

2N4401

NPN General Purpose Amplifier

Features

- Lead Free Finish/RoHS Compliant ("P" Suffix designates RoHS Compliant. See Ordering Information)
- Halogen free available upon request by adding suffix "-HF"
- Epoxy meets UL 94 V-0 flammability rating
- Moisture Sensitivity Level 1
- Marking: Type Number

Maximum Ratings

Symbol	Rating	Rating	Unit
V_{CEO}	Collector-Emitter Voltage	40	V
V_{CBO}	Collector-Base Voltage	60	V
V_{EBO}	Emitter-Base Voltage	6.0	V
I_C	Collector Current	600	mA
P_C	Collector Power Dissipation	625	mW
T_J	Operating Junction Temperature	-55 to +150	°C
T_{STG}	Storage Temperature	-55 to +150	°C

Electrical Characteristics @ 25°C Unless Otherwise Specified

Symbol	Parameter	Min	Max	Units
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OFF CHARACTERISTICS

$V_{(BR)CEO}$	Collector-Emitter Breakdown Voltage* ($I_C=1.0mA$, $I_B=0$)	40		Vdc
$V_{(BR)CBO}$	Collector-Base Breakdown Voltage ($I_C=0.1mA$, $I_E=0$)	60		Vdc
$V_{(BR)EBO}$	Emitter-Base Breakdown Voltage ($I_E=0.1mA$, $I_C=0$)	6.0		Vdc
I_{BL}	Base Cutoff Current ($V_{CE}=35Vdc$, $V_{BE}=0.4Vdc$)		0.1	μAdc
I_{CEX}	Collector Cutoff Current ($V_{CE}=35Vdc$, $V_{BE}=0.4Vdc$)		0.1	μAdc

ON CHARACTERISTICS

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

SMALL-SIGNAL CHARACTERISTICS

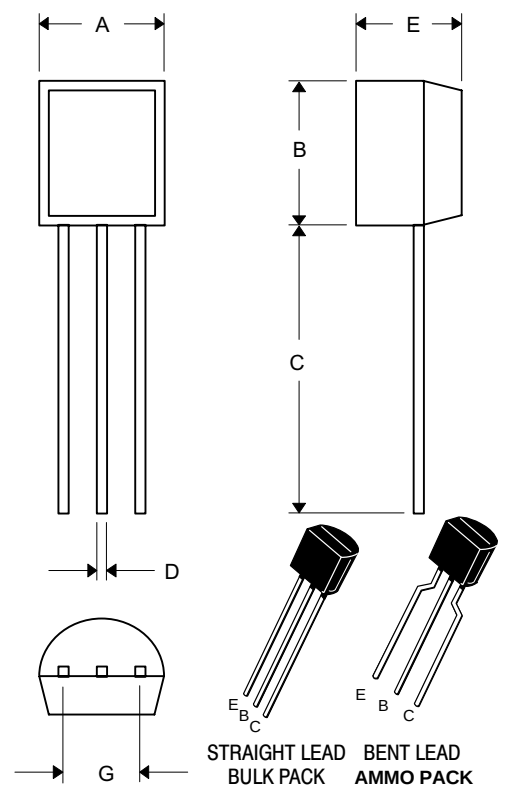
f_T	Current Gain-Bandwidth Product ($I_C=20mA$, $V_{CE}=10Vdc$, $f=100MHz$)	250		MHz
C_{cb}	Collector-Base Capacitance ($V_{CB}=5.0Vdc$, $I_E=0$, $f=100kHz$)		6.5	pF
C_{eb}	Emitter-Base Capacitance ($V_{BE}=0.5Vdc$, $I_C=0$, $f=100kHz$)		30.0	pF

