

## TO-220F Plastic-Encapsulate Transistors

### TIP32CF TRANSISTOR (PNP)

#### FEATURES

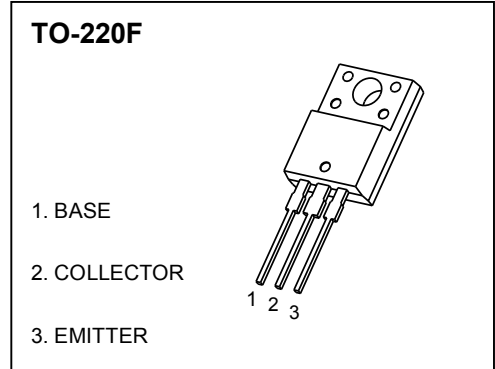
- Large current capacitance
- Complementary NPN Types: TIP31CF

#### APPLICATIONS

- Medium power linear switching applications

#### MAXIMUM RATINGS ( $T_a=25^{\circ}\text{C}$ unless otherwise noted )

Parameter	Symbol	Limit	Unit
Collector-Base Voltage	$V_{CBO}$	-100	V
Collector-Emitter Voltage	$V_{CEO}$	-100	V
Emitter-Base Voltage	$V_{EBO}$	-5	V
Collector Current	$I_C$	-3	A
Collector Power Dissipation	$P_C$	2	W
Thermal Resistance From Junction To Ambient	$R_{\theta JA}$	62.5	$^{\circ}\text{C/W}$
Junction Temperature	$T_j$	150	$^{\circ}\text{C}$
Storage Temperature	$T_{stg}$	-55~+150	$^{\circ}\text{C}$

