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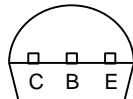
# PN2222A

## NPN General Purpose Amplifier

### Features

- Through Hole Package
- Capable of 600mWatts of Power Dissipation

Pin Configuration  
 Bottom View



### Electrical Characteristics @ 25°C Unless Otherwise Specified

Symbol	Parameter	Min	Max	Units
<b>OFF CHARACTERISTICS</b>				
$V_{(BR)CEO}$	Collector-Emitter Breakdown Voltage* ( $I_C=10\text{mAdc}$ , $I_B=0$ )	40		Vdc
$V_{(BR)CBO}$	Collector-Base Breakdown Voltage ( $I_C=10\mu\text{Adc}$ , $I_E=0$ )	75		Vdc
$V_{(BR)EBO}$	Emitter-Base Breakdown Voltage ( $I_E=10\mu\text{Adc}$ , $I_C=0$ )	6.0		Vdc
$I_{BL}$	Base Cutoff Current ( $V_{CE}=60\text{Vdc}$ , $V_{BE}=3.0\text{Vdc}$ )		20	nAdc
$I_{CEX}$	Collector Cutoff Current ( $V_{CE}=60\text{Vdc}$ , $V_{BE}=3.0\text{Vdc}$ )		10	nAdc

### ON CHARACTERISTICS

$h_{FE}$	DC Current Gain* ( $I_C=0.1\text{mAdc}$ , $V_{CE}=10\text{Vdc}$ ) ( $I_C=1.0\text{mAdc}$ , $V_{CE}=10\text{Vdc}$ ) ( $I_C=10\text{mAdc}$ , $V_{CE}=10\text{Vdc}$ ) ( $I_C=150\text{mAdc}$ , $V_{CE}=10\text{Vdc}$ ) ( $I_C=150\text{mAdc}$ , $V_{CE}=1.0\text{Vdc}$ ) ( $I_C=500\text{mAdc}$ , $V_{CE}=10\text{Vdc}$ )	35 50 75 100 50 40	300	
$V_{CE(sat)}$	Collector-Emitter Saturation Voltage ( $I_C=150\text{mAdc}$ , $I_B=15\text{mAdc}$ ) ( $I_C=500\text{mAdc}$ , $I_B=50\text{mAdc}$ )		0.3 1.0	Vdc
$V_{BE(sat)}$	Base-Emitter Saturation Voltage ( $I_C=150\text{mAdc}$ , $I_B=15\text{mAdc}$ ) ( $I_C=500\text{mAdc}$ , $I_B=50\text{mAdc}$ )	0.6	1.2 2.0	Vdc

### SMALL-SIGNAL CHARACTERISTICS

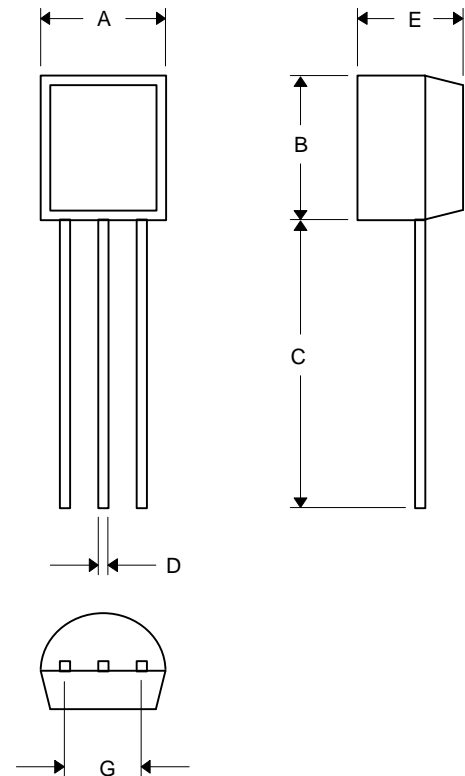
$f_T$	Current Gain-Bandwidth Product ( $I_C=20\text{mAdc}$ , $V_{CE}=20\text{Vdc}$ , $f=100\text{MHz}$ )	300		MHz
$C_{obo}$	Output Capacitance ( $V_{CB}=10\text{Vdec}$ , $I_E=0$ , $f=100\text{kHz}$ )		8.0	pF
$C_{ibo}$	Input Capacitance ( $V_{BE}=0.5\text{Vdc}$ , $I_C=0$ , $f=100\text{kHz}$ )		25	pF
NF	Noise Figure ( $I_C=100\mu\text{Adc}$ , $V_{CE}=10\text{Vdc}$ , $R_S=1.0\text{k}\Omega$ , $f=1.0\text{kHz}$ )		4.0	dB