SWITCHING CHARACTERISTICS

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

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

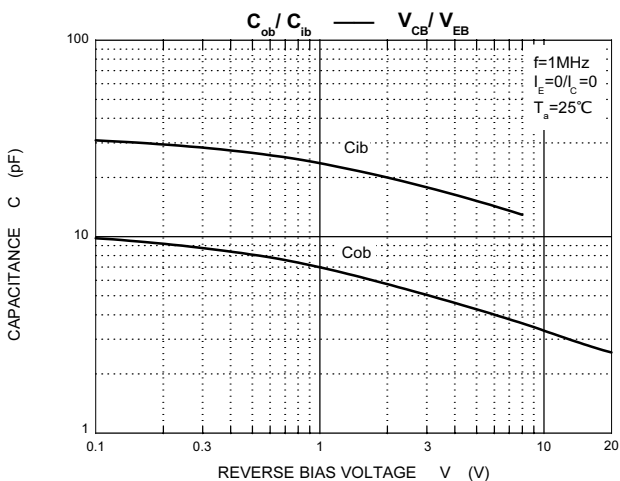
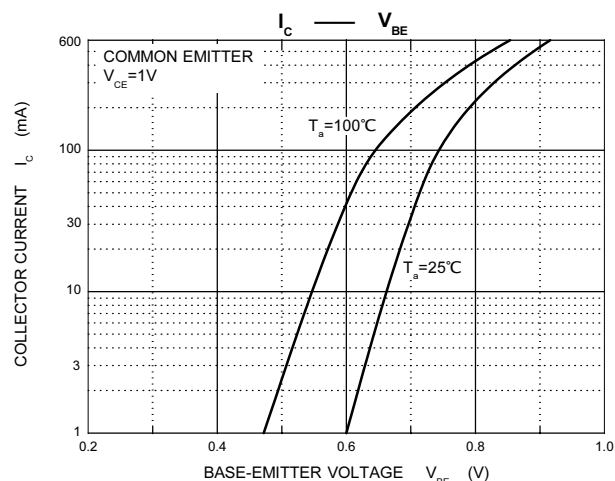
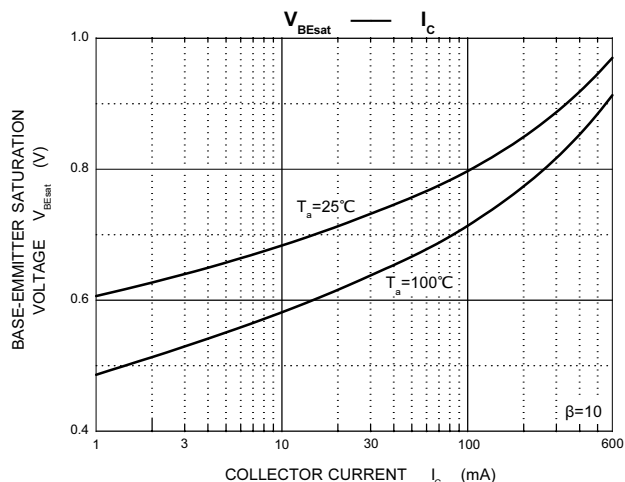
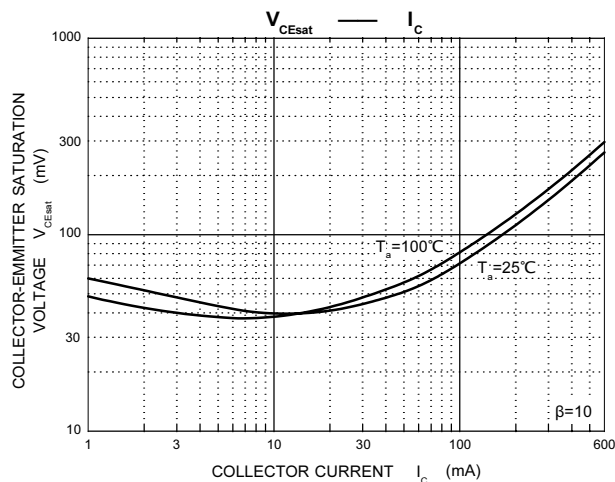
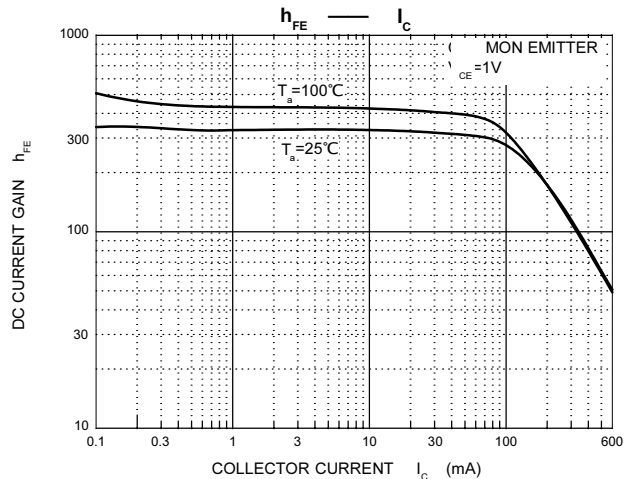
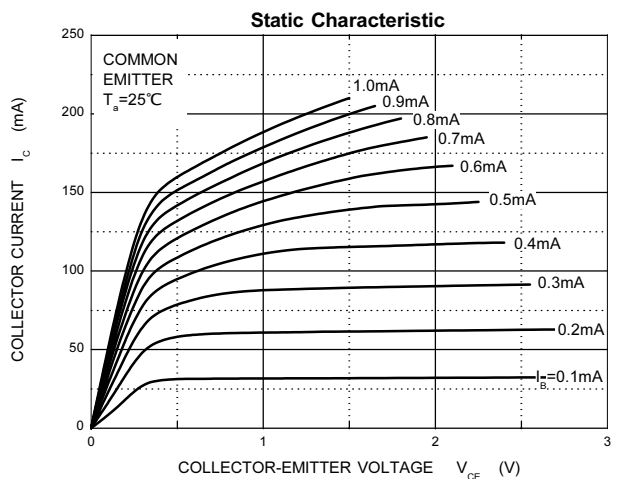
TO-92



