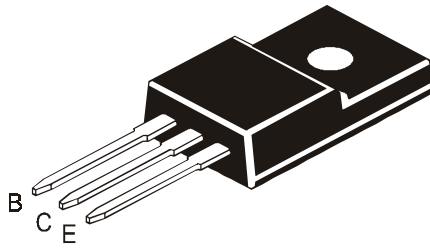


## SILICON PLANAR POWER TRANSISTORS



<b>NPN</b>	<b>PNP</b>
<b>CJF31</b>	<b>CJF32</b>
<b>CJF31A</b>	<b>CJF32A</b>
<b>CJF31B</b>	<b>CJF32B</b>
<b>CJF31C</b>	<b>CJF32C</b>

**TO-220FP Fully Isolated Plastic Package**

Designed for use in General Purpose Amplifier and Switching Applications

### ABSOLUTE MAXIMUM RATINGS

DESCRIPTION	SYMBOL	CJF31 CJF32	CJF31A CJF32A	CJF31B CJF32B	CJF31C CJF32C	UNIT
Collector Base Voltage	$V_{CBO}$	40	60	80	100	V
Collector Emitter Voltage	$V_{CEO}$	40	60	80	100	V
Emitter Base Voltage	$V_{EBO}$	←————— 5 —————→				V
Collector Current - Continuous	$I_C$	←————— 3 —————→				A
Peak		←————— 5 —————→				A
Base Current	$I_B$	←————— 1 —————→				A
Total Power Dissipation @ $T_c=25^\circ\text{C}$	$P_D$	←————— 40 —————→				W
Derate Above $25^\circ\text{C}$		←————— 0.32 —————→				W/ $^\circ\text{C}$
Total Power Dissipation @ $T_a=25^\circ\text{C}$	$P_D$	←————— 2 —————→				W
Derate Above $25^\circ\text{C}$		←————— 0.016 —————→				W/ $^\circ\text{C}$
Operating and Storage Junction Temperature Range	$T_{j,Tstg}$	←————— -65 to +150 —————→				$^\circ\text{C}$

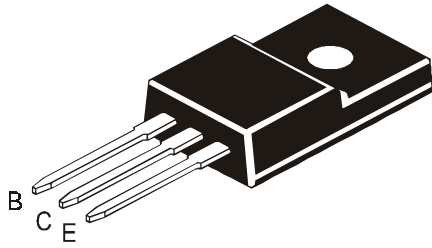
  

THERMAL RESISTANCE						
From Junction to Ambient	$R_{th(j-a)}$	←————— 62.5 —————→				$^\circ\text{C/W}$
From Junction to Case	$R_{th(j-c)}$	←————— 3.125 —————→				$^\circ\text{C/W}$

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

DESCRIPTION	SYMBOL	TEST CONDITION	MIN	MAX	UNIT
Collector Emitter (sus) Voltage	$V_{CEO(sus)}$ *	$I_C=30\text{mA}, I_B=0$			
		<b>CJF31, CJF32</b>	40	-	V
		<b>CJF31A, CJF32A</b>	60	-	V
		<b>CJF31B, CJF32B</b>	80	-	V
		<b>CJF31C, CJF32C</b>	100	-	V
Collector Cut off Current	$I_{CEO}$	<b>CJF31/31A, CJF32/32A</b> $V_{CE}=30\text{V}, I_B=0$	-	0.3	mA
		<b>CJF31B/31C, CJF32B/32C</b> $V_{CE}=60\text{V}, I_B=0$	-	0.3	mA
Collector Cut off Current	$I_{CES}$	$V_{CE}=\text{Rated } V_{CES}, V_{EB}=0$	-	200	$\mu\text{A}$
Emitter Cut off Current	$I_{EBO}$	$V_{BE}=5\text{V}, I_C=0$	-	1.0	mA

# SILICON PLANAR POWER TRANSISTORS



<b>NPN</b>	<b>PNP</b>
<b>CJF31</b>	<b>CJF32</b>
<b>CJF31A</b>	<b>CJF32A</b>
<b>CJF31B</b>	<b>CJF32B</b>
<b>CJF31C</b>	<b>CJF32C</b>

**TO-220FP Fully Isolated  
Plastic Package**

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

DESCRIPTION	SYMBOL	TEST CONDITION	MIN	MAX	UNIT
<b>DC Current Gain</b>	$h_{FE}^*$	$I_C=1.0\text{A}, V_{CE}=4\text{V}$	25	-	
		$I_C=3.0\text{A}, V_{CE}=4\text{V}$	10	50	
<b>Collector Emitter Saturation Voltage</b>	$V_{CE(sat)}^*$	$I_C=3\text{A}, I_B=375\text{mA}$	-	1.2	V
<b>Base Emitter on Voltage</b>	$V_{BE(on)}^*$	$I_C=3.0\text{A}, V_{CE}=4\text{V}$	-	1.8	V
<b><u>DYNAMIC CHARACTERISTICS</u></b>					
<b>Current Gain - Bandwidth Product **</b>	$f_T$	$I_C=500\text{mA}, V_{CE}=10\text{V}$ $f_{test}=1\text{MHz}$	3.0	-	MHz
<b>Small Signal Current Gain</b>	$ h_{fe} $	$I_C=0.5\text{A}, V_{CE}=10\text{V}$ $f=1\text{kHz}$	20	-	