### SWITCHING CHARACTERISTICS

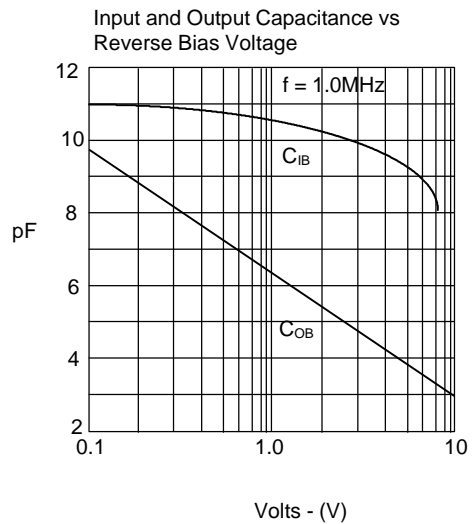
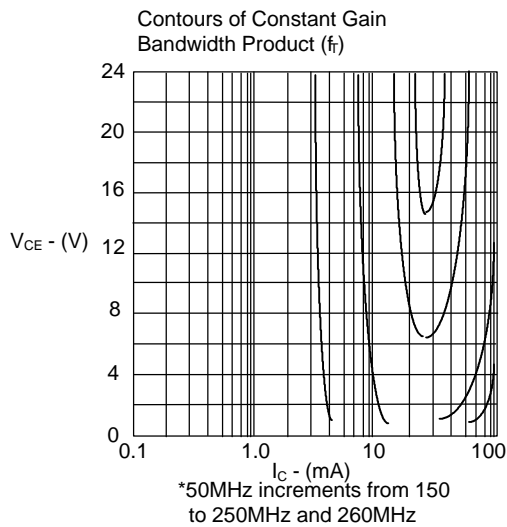
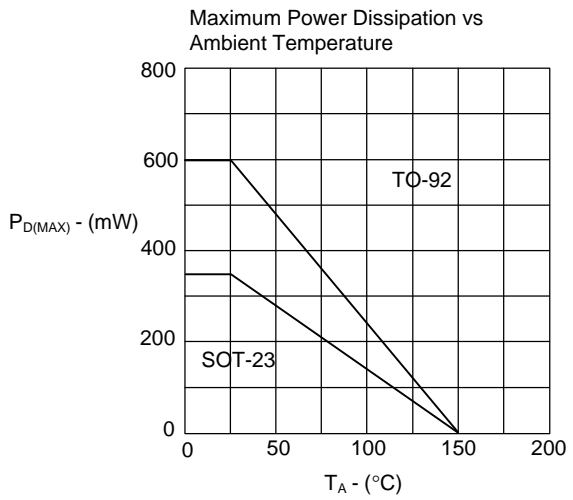
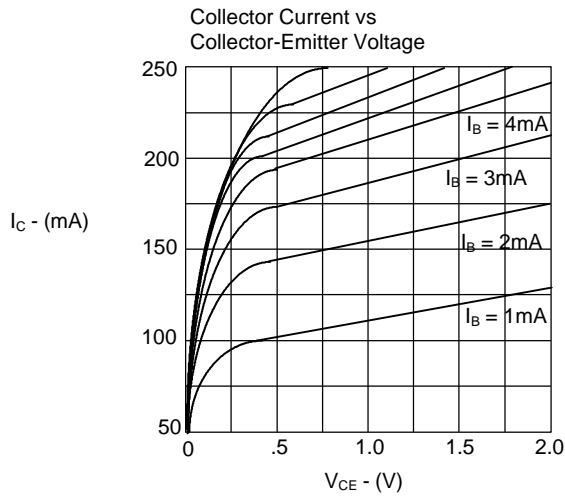
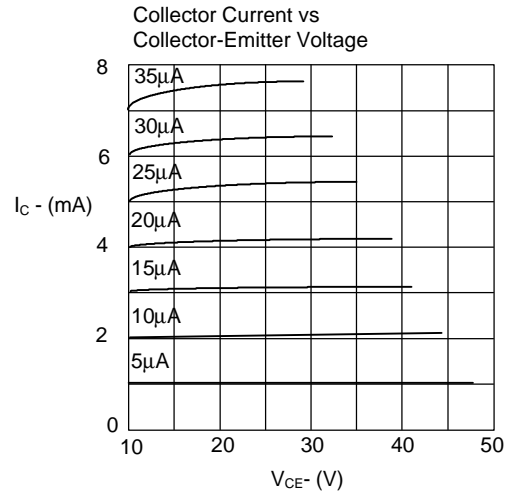
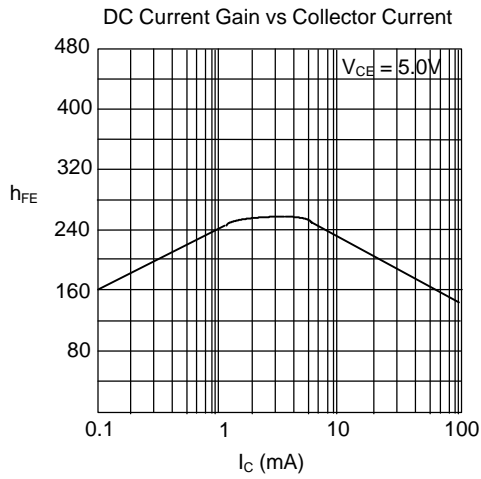
$t_d$	Delay Time	$(V_{CC}=30\text{Vdc}$ , $V_{BE}=0.5\text{Vdc}$ , $I_C=150\text{mAdc}$ , $I_{B1}=15\text{mAdc}$ )	10	ns
$t_r$	Rise Time		25	ns
$t_s$	Storage Time	$(V_{CC}=30\text{Vdc}$ , $I_C=150\text{mAdc}$ , $I_{B1}=I_{B2}=15\text{mAdc}$ )	225	ns
$t_f$	Fall Time		60	ns

\*Pulse Width  $\leq 300\mu\text{s}$ , 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	4.46	4.70	
C	.500	---	12.7	---	
D	.016	.020	0.41	0.63	
E	.135	.145	3.43	3.68	
G	.095	.105	2.42	2.67	



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