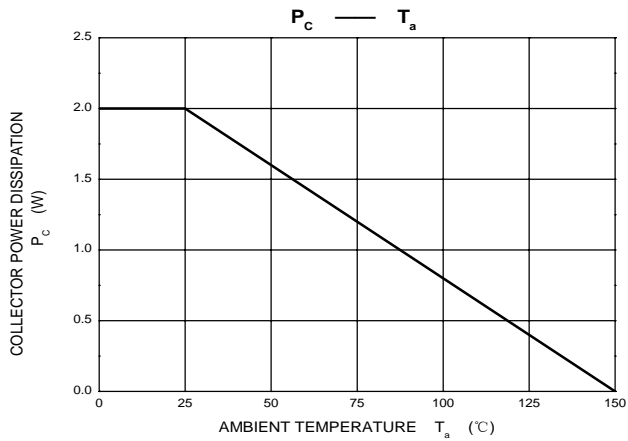
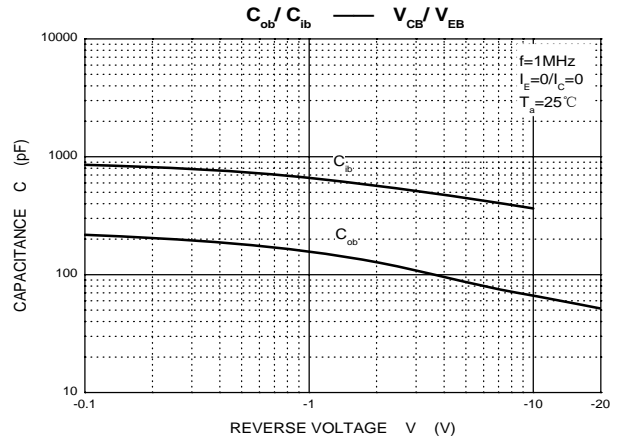
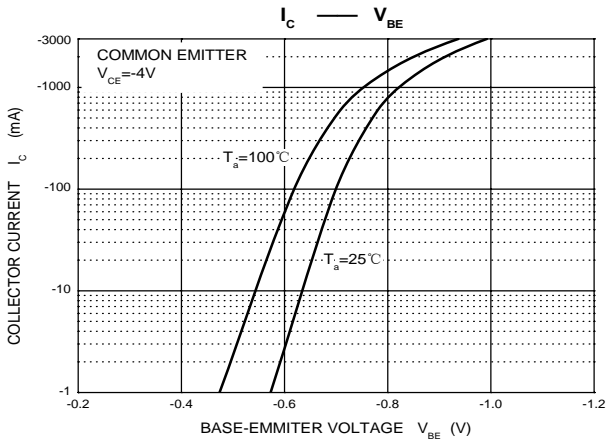
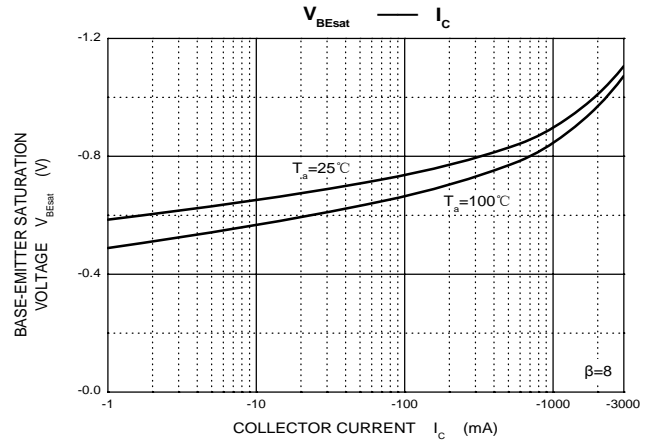
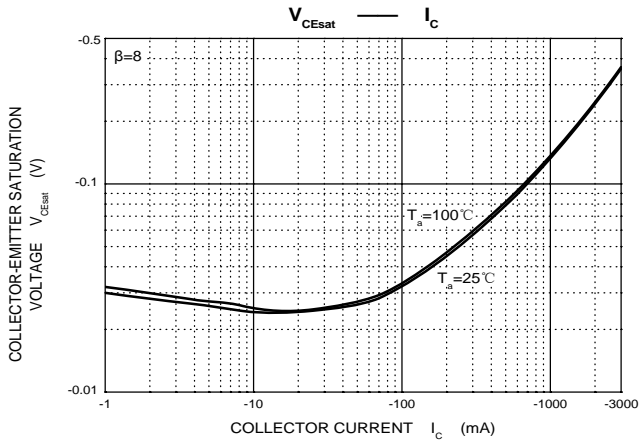
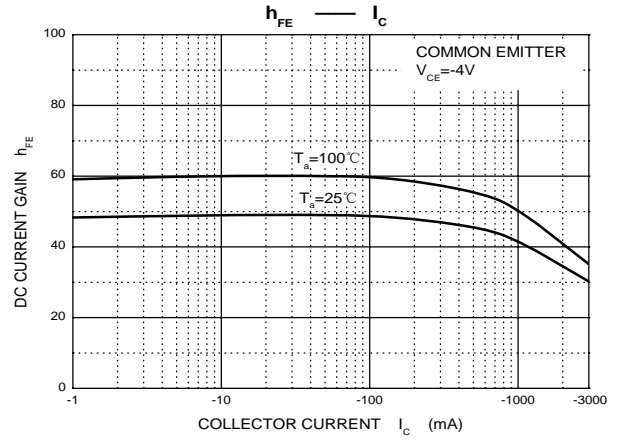
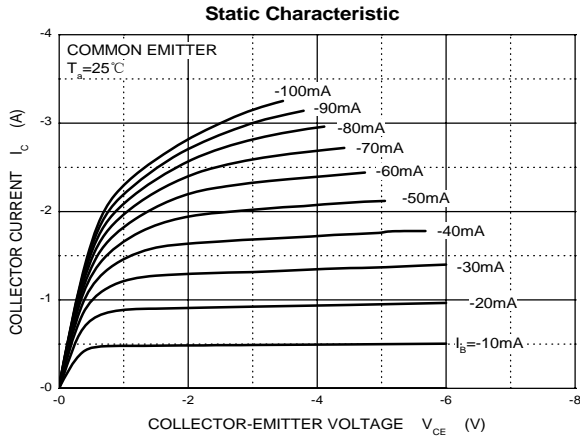