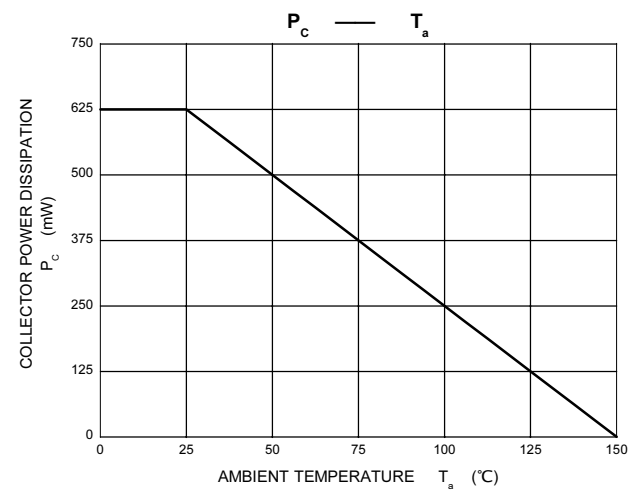
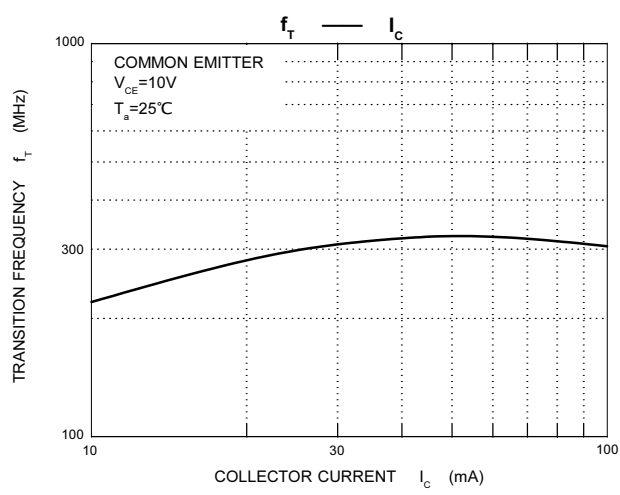
DIM	INCHES		MM		NOTE
	MIN	MAX	MIN	MAX	
A	.175	.185	4.45	4.70	
B	.175	.185	4.45	4.70	
C	.500	---	12.70	---	
D	.016	.020	0.41	0.63	
E	.135	.145	3.43	3.68	
G	.095	.105	2.42	2.67	Straight Lead
	.173	.220	4.40	5.60	Bent Lead

* For ammo packing detailed specification, click here to visit our website of product packaging for details.

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Ordering Information :

Device	Packing
Part Number-AP	Ammo Packing: 20Kpcs/Carton
Part Number-BP	Bulk: 100Kpcs/Carton

Note : Adding "-HF" suffix for halogen free, eg. Part Number-AP-HF

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