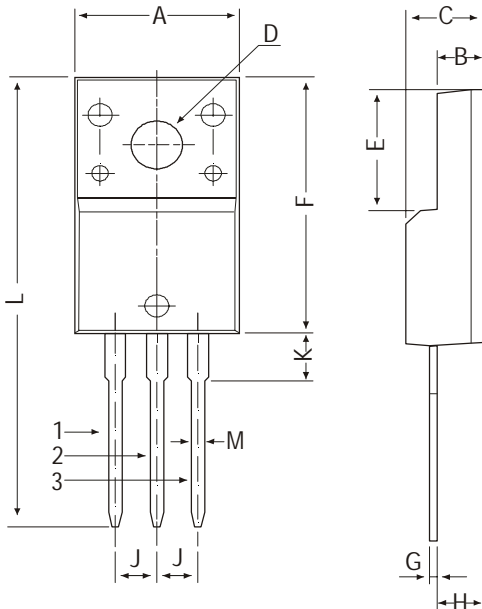
\* Pulse Test: Pulse Width  $\leq 300\mu\text{s}$ , Duty Cycle  $\leq 2\%$

\*\*  $f_T = |h_{fe}| f_{test}$

<b>NPN</b>	<b>PNP</b>
<b>CJF31</b>	<b>CJF32</b>
<b>CJF31A</b>	<b>CJF32A</b>
<b>CJF31B</b>	<b>CJF32B</b>
<b>CJF31C</b>	<b>CJF32C</b>

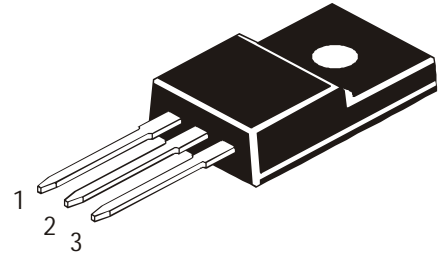
**TO-220FP Fully Isolated Plastic Package**

**TO-220FP Fully Isolated Plastic Package**



DIM	MIN	MAX
A	9.96	10.36
B	2.60	3.00
C	4.50	4.90
D	3.10	3.30
E	7.90	8.20
F	16.87	17.27
G	0.45	0.50
H	2.56	2.96
J	2.34	2.74
K	—	3.08
L	—	30.05
M	—	0.80

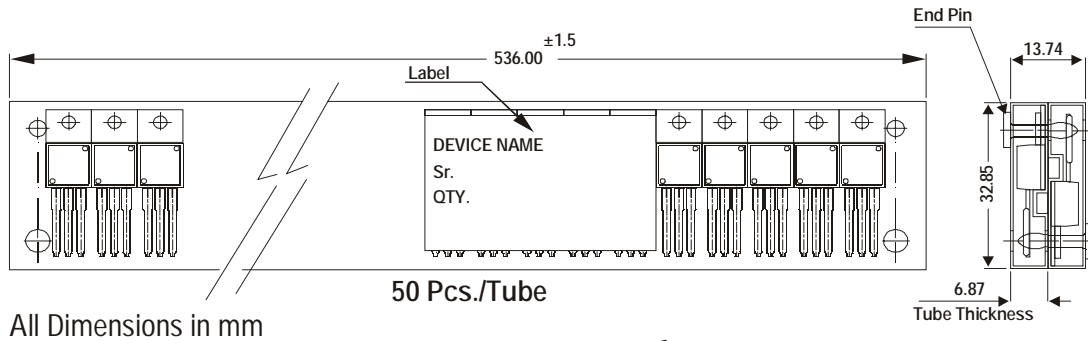
All dimensions in mm.



**Pin Configuration**

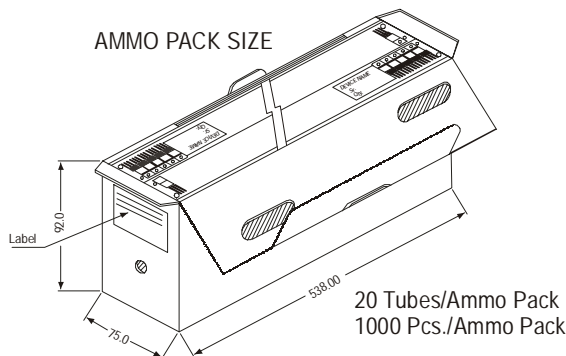
1. Base
2. Collector
3. Emitter

**TO-220 FP Tube Packing**



All Dimensions in mm

**AMMO PACK SIZE**



20 Tubes/Ammo Pack  
1000 Pcs./Ammo Pack

**Packing Detail**

PACKAGE	STANDARD PACK		INNER CARTON BOX		OUTER CARTON BOX		
	Details	Net Weight/Qty	Size	Qty	Size	Qty	Gr Wt
TO-220FP	200 pcs/polybag	396 gm/200 pcs	3" x 7.5" x 7.5"	1K	17" x 15" x 13.5"	16K	36 kgs
	50 pcs/tube	135 gm/50 pcs	3.5" x 3.7" x 21.5"	1K	19" x 19" x 19"	10K	28 kgs

## Notes

NPN	PNP
CJF31	CJF32
CJF31A	CJF32A
CJF31B	CJF32B
CJF31C	CJF32C

**TO-220FP Fully Isolated  
Plastic Package**

### Disclaimer

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