

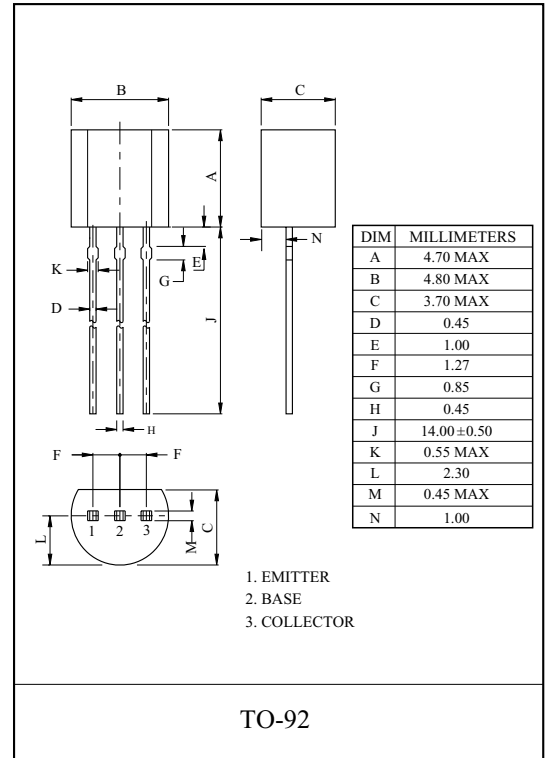
GENERAL PURPOSE APPLICATION.  
HIGH VOLTAGE APPLICATION.

### FEATURES

- High Collector Breakdown Voltage  
:  $V_{CBO} = -160V$ ,  $V_{CEO} = -150V$
- Low Leakage Current.  
:  $I_{CBO} = -50nA(\text{Max.}) @ V_{CB} = -120V$
- Low Saturation Voltage  
:  $V_{CE(\text{sat})} = -0.5V(\text{Max.}) @ I_C = -50mA, I_B = -5mA$
- Low Noise :  $NF = 8dB(\text{Max.})$

### MAXIMUM RATING (Ta=25 °C)

CHARACTERISTIC	SYMBOL	RATING	UNIT
Collector-Base Voltage	$V_{CBO}$	-160	V
Collector-Emitter Voltage	$V_{CEO}$	-150	V
Emitter-Base Voltage	$V_{EBO}$	-5	V
Collector Current	$I_C$	-600	mA
Base Current	$I_B$	-100	mA
Collector Power Dissipation (Ta=25 °C)	$P_C$	625	mW
Collector Power Dissipation (Tc=25 °C)	$P_C$	1.5	W
Junction Temperature	$T_j$	150	
Storage Temperature Range	$T_{stg}$	-55 150	



# 2N5401

## ELECTRICAL CHARACTERISTICS (Ta=25 °C)

CHARACTERISTIC	SYMBOL	TEST CONDITION	MIN.	TYP.	MAX.	UNIT
Collector Cut-off Current	I <sub>CB0</sub>	V <sub>CB</sub> =-120V, I <sub>E</sub> =0	-	-	-50	nA
		V <sub>CB</sub> =-120V, I <sub>E</sub> =0, Ta=100	-	-	-50	µA
Emitter Cut-off Current	I <sub>EBO</sub>	V <sub>EB</sub> =-3V, I <sub>C</sub> =0	-	-	-50	nA
Collector-Base Breakdown Voltage	V <sub>(BR)CBO</sub>	I <sub>C</sub> =-0.1mA, I <sub>E</sub> =0	-160	-	-	V
Collector-Emitter Breakdown Voltage *	V <sub>(BR)CEO</sub>	I <sub>C</sub> =-1mA, I <sub>B</sub> =0	-150	-	-	V
Emitter-Base Breakdown Voltage	V <sub>(BR)EBO</sub>	I <sub>E</sub> =-10 µA, I <sub>C</sub> =0	-5	-	-	V
DC Current Gain *	h <sub>FE</sub> (1)	V <sub>CE</sub> =-5V, I <sub>C</sub> =-1mA	50	-	-	
	h <sub>FE</sub> (2)	V <sub>CE</sub> =-5V, I <sub>C</sub> =-10mA	60	-	240	
	h <sub>FE</sub> (3)	V <sub>CE</sub> =-5V, I <sub>C</sub> =-50mA	50	-	-	
Collector-Emitter Saturation Voltage *	V <sub>CE(sat)1</sub>	I <sub>C</sub> =-10mA, I <sub>B</sub> =-1mA	-	-	-0.2	V
	V <sub>CE(sat)2</sub>	I <sub>C</sub> =-50mA, I <sub>B</sub> =-5mA	-	-	-0.5	
Base-Emitter Saturation Voltage *	V <sub>BE(sat)1</sub>	I <sub>C</sub> =-10mA, I <sub>B</sub> =-1mA	-	-	-1.0	V
	V <sub>BE(sat)2</sub>	I <sub>C</sub> =-50mA, I <sub>B</sub> =-5mA	-	-	-1.0	
Transition Frequency	f <sub>T</sub>	V <sub>CE</sub> =-10V, I <sub>C</sub> =-10mA, f=100MHz	100	-	300	MHz
Collector Output Capacitance	C <sub>ob</sub>	V <sub>CB</sub> =-10V, I <sub>E</sub> =0, f=1MHz	-	-	6	pF
Small-Signal Current Gain	h <sub>fe</sub>	V <sub>CE</sub> =-10V, I <sub>C</sub> =-1mA, f=1kHz	40	-	200	
Noise Figure	NF	V <sub>CE</sub> =-5V, I <sub>C</sub> =-250 µA R <sub>g</sub> =1k Ω, f=10Hz - 15.7kHz	-	-	8	dB

\* Pulse Test : Pulse Width 300 µs, Duty Cycle 2%