#### ELECTRICAL CHARACTERISTICS ( $T_a=25^{\circ}\text{C}$ unless otherwise specified )

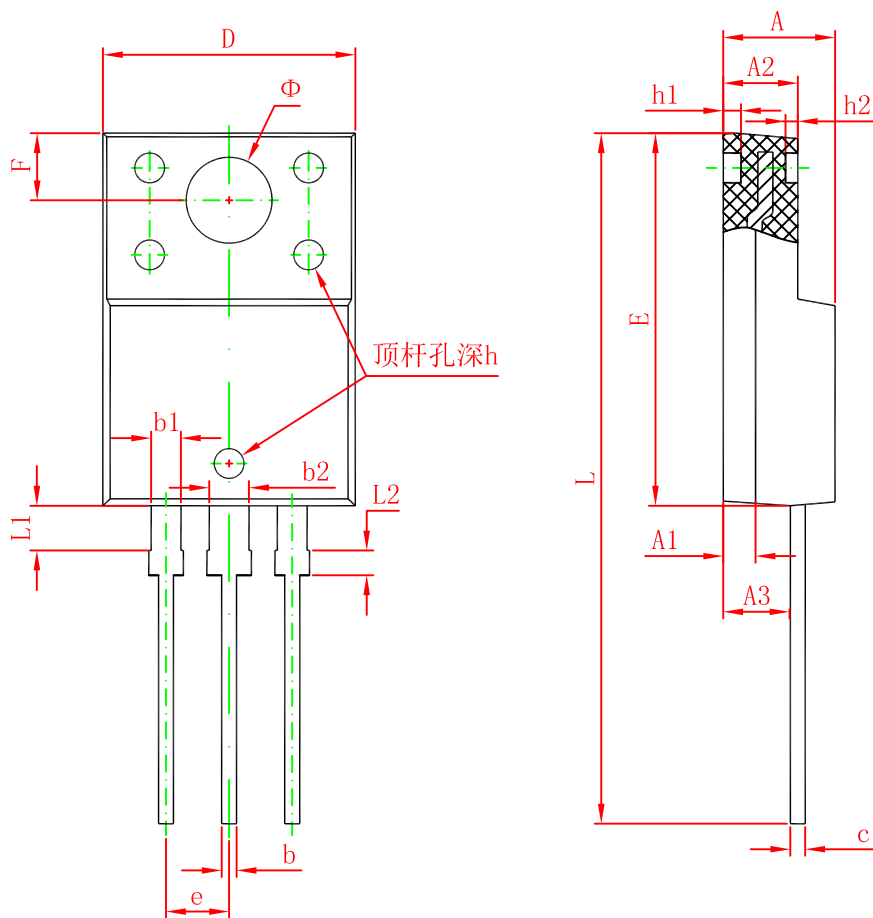
Parameter	Symbol	Test conditions	Min	Typ	Max	Unit
Collector-base breakdown voltage	$V_{(BR)CBO}$	$I_C=-1\text{mA}, I_E=0$	-100			V
Collector-emitter Sustaining voltage	$V_{CEO(SUS)}^*$	$I_C=-30\text{mA}, I_B=0$	-100			V
Emitter-base breakdown voltage	$V_{(BR)EBO}$	$I_E=-1\text{mA}, I_C=0$	-5			V
Collector cut-off current	$I_{CBO}$	$V_{CB}=-100\text{V}, I_E=0$			-200	$\mu\text{A}$
Collector cut-off current	$I_{CEO}$	$V_{CE}=-60\text{V}, I_B=0$			-300	$\mu\text{A}$
Emitter cut-off current	$I_{EBO}$	$V_{EB}=-5\text{V}, I_C=0$			-1	mA
DC current gain	$h_{FE(1)}$	$V_{CE}=-4\text{V}, I_C=-1\text{A}$	25			
	$h_{FE(2)}$	$V_{CE}=-4\text{V}, I_C=-3\text{A}$	15		75	
Collector-emitter saturation voltage	$V_{CE(sat)}$	$I_C=-3\text{A}, I_B=-0.375\text{A}$			-1.2	V
Base-emitter voltage	$V_{BE}$	$V_{CE}=-4\text{V}, I_C=-3\text{A}$			-1.8	V
Transition frequency	$f_T$	$V_{CE}=-10\text{V}, I_C=-0.5\text{A}$	3			MHz

Notes: Pulse Test : Pulse Width $\leq 300\mu\text{s}$ , duty cycle  $\leq 2\%$ .

# Typical Characteristics



# TO-220F Package Outline Dimensions



Symbol	Dimensions In Millimeters		Dimensions In Inches	
	Min.	Max.	Min.	Max.
A	4.300	4.700	0.169	0.185
A1	1.300 REF.		0.051 REF.	
A2	2.800	3.200	0.110	0.126
A3	2.500	2.900	0.098	0.114
b	0.500	0.750	0.020	0.030
b1	1.100	1.350	0.043	0.053
b2	1.500	1.750	0.059	0.069
c	0.500	0.750	0.020	0.030
D	9.960	10.360	0.392	0.408
E	14.800	15.200	0.583	0.598
e	2.540 TYP.		0.100 TYP.	
F	2.700 REF.		0.106 REF.	
Φ	3.500 REF.		0.138 REF.	
h	0.000	0.300	0.000	0.012
h1	0.800 REF.		0.031 REF.	
h2	0.500 REF.		0.020 REF.	
L	28.000	28.400	1.102	1.118
L1	1.700	1.900	0.067	0.075
L2	0.900	1.100	0.035	0.043