寬帶高頻管
NPN 7 GHz wideband transistor

## NPN 7 GHz wideband transistor 寬帶高頻管　　　　　FHT591

DESCRIPTION & FEATURES　概述及特點

High power gain 高增益
Low noise figure 低雜訊
High transition frequency 超高頻
Intended for applications in the GHz range such as MATV or CATV amplifiers and RF communications subscriber equipment. MATV,CATV放大或射頻遠端通信設備應用

SOT-223

PIN ASSIGNMENT 引腳說明

PIN NAME 管腳符號	PIN NUMBER　引腳序號 SOT-223	FUNCTION 功能
E	1	emitter
B	2	base
E	3	emitter
C	4	collector
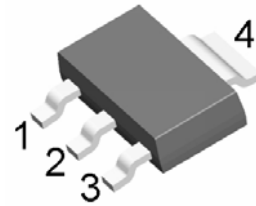
MAXIMUM RATINGS(T_a=25℃) 最大額定值

CHARACTERISTIC 特性參數	Symbol 符號	Rating 額定值	Unit 單位
collector-base voltage集電極－基極電壓	V_{CBO}	20	V
collector-emitter voltage集電極-發射極電壓	V_{CEO}	15	V
emitter-base voltage發射極-基極電壓	V_{EBO}	3	V
collector current (DC) 集電極電流	I_C	200	mA
total power dissipation總耗散功率	P_{tot}	2	W
storage temperature儲存溫度	T_{stg}	−65～+150	℃
junction temperature結溫	T_j	150	℃
thermal resistance from junction to soldering point熱阻	$R_{th\,j\text{-}s}$	35	K/W

1. Ts is the temperature at the soldering point of the collector pin.

DEVICE MARKING 打標

FHT591 (60~250)

ELECTRICAL CHARACTERISTICS 電特性(T_A=25℃ unless otherwise noted)

Characteristic 特性參數	Symbol 符號	Test Condition 測試條件	Min 最小值	Type 典型值	Max 最大值	Unit 單位
collector-base breakdown voltage 集電極－基極電壓	$V_{(BR)CBO}$	I_C= 0.1 mA; I_E=0	−	−	20	V
collector-emitter breakdown voltage 集電極－發射極電壓	$V_{(BR)CES}$	I_C= 10 mA; I_B=0	−	−	15	V
emitter-base breakdown voltage 發射極－基極電壓	$V_{(BR)EBO}$	I_E= 0.1 mA; I_C=0	−	−	3	V
collector-base leakage current 集電極－基極電流	I_{CBO}	I_E= 0; V_{CB}=10V	−	−	100	nA
DC current gain直流增益	h_{FE}	I_C= 70 mA; V_{CE}=8V	60	90	250	
feedback capacitance 回饋電容	C_{re}	I_B=Ib=0; V_{CE}=12V; f=1MHz	−	0.7	−	pF
transition frequency 特徵頻率	f_T	I_C=70mA;V_{CE}=12V; f=1GHz	−	7	−	GHz
maximum unilateral power gain; note 1功率增益	G_{UM}	I_C=70mA; V_{CE}=12V; f= 900MHz;T_a=25℃	−	13	−	dB
		I_C=70mA; V_{CE}=12V; f=2GHz; T_a=25℃	−	7.5	−	dB
insertion power gain 傳輸增益	$|S_{21}|^2$	IC=70mA;V_{CE}=12V; f=1GHz; Ta=25℃	−	12	−	dB
output voltage	Vo	note 2	−	700	−	mV

Notes： 1、G_{UM} is the maximum unilateral power gain, assuming s12 is zero. G_{UM}＝$10\log|S_{21}|^2/(1-|S_{11}|^2)(1-|S_{22}|^2)$dB
　　　　2、dim = 60 dB (DIN45004B);Vp = Vo; Vq = Vo −6 dB; Vr = Vo −6 dB;
　　　　fp = 795.25 MHz; fq = 803.25 MHz; fr = 803.25 MHz; measured at f(p+q-r) = 793.25 MHz.