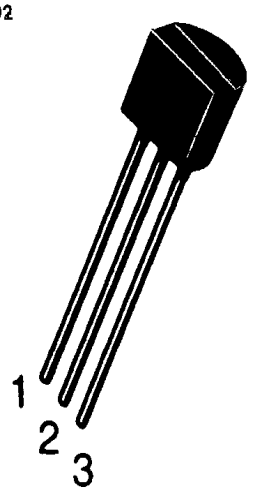
# Transistors
# 2N5401

USHA (INDIA) LTD

## AMPLIFIER TRANSISTOR

- **Collector-Emitter Voltage: $V_{CEO}$ =150V**
- **Collector Dissipation: $P_C$ (max)=625mW**

TO-92




1. Emitter 2. Base 3. Collector

## ABSOLUTE MAXIMUM RATINGS ($T_a$ =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 |
| Collector Dissipation | $P_C$ | 625 | mW |
| Junction Temperature | $T_j$ | 150 | °C |
| Storage Temperature | Tstg | −55 ~ 150 | °C |

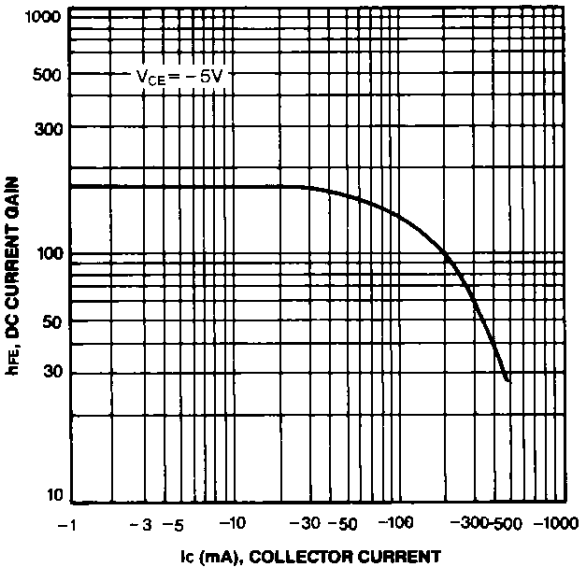
## ELECTRICAL CHARACTERISTICS ($T_a$ =25°C)

| Characterstic | Symbol | Test Condition | Min | Typ | Max | Unit |
|---|---|---|---|---|---|---|
| Collector-Base Breakdown Voltage | $BV_{CBO}$ | $I_C$=−100μA, $I_E$=0 | −160 | | | V |
| *Collector-Emitter Breakdown Voltage | $BV_{CEO}$ | $I_C$=−1mA, $I_B$=0 | −150 | | | V |
| Emitter-Base Breakdown Voltage | $BV_{EBO}$ | $I_E$=−10μA, $I_C$=0 | −5 | | | V |
| Collector Cut-off Current | $I_{CBO}$ | $V_{CB}$=−120V, $I_E$=0 | | | −50 | nA |
| Emitter Cut-off Current | $I_{EBO}$ | $V_{EB}$=−3V, $I_C$=0 | | | −50 | nA |
| *DC Current Gain | $h_{FE}$ | $I_C$=−1mA, $V_{CE}$=−5V | 30 | | | |
| | | $I_C$=−10mA, $V_{CE}$=−5V | 60 | | 240 | |
| | | $I_C$=−50mA, $V_{CE}$=−5V | 50 | | | |
| *Collector-Emitter Saturation Voltage | $V_{CE}$(sat) | $I_C$=−10mA, $I_B$=−1mA | | | −0.2 | V |
| | | $I_C$=−50mA, $I_B$=−5mA | | | −0.5 | V |
| *Base-Emitter Saturation Voltage | $V_{BE}$(sat) | $I_C$=−10mA, $I_B$=−1mA | | | −1 | V |
| | | $I_C$=−50mA, $I_B$=−5mA | | | −1 | V |
| Current Gain Banwidth Product | $f_T$ | $I_C$=−10mA, $V_{CE}$=−10V f=100MHz | 100 | | 400 | MHz |
| Output Capacitance | $C_{ob}$ | $V_{CB}$=−10V, $I_E$=0 f=1MHz | | | 6 | pF |
| Noise Figure | NF | $I_C$=−250μA, $V_{CE}$=−5V $R_S$=1KΩ f=10Hz to 15.7KHz | | | 8 | dB |

