

广东协铨微电子科技有限公司

High Voltage Transistors 高压三极管

XCT5401

DESCRIPTION & FEATURES 概述及特点

High Collector Breakdown Voltage

: ($V_{CBO}=-160V$, $V_{CEO}=-150V$)

Low Leakage Current

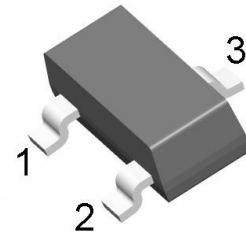
: ($I_{CBO}=-50nA(Max.)$, @ $V_{CB}=-120V$)

Low Saturation Voltage

: $V_{CE(sat)}=-0.5V(Max.)$, @ $I_C=-50mA$, $I_B=-5Ma$

Low Noise: $NF=8dB(Max.)$

SOT-23



PIN ASSIGNMENT 引脚说明

PIN NAME 管脚符号	PIN NUMBER 引脚序号	FUNCTION 功能
	SOT-23	
B	1	BASE
E	2	EMITTER
C	3	COLLECTOR

MAXIMUM RATINGS($T_a=25^{\circ}C$) 最大额定值

CHARACTERISTIC 特性参数	Symbol 符号	Rating 额定值	Unit 单位
Collector-Emitter Voltage 集电极-发射极电压	V_{CEO}	-150	Vdc
Collector-Base Voltage 集电极-基极电压	V_{CBO}	-160	Vdc
Emitter-Base Voltage 发射极-基极电压	V_{EBO}	-5.0	Vdc
Collector Current 集电极电流	I_C	-500	mAdc

THERMAL CHARACTERISTICS 热特性

CHARACTERISTIC 特性参数	Symbol 符号	Max 最大值	Unit 单位
Total power dissipation 总耗散功率 ($T_{amb} = 25^{\circ}C$;note1)	P_D	225	mW
Junction and Storage Temperature 结温和储存温度	T_j , T_{stg}	150, -65~150	$^{\circ}C$
Operating ambient temperature 工作环境温度	T_{amb}	-65~150	$^{\circ}C$
Thermal resistance from junction to ambient 热阻(note1)	$R_{th j-a}$	556	K/W

1. Transistor mounted on an FR-5 printed-circuit board.

DEVICE MARKING 打标

XCT5401=2L

ELECTRICAL CHARACTERISTICS 电特性

($T_A=25^{\circ}C$ unless otherwise noted 如无特殊说明, 温度为 $25^{\circ}C$)

Characteristic 特性参数	Symbol 符号	Test Condition 测试条件	Min 最小值	Max 最大值	Unit 单位
Collector cut-off current 集电极截止电流	I_{CBO}	$V_{CB} = -120Vdc$, $I_E = 0$	—	-50	nA
Emitter cut-off current 发射极截止电流	I_{EBO}	$V_{EB} = -4.0Vdc$, $I_C = 0$	—	-50	nA
Collector-Emitter Breakdown Voltage 集电极-发射极击穿电压	$V_{(BR)CEO}$	$I_C = -1.0 mAdc$, $I_B = 0$	-150	—	Vdc
Collector-Base Breakdown Voltage 集电极-基极击穿电压	$V_{(BR)CBO}$	$I_C = -100\mu Adc$, $I_E = 0$	-160	—	Vdc
Emitter-Base Breakdown Voltage 发射极-基极击穿电压	$V_{(BR)EBO}$	$I_E = -10\mu Adc$, $I_C = 0$	-5.0	—	Vdc
DC current gain 直流电流增益	h_{FE}	$I_C = -1.0mAdc$, $V_{CE} = -5.0Vdc$	50	—	—
		$I_C = -10mAdc$, $V_{CE} = -5.0Vdc$	60	360	—
		$I_C = -50mAdc$, $V_{CE} = -5.0Vdc$	50	—	—
Collector-emitter saturation voltage	V_{CEsat}	$I_C = -10mAdc$, $I_B = -1.0mAdc$	—	-0.2	Vdc

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集电极-发射极饱和压降		$I_C = -50\text{mA}$, $I_B = -5.0\text{mA}$	—	-0.5	Vdc
Base-Emitter Saturation Voltage 基极-发射极饱和压降	$V_{BE(sat)}$	$I_C = -10\text{mA}$, $I_B = -1.0\text{mA}$	—	-1.0	Vdc
		$I_C = -50\text{mA}$, $I_B = -5.0\text{mA}$	—	-1.0	Vdc

SMALL-SIGNAL CHARACTERISTICS 小信号特性

Characteristic 特性参数	Symbol 符号	Test Condition 测试条件	Min 最小值	Type 典型值	Max 最大值	Unit 单位
Transition Frequency 特征频率	f_T	$V_{CE} = -10\text{V}$, $I_E = -10\text{mA}$, $f = 100\text{MHz}$	100	—	300	MHz
Collector Output Capacitance 输出电容	C_{ob}	$V_{CB} = -10\text{V}$, $I_E = 0$, $f = 1\text{MHz}$	—	—	6	pF
Small-Signal Current Gain 小信号电流增益	h_{fe}	$V_{CE} = -10\text{Vdc}$, $I_C = -1.0\text{mA}$ $f = 1.0\text{kHz}$	40	—	200	—
Noise Figure 噪声系数	NF	$V_{CE} = -5.0\text{Vdc}$, $I_C = -250\mu\text{A}$ $R_g = 1.0\text{k}\Omega$, $f = 10\text{Hz} \sim 15.7\text{kHz}$	—	—	8.0	dB

CLASSIFICATION OF $h_{FE}(1)$

RANK	L	H
RANGE	100-200	200-300