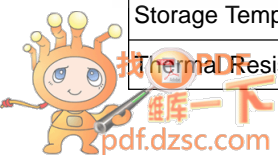
The 20189 is an NPN, common emitter RF power transistor intended for 25 Vdc class A or AB operation from 900 to 960 MHz. Rated at 1 watt minimum output power, it may be used for both CW and PEP applications. Ion implantation, nitride surface passivation and gold metallization are used to ensure excellent device reliability. 100% lot traceability is standard.

- 25 Volt, 900–960 MHz Characteristics
 - Output Power = 1 Watt
 - Gain = 12 dB Min at 1 Watt
- Class A/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}	40	Vdc
Collector-Base Voltage	V_{CBO}	50	Vdc
Emitter-Base Voltage (collector open)	V_{EBO}	4.0	Vdc
Collector Current (continuous)	I_C	0.5	Adc
Total Device Dissipation at $T_{flange} = 25^\circ C$ Above $25^\circ C$ derate by	P_D	11 0.063	Watts W/ $^\circ C$
Storage Temperature Range	T_{STG}	-40 to +150	$^\circ C$
Thermal Resistance ($T_{flange} = 70^\circ C$)	$R_{\theta JC}$	16.0	$^\circ C/W$



Electrical Characteristics (100% Tested)

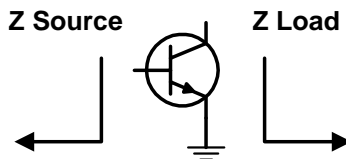
Characteristic	Conditions	Symbol	Min	Typ	Max	Units
Breakdown Voltage C to E	$I_B = 0\text{ A}, I_C = 5\text{ mA}$	$V_{(BR)CEO}$	28	32	—	Volts
Breakdown Voltage C to E	$V_{BE} = 0\text{ V}, I_C = 5\text{ mA}$	$V_{(BR)CES}$	55	70	—	Volts
Breakdown Voltage E to B	$I_C = 0\text{ A}, I_E = 5\text{ mA}$	$V_{(BR)EBO}$	3.5	5	—	Volts
DC Current Gain	$V_{CE} = 5\text{ V}, I_C = 1.5\text{ A}$	h_{FE}	20	50	120	—

RF Specifications (100% Tested)

Characteristic	Symbol	Min	Typ	Max	Units
Gain ($V_{CC} = 25\text{ Vdc}, P_{out} = 1\text{ W}, I_{CQ} = 175\text{ mA}, f = 960\text{ MHz}$)	G_{pe}	12	14	—	dB
Collector Efficiency ($V_{CC} = 25\text{ Vdc}, P_{out} = 1\text{ W}, I_{CQ} = 175\text{ mA}, f = 960\text{ MHz}$)	η_C	—	25	—	%
Load Mismatch Tolerance ($V_{CC} = 25\text{ Vdc}, P_{out} = 1\text{ W}, I_{CQ} = 175\text{ mA}, f = 960\text{ MHz}$ —all phase angles at frequency of test)	Ψ	—	—	10:1	—

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

($V_{CC} = 25\text{ Vdc}, P_{out} = 1\text{ W}, I_{CQ} = 175\text{ mA}$)



Frequency	Z Source		Z Load	
	R	jX	R	jX
900	3.0	-0.4	9.0	6.0
930	3.0	0.0	9.0	7.5
960	2.9	0.5	9.2	8.9

Typical Performance