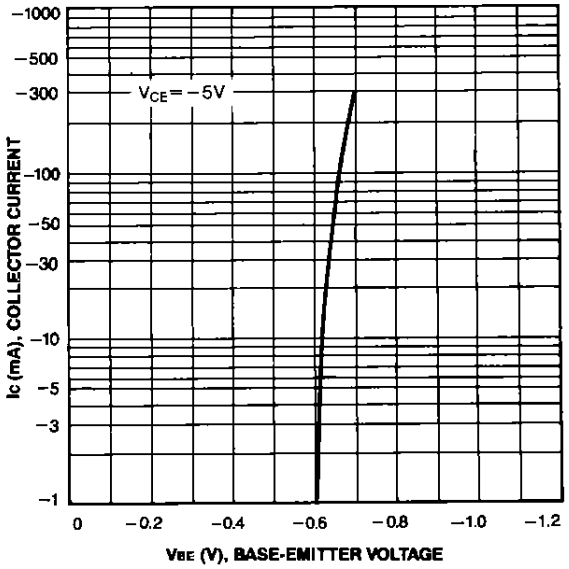
* Pulse Test: Pulse Width=300μs, Duty Cycle=2%

ISO 14001 CERTIFIED
AN ISO 9002 COMPANY

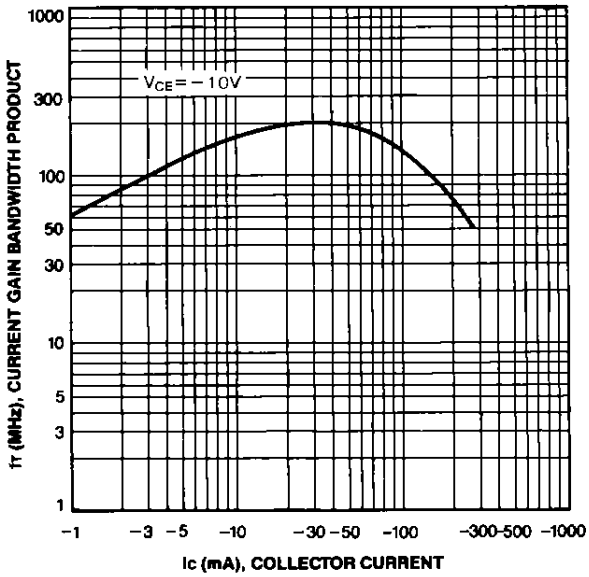
## DC CURRENT GAIN



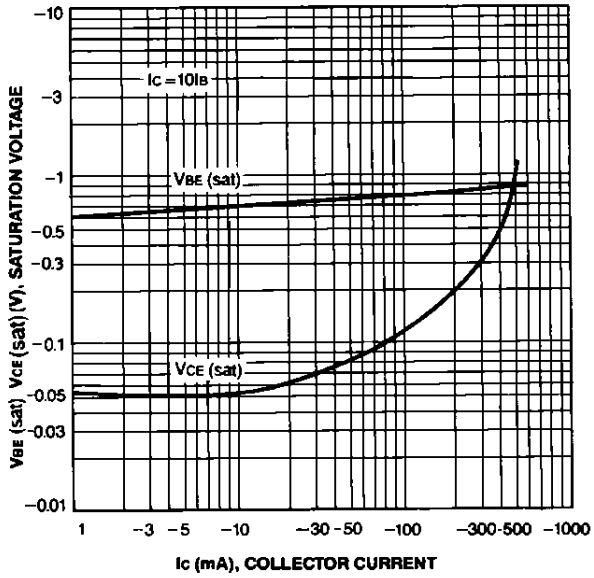

## BASE-EMITTER ON VOLTAGE




## CURRENT GAIN-BANDWIDTH PRODUCT




## BASE-EMITTER SATURATION VOLTAGE COLLECTOR-EMITTER SATURATION VOLTAGE




## OUTPUT CAPACITANCE