



Micro Commercial Components

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2N4401

NPN General Purpose Amplifier

Features

- Through Hole Package
- Capable of 600mWatts of Power Dissipation
- Case Material: Molded Plastic. UL Flammability Classification Rating 94V-0 and MSL rating 1
- Marking: Type number
- Lead Free Finish/Rohs Compliant ("P" Suffix designates Compliant. See ordering information)

Electrical Characteristics @ 25°C Unless Otherwise Specified

| Symbol | Parameter | Min | Max | Units |
|----------------------------|--|-----|-----|--------------|
| OFF CHARACTERISTICS | | | | |
| $V_{(BR)CEO}$ | Collector-Emitter Breakdown Voltage* ($I_C=1.0mA_{dc}$, $I_B=0$) | 40 | | Vdc |
| $V_{(BR)CBO}$ | Collector-Base Breakdown Voltage ($I_C=10mA_{dc}$, $I_E=0$) | 60 | | Vdc |
| $V_{(BR)EBO}$ | Emitter-Base Breakdown Voltage ($I_E=0.1mA_{dc}$, $I_C=0$) | 6.0 | | Vdc |
| I_{BL} | Base Cutoff Current ($V_{CE}=35V_{dc}$, $V_{BE}=0.4V_{dc}$) | | 0.1 | μA_{dc} |
| I_{CEX} | Collector Cutoff Current ($V_{CE}=35V_{dc}$, $V_{BE}=0.4V_{dc}$) | | 0.1 | μA_{dc} |

ON CHARACTERISTICS

| | | | | |
|---------------|--|-----------------------------|-------------|-----|
| h_{FE} | DC Current Gain* ($I_C=0.1mA_{dc}$, $V_{CE}=1.0V_{dc}$) ($I_C=1.0mA_{dc}$, $V_{CE}=1.0V_{dc}$) ($I_C=10mA_{dc}$, $V_{CE}=1.0V_{dc}$) ($I_C=150mA_{dc}$, $V_{CE}=1.0V_{dc}$) ($I_C=500mA_{dc}$, $V_{CE}=1.0V_{dc}$) | 20 40 80 100 40 | 300 | |
| $V_{CE(sat)}$ | Collector-Emitter Saturation Voltage ($I_C=150mA_{dc}$, $I_B=15mA_{dc}$) ($I_C=500mA_{dc}$, $I_B=50mA_{dc}$) | | 0.4 0.75 | Vdc |
| $V_{BE(sat)}$ | Base-Emitter Saturation Voltage ($I_C=150mA_{dc}$, $I_B=15mA_{dc}$) ($I_C=500mA_{dc}$, $I_B=50mA_{dc}$) | 0.75 | 0.95 1.2 | Vdc |

SMALL-SIGNAL CHARACTERISTICS

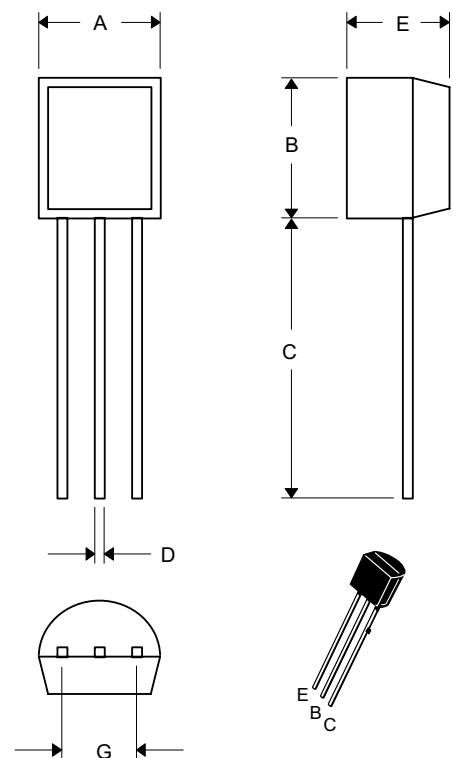
| | | | | |
|----------|--|-----|------|-----|
| f_T | Current Gain-Bandwidth Product ($I_C=20mA_{dc}$, $V_{CE}=10V_{dc}$, $f=100MHz$) | 250 | | MHz |
| C_{cb} | Collector-Base Capacitance ($V_{CB}=5.0V_{dc}$, $I_E=0$, $f=100kHz$) | | 6.5 | pF |
| C_{eb} | Emitter-Base Capacitance ($V_{BE}=0.5V_{dc}$, $I_C=0$, $f=100kHz$) | | 30.0 | pF |

