

# PTB 20167

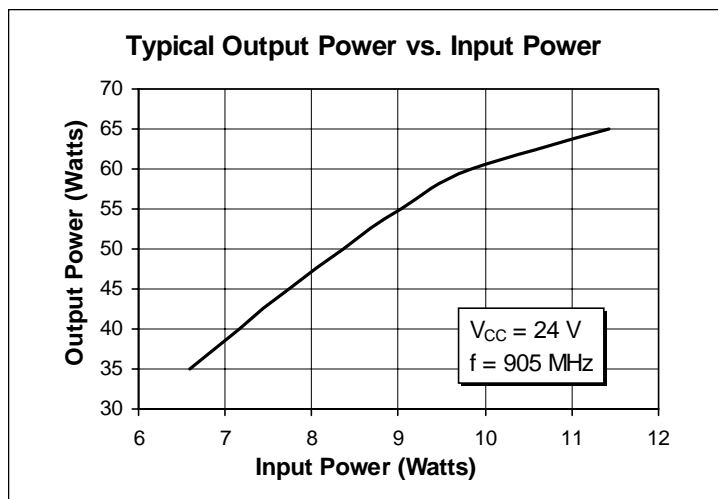
## 60 Watts, 850–960 MHz

### RF Power Transistor

#### Description

The 20167 is an NPN, common base RF power transistor intended for 24 Vdc operation from 850 to 960 MHz. Rated at 60 watts minimum output power, it is specifically designed for class C power amplifier applications. Ion implantation, nitride surface passivation and gold metallization are used to ensure excellent device reliability. 100% lot traceability is standard.

- 24 Volt, 905 MHz Common Base Characteristics
  - Output Power = 60 W
  - Power Gain = 7.0 dB Min
  - Efficiency = 60% Min
- Double Input/Output Matched for Wideband Performance
- Gold Metallization
- Silicon Nitride Passivated



#### Maximum Ratings

Parameter	Symbol	Value	Unit
Collector-Emitter Voltage	$V_{CEO}$	30	Vdc
Collector-Base Voltage	$V_{CBO}$	55	Vdc
Emitter-Base Voltage (collector open)	$V_{EBO}$	4.0	Vdc
Collector Current (continuous)	$I_C$	10	Adc
Total Device Dissipation at $T_{flange} = 25^\circ\text{C}$ Above $25^\circ\text{C}$ derate by	$P_D$	175 1	Watts W/ $^\circ\text{C}$
Storage Temperature Range	$T_{STG}$	-40 to +150	$^\circ\text{C}$
Thermal Resistance ( $T_{flange} = 70^\circ\text{C}$ )	$R_{\theta JC}$	1	$^\circ\text{C}/\text{W}$

**Electrical Characteristics** (100% Tested)

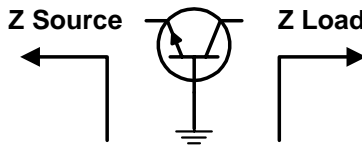
Characteristic	Conditions	Symbol	Min	Typ	Max	Units
Breakdown Voltage C to E	$I_B = 0\text{ A}, I_C = 50\text{ mA}$	$V_{(BR)CEO}$	30	—	—	Volts
Breakdown Voltage C to E	$V_{BE} = 0\text{ V}, I_C = 50\text{ mA}$	$V_{(BR)CES}$	55	—	—	Volts
Breakdown Voltage E to B	$I_C = 0\text{ A}, I_E = 15\text{ mA}$	$V_{(BR)EBO}$	4.0	—	—	Volts
DC Current Gain	$V_{CE} = 5\text{ V}, I_C = 2.0\text{ A}$	$h_{FE}$	20	—	100	—
Output Capacitance	$V_{CB} = 28\text{ V}, f = 1\text{ MHz}$	$C_{ob}$	—	60	—	pF

**RF Specifications** (100% Tested)

Characteristic	Symbol	Min	Typ	Max	Units
<b>Common Base Power Gain</b> ( $V_{CC} = 24\text{ Vdc}, P_{out} = 60\text{ W}, f = 905\text{ MHz}$ )	$G_{pb}$	7.0	7.9	—	dB
<b>Collector Efficiency</b> ( $V_{CC} = 24\text{ Vdc}, P_{out} = 60\text{ W}, f = 905\text{ MHz}$ )	$\eta_C$	60	64	—	%
<b>Load Mismatch Tolerance</b> ( $V_{CC} = 24\text{ Vdc}, P_{out} = 60\text{ W}, f = 905\text{ MHz}$ —all phase angles at frequency of test)	$\Psi$	—	—	5:1	—

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

( $V_{CC} = 24\text{ Vdc}, P_{out} = 60\text{ W}$ )



Frequency MHz	Z Source		Z Load	
	R	jX	R	jX
850	5.4	-3.6	5.8	-0.7
905	5.3	-2.4	6.2	0.6
960	5.2	-1.4	6.9	1.7

