



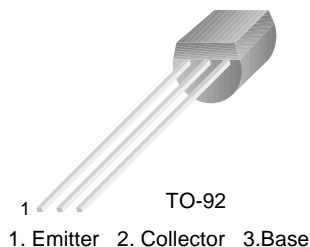
**THE DATASHEET OF  
FJN13003TA**



# FJN13003

## High Voltage Switch Mode Application

- High Speed Switching
- Suitable for Electronic Ballast up to 21W



## NPN Silicon Transistor Planar Silicon Transistor

### Absolute Maximum Ratings $T_C=25^\circ\text{C}$ unless otherwise noted

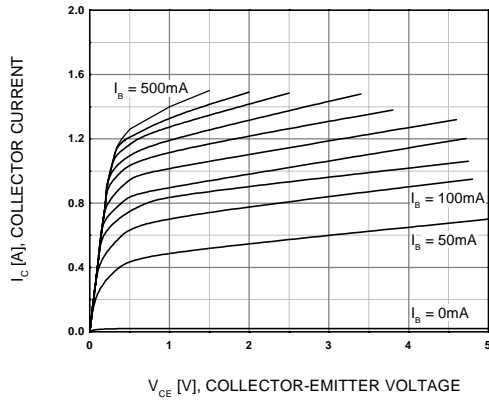
Symbol	Parameter	Value	Units
$V_{CBO}$	Collector-Base Voltage	700	V
$V_{CEO}$	Collector-Emitter Voltage	400	V
$V_{EBO}$	Emitter-Base Voltage	9	V
$I_C$	Collector Current (DC)	1.5	A
$I_{CP}$	*Collector Current (Pulse)	3	A
$I_B$	Base Current (DC)	0.75	A
$I_{BP}$	*Base Current (Pulse)	1.5	A
$P_C$	Collector Power Dissipation( $T_a=25^\circ\text{C}$ )	1.1	W
$T_J$	Junction Temperature	150	$^\circ\text{C}$
$T_{STG}$	Storage Temperature	- 65 ~ 150	$^\circ\text{C}$

\* Pulse Test: Pulse Width=5ms, Duty Cycle  $\leq$  10%

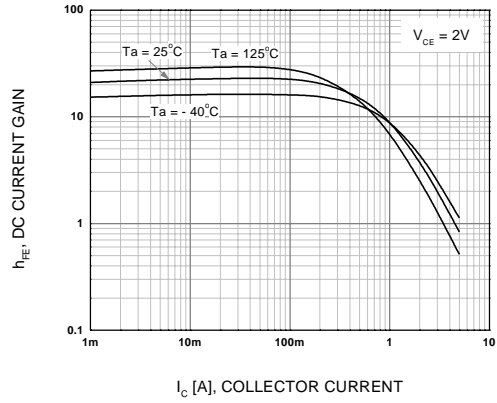
### Electrical Characteristics $T_a=25^\circ\text{C}$ unless otherwise noted

Symbol	Parameter	Test Condition	Min.	Typ.	Max.	Units
$BV_{CBO}$	Collector-Base Breakdown Voltage	$I_C=500\mu\text{A}, I_E=0$	700			V
$BV_{CEO}$	Collector-Emitter Breakdown Voltage	$I_C=5\text{mA}, I_B=0$	400			V
$BV_{EBO}$	Emitter-Base Breakdown Voltage	$I_E=500\mu\text{A}, I_C=0$	9			V
$I_{EBO}$	Emitter Cut-off Current	$V_{EB}=9\text{V}, I_C=0$			10	$\mu\text{A}$
$h_{FE}$	DC Current Gain	$V_{CE}=2\text{V}, I_C=0.5\text{A}$	9		21	
		$V_{CE}=2\text{V}, I_C=1.0\text{A}$	5			
$V_{CE}(\text{sat})$	Collector-Emitter Saturation Voltage	$I_C=0.5\text{A}, I_B=0.1\text{A}$			0.5	V
		$I_C=1.0\text{A}, I_B=0.25\text{A}$			1.0	V
		$I_C=1.5\text{A}, I_B=0.5\text{A}$			3.0	V
$V_{BE}(\text{sat})$	Base-Emitter Saturation Voltage	$I_C=0.5\text{A}, I_B=0.1\text{A}$			1.0	V
		$I_C=1.0\text{A}, I_B=0.25\text{A}$			1.2	V
$f_T$	Current Gain Bandwidth Product	$V_{CE}=10\text{V}, I_C=0.1\text{A}$	4			MHz
$t_{ON}$	Turn ON Time	$V_{CC}=125\text{V}, I_C=1\text{A},$ $I_{B1}=0.2\text{A}, I_{B2}=-0.2\text{A},$ $R_L = 125\Omega$			1.1	$\mu\text{s}$
$t_{STG}$	Storage Time				4.0	$\mu\text{s}$
$t_F$	Fall Time				0.7	$\mu\text{s}$