SWITCHING CHARACTERISTICS

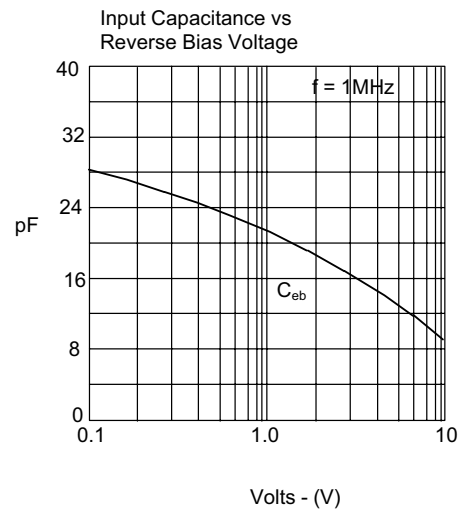
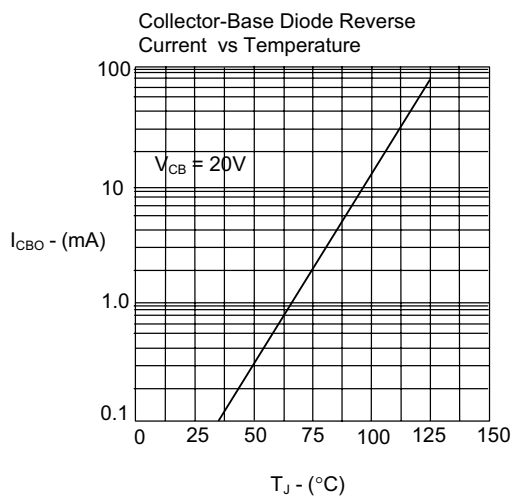
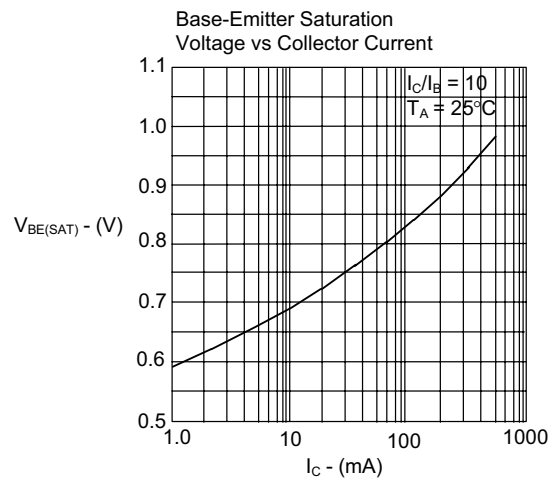
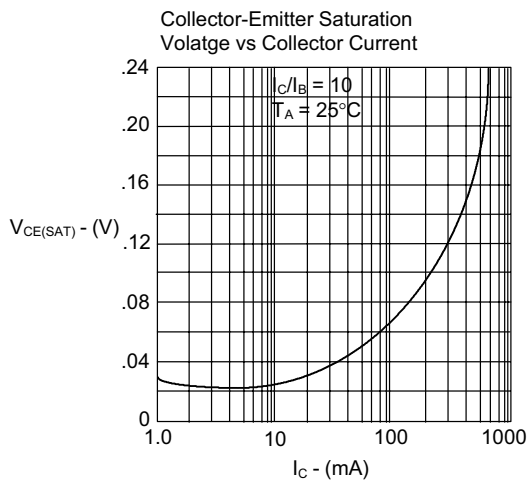
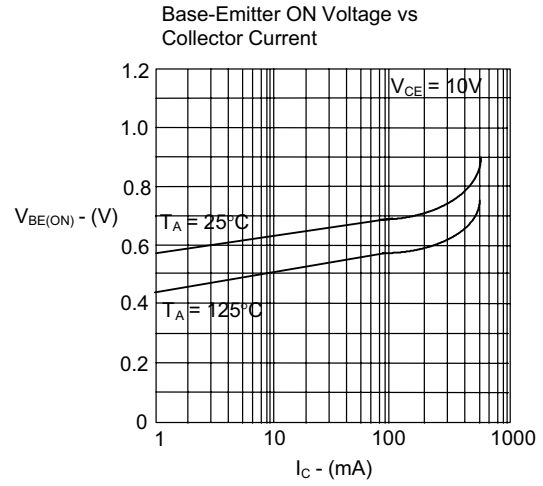
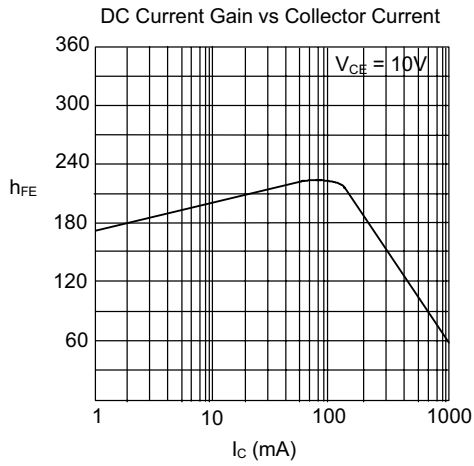
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|-------|--------------|--|-----|----|
| t_d | Delay Time | ($V_{CC}=30V_{dc}$, $V_{BE}=0.2V_{dc}$) | 15 | ns |
| t_r | Rise Time | ($I_C=150mA_{dc}$, $I_{B1}=15mA_{dc}$) | 20 | ns |
| t_s | Storage Time | ($V_{CC}=30V_{dc}$, $I_C=150mA_{dc}$) | 225 | ns |
| t_f | Fall Time | ($I_{B1}=I_{B2}=15mA_{dc}$) | 30 | ns |

