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May 2016

2N5401 Amplifier Transistor

Features

- Collector-Emitter Voltage: V_{CEO} = 150V
- Collector Dissipation: P_C (max) = 625mW
- Suffix "-C" means Conter Collector (1. Emitter 2. Collector 3. Base)



Ordering Information

Part Number	Top Mark	Package	Packing Method	Pack Quantity
2N5401YBU	2N5401	TO-92 3L	Bulk	10000
2N5401YTA	2N5401	TO-92 3L	Ammo	2000

Absolute Maximum Ratings

Stresses exceeding the absolute maximum ratings may damage the device. The device may not function or be operable above the recommended operating conditions and stressing the parts to these levels is not recommended. In addition, extended exposure to stresses above the recommended operating conditions may affect device reliability. The absolute maximum ratings are stress ratings only. Values are at $T_A = 25^{\circ}C$ unless otherwise noted.

Symbol	Parameter	Value	Unit
V _{CBO}	Collector-Base Voltage	-160	V
V _{CEO}	Collector-Emitter Voltage	-150	V
V _{EBO}	Emitter-Base Voltage	-5	V
I _C	Collector Current	-600	mA
T _J , T _{STG}	Operating and Storage Junction Temperature Range	-55 to 150	°C

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Thermal Characteristics(1)

Values are at T_A = 25°C unless otherwise noted.

Symbol	Parameter	Max.	Unit
P _D	Total Device Dissipation	625	mW
	Derate above 25°C	5	mW/°C
$R_{\theta JA}$	Thermal Resistance, Junction to Ambient	200	°C/W

Note:

1. PCB size: FR-4, 76 mm x 114 mm x 1.57 mm (3.0 inch x 4.5 inch x 0.062 inch) with minimum land pattern size.

Electrical Characteristics

Values are at $T_A = 25$ °C unless otherwise noted.

Symbol	Parameter	Conditions		Min.	Тур.	Max.	Unit
BV _{CBO}	Collector-Base Breakdown Voltage	$I_C = -100 \mu A, I_E =$	-160			V	
BV _{CEO}	Collector-Emitter Breakdown Voltage ⁽²⁾ $I_C = -1 \text{ mA}, I_B = 0$		-150			V	
BV _{EBO}	Emitter-Base Breakdown Voltage	$I_E = -10 \mu A, I_C = 0$		-5			V
I _{CBO}	Collector Cut-Off Current	V _{CB} = -120 V, I _E = 0				-50	μΑ
I _{EBO}	Emitter Cut-Off Current	V _{EB} = -3 V, I _C = 0				-50	μА
3		I _C = -1 mA, V _{CE} = -5 V		30			
h	DC Current Gain ⁽²⁾	I _C = -10 mA,	Standard Class	60		240	
h _{FE1}		V _{CE} = -5 V	Y Class	120		240	
		I _C = -50 mA, V _{CE} = -5 V		50			
V _{CE(sat)}	Collector-Emitter Saturation Voltage ⁽²⁾	I _C = -10 mA, I _B = -1 mA				-0.2	V
	Collector-Emitter Saturation voltage	I _C = -50 mA, I _B = -5 mA				-0.5	V
\ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \	Base-Emitter Saturation Voltage ⁽²⁾	I _C = -10 mA, I _B = -1 mA				-1.0	V
V _{BE(sat)}	Base-Efficier Saturation Voltage	I _C = -50 mA, I _B = -5 mA				-1.0	V
f _T	Current Gain Bandwidth Product	I _C = -10 mA, V _{CE} = -10 V, f = 100 MHz		100		400	MHz
C _{ob}	Output Capacitance	V _{CB} = -10 V, I _E = 0, f = 1 MHz				6	pF
N _F	Noise Figure	I_C = -250 μA, V_{CE} = -5 V, R_S = 1 kΩ, f = 10 Hz to 15.7 kHz				8	dB

Note:

2. Pulse Test: Pulse Width≤300µs, Duty Cycle≤2%.

Typical Characteristics

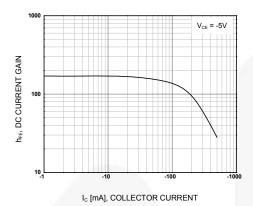


Figure 1. DC current Gain

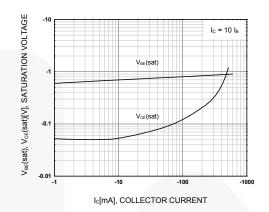


Figure 2. Base-Emitter Saturation Voltage Collector-Emitter Saturation Voltage

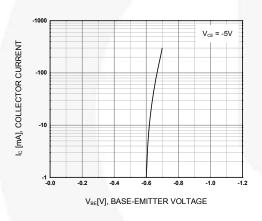


Figure 3. Base-Emitter On Voltage

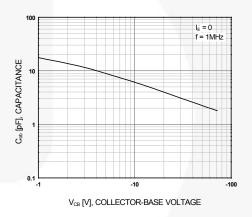


Figure 4. Output Capacitance

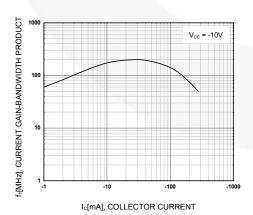
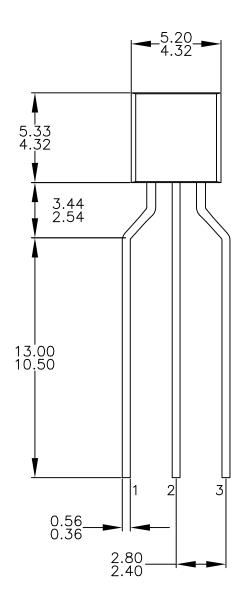
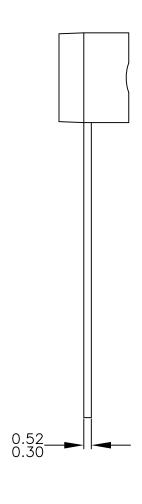
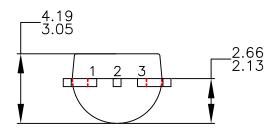


Figure 5. Current Gain Bandwidth Product

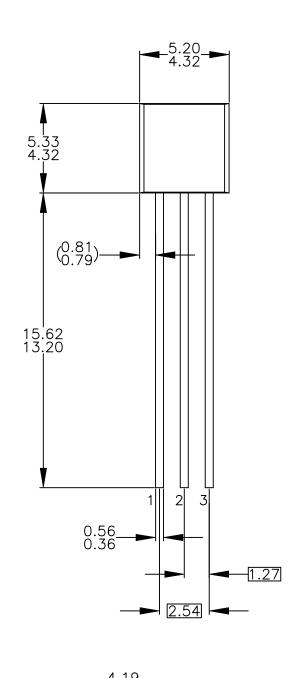


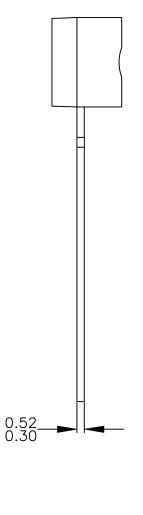




NOTES: UNLESS OTHERWISE SPECIFIED

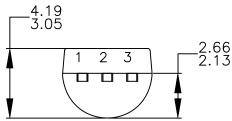
- DRAWING CONFORMS TO JEDEC MS-013, VARIATION AC.
 ALL DIMENSIONS ARE IN MILLIMETERS.
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- B. C. D. E.





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