



PTB 20077

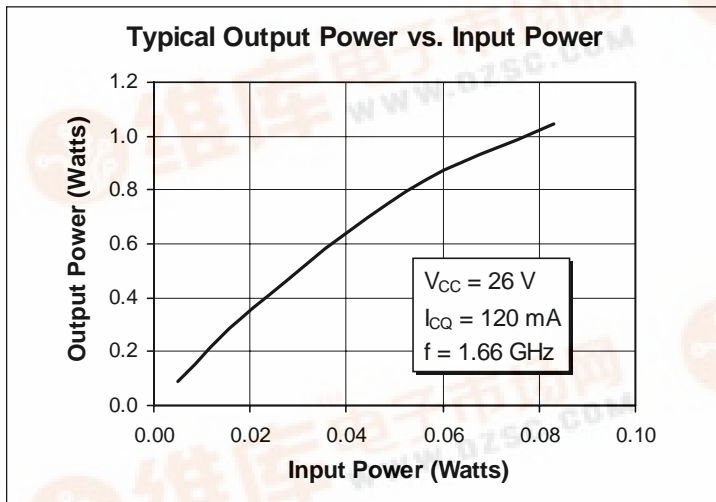
0.7 Watts, 1525–1660 MHz

INMARSAT RF Power Transistor

Description

The 20077 is a class A, NPN, common emitter RF power transistor intended for 26 Vdc operation from 1525 to 1660 MHz. Rated at 0.7 watt minimum output power, it may be used for both CW and PEP applications. Ion implantation, nitride surface passivation and gold metallization ensure excellent device reliability. 100% lot traceability is standard.

- 0.7 Watt, 1525–1660 MHz
- Class A Characteristics
- Gold Metallization
- Silicon Nitride Passivated
- Surface Mountable
- Available in Tape and Reel



Maximum Ratings

Parameter	Symbol	Value	Unit
Collector-Emitter Voltage	V_{CER}	60	Vdc
Collector-Base Voltage	V_{CBO}	60	Vdc
Emitter-Base Voltage (collector open)	V_{EBO}	4.0	Vdc
Collector Current (continuous)	I_C	0.5	Adc
Total Device Dissipation at $T_{flange} = 25^\circ\text{C}$ Above 25°C derate by	P_D	5.4 0.031	Watts $W/^\circ\text{C}$
Storage Temperature Range	T_{STG}	-40 to +150	$^\circ\text{C}$
Thermal Resistance ($T_{flange} = 70^\circ\text{C}$)	$R_{\theta JC}$	32.3	$^\circ\text{C/W}$



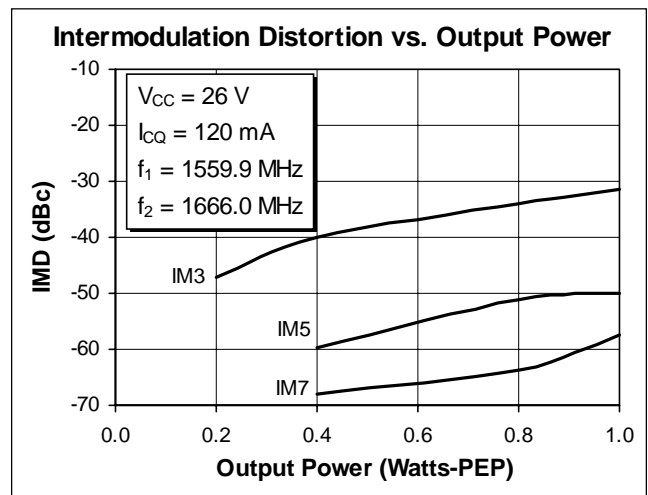
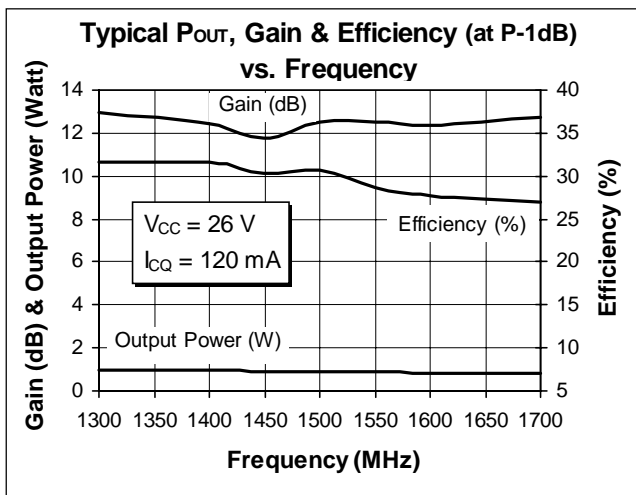
Electrical Characteristics (100% Tested)

Characteristic	Conditions	Symbol	Min	Typ	Max	Units
Breakdown Voltage C to E	$V_{BE} = 0\text{ V}, I_C = 5\text{ mA}$	$V_{(BR)CES}$	60	—	—	Volts
Breakdown Voltage C to E	$I_B = 0\text{ A}, I_C = 10\text{ mA}, R_{BE} = 22\ \Omega$	$V_{(BR)CER}$	60	—	—	Volts
Breakdown Voltage E to B	$I_C = 0\text{ A}, I_E = 5\text{ mA}$	$V_{(BR)EBO}$	4.0	5	—	Volts
DC Current Gain	$V_{CE} = 5\text{ V}, I_C = 250\text{ mA}$	h_{FE}	20	40	—	—

RF Specifications (100% Tested)

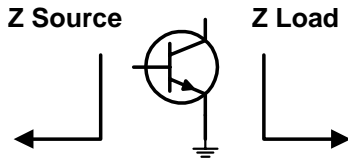
Characteristic	Symbol	Min	Typ	Max	Units
Gain ($V_{CC} = 25\text{ Vdc}, P_{out} = 0.2\text{ W}, I_{CQ} = 120\text{ mA}, f = 1.525; 1.66\text{ GHz}$)	G_{pe}	10	12	—	dB
Power Output at 1 dB Compression ($V_{CC} = 25\text{ Vdc}, I_{CQ} = 120\text{ mA}, f = 1.525; 1.66\text{ GHz}$)	P-1dB	0.7	0.9	—	Watts
Load Mismatch Tolerance ($V_{CC} = 25\text{ Vdc}, P_{out} = 0.7\text{ W}, I_{CQ} = 120\text{ mA}, f = 1.66\text{ GHz}$ —all phase angles at frequency of test)	Ψ	—	—	5:1	—

Typical Performance



Impedance Data

$V_{CC} = 25 \text{ Vdc}$, $P_{out} = 0.7 \text{ W}$, $I_{CQ} = 120 \text{ mA}$



Frequency	Z Source		Z Load	
	R	jX	R	jX
1.30	10.3	-3.1	25.9	39.8
1.40	10.0	-3.5	22.9	40.0
1.45	9.7	-3.9	21.1	38.6
1.50	9.5	-4.2	20.7	37.7
1.55	9.3	-5.9	20.0	35.5
1.60	10.0	-4.9	18.2	33.8
1.70	10.0	-4.7	17.4	31.0