*Pulse Width $\leq 300\mu s$, Duty Cycle $\leq 2.0\%$

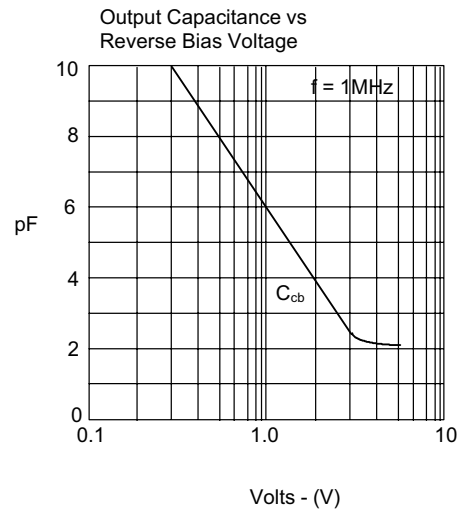
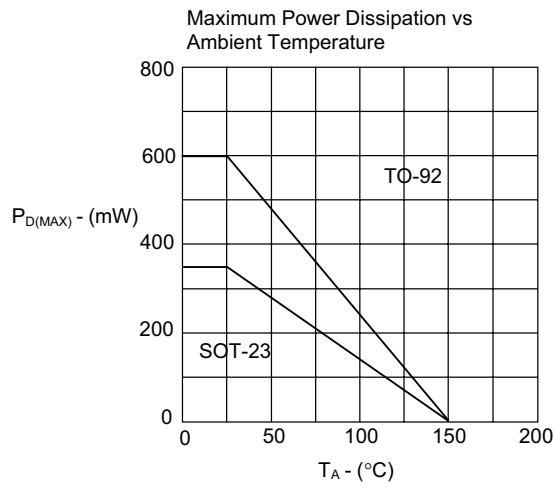
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| DIM | DIMENSIONS | | | | NOTE |
|-----|------------|------|-------|-------|------|
| | INCHES | | MM | | |
| A | .170 | .190 | 4.33 | 4.83 | |
| B | .170 | .190 | 4.30 | 4.83 | |
| C | .550 | .590 | 13.97 | 14.97 | |
| D | .010 | .020 | 0.36 | 0.56 | |
| E | .130 | .160 | 3.30 | 3.96 | |
| G | .096 | .104 | 2.44 | 2.64 | |



2N4401





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Ordering Information

| Device | Packing |
|------------------|-----------------------------|
| (Part Number)-AP | Ammo Packing; 2Kpcs/AmmoBox |
| (Part Number)-BP | Bulk; 1Kpcs/Bag |

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