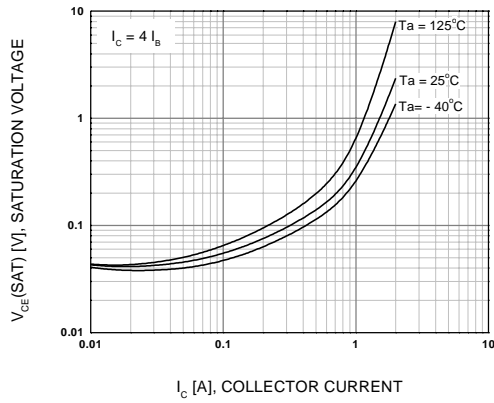
## Typical Characteristics (Continued)



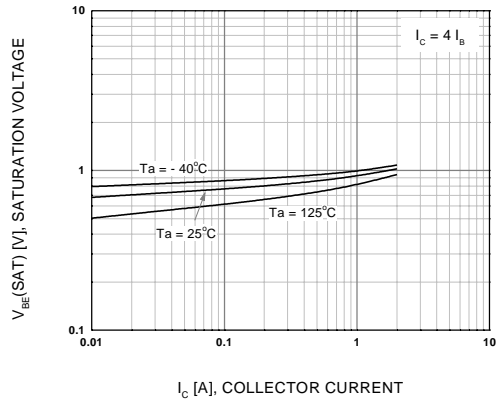
**Figure 1. Static Characteristic**



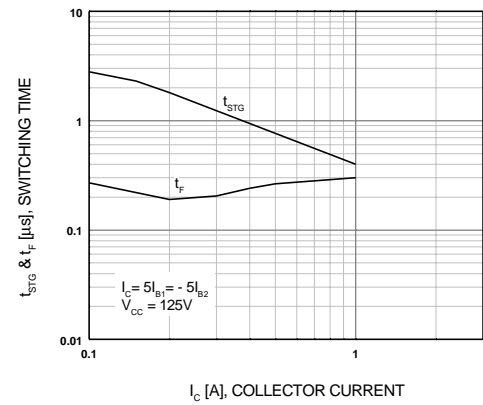
**Figure 2. DC current Gain**



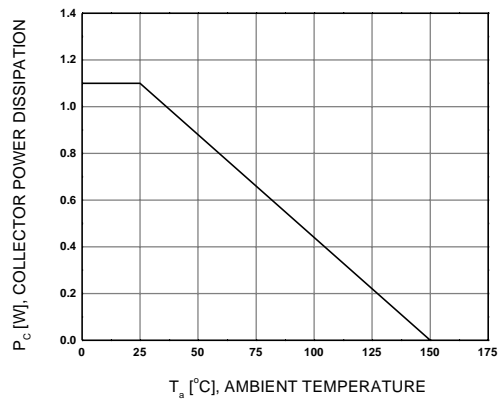
**Figure 3. Collector-Emitter Saturation Voltage**



**Figure 4. Base-Emitter Saturation Voltage**



**Figure 5. Resistive Load Switching Time**



**Figure 6. Power Derating**

## Typical Characteristics

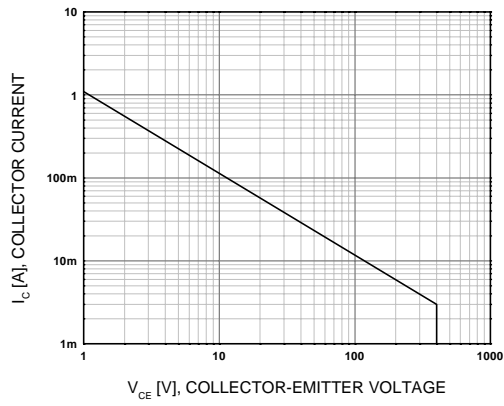


Figure 7. Forward Bias Safe Operating Area

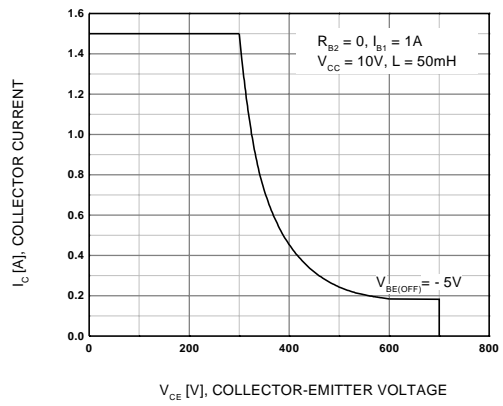
