



PTB 20156

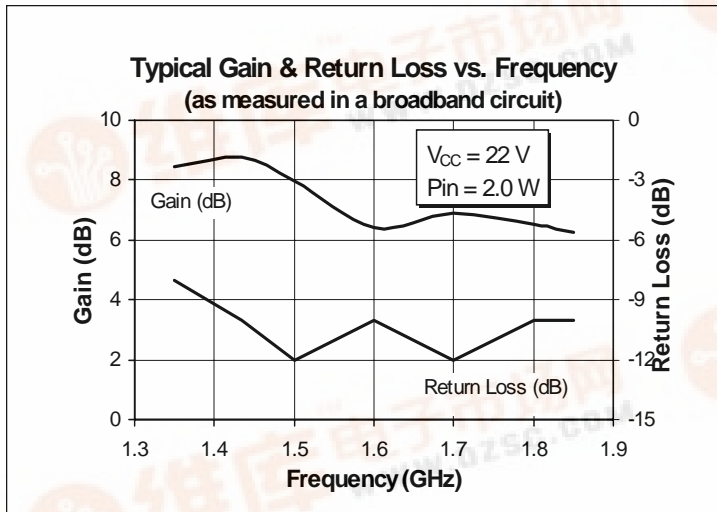
8 Watts, 1350–1850 MHz

Microwave Power Transistor

Description

The 20156 is an NPN, common base RF power transistor intended for 22 Vdc operation from 1350 to 1850 MHz. Rated at 8 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.

- Specified 22 Volts
- Class C Characteristics
- Output Power: 8 Watts
- Gain: 6.0 dB Min. at 8 Watts
- Gold Metallization
- Silicon Nitride Passivated



Maximum Ratings

Parameter	Symbol	Value	Unit
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 $T_{flange} = 25^\circ\text{C}$ Above 25°C derate by	P_D	52 0.29	Watts W/ $^\circ\text{C}$
Storage Temperature Range	T_{STG}	-40 to +150	$^\circ\text{C}$
Thermal Resistance ($T_{flange} = 70^\circ\text{C}$)	$R_{\theta JC}$	3.4	$^\circ\text{C}/\text{W}$

Electrical Characteristics (100% Tested)

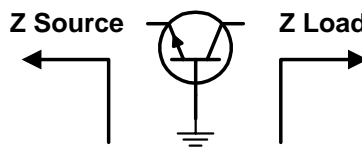
Characteristic	Conditions	Symbol	Min	Typ	Max	Units
Breakdown Voltage C to E	$V_{BE} = 0\text{ V}, I_C = 5\text{ mA}$	$V_{(BR)CES}$	50	—	—	Volts
Breakdown Voltage E to B	$I_C = 0\text{ A}, I_E = 5\text{ mA}$	$V_{(BR)EBO}$	3.5	5	—	Volts
DC Current Gain	$V_{CE} = 5\text{ V}, I_C = 1\text{ A}$	h_{FE}	—	—	100	—

RF Specifications (100% Tested)

Characteristic	Symbol	Min	Typ	Max	Units
Gain ($V_{CC} = 22\text{ Vdc}, P_{Out} = 8\text{ W}, f = 1850\text{ MHz}$)	G_{pe}	6.0	—	—	dB
Collector Efficiency ($V_{CC} = 22\text{ Vdc}, P_{Out} = 8\text{ W}, f = 1850\text{ MHz}$)	η_C	40	50	—	%
Load Mismatch Tolerance ($V_{CC} = 22\text{ Vdc}, P_{Out} = 8\text{ W}, f = 1850\text{ MHz}$ —all phase angles at frequency of test)	Ψ	—	—	5:1	—

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

($V_{CC} = 22\text{ Vdc}, P_{Out} = 20\text{ W}$)



Frequency MHz	Z Source		Z Load	
	R	jX	R	jX
1350	13.8	-14.0	4.2	0.0
1500	11.2	-12.8	5.6	0.5
1700	10.7	-8.4	6.0	-1.5
1850	20.0	-9.3	4.2	-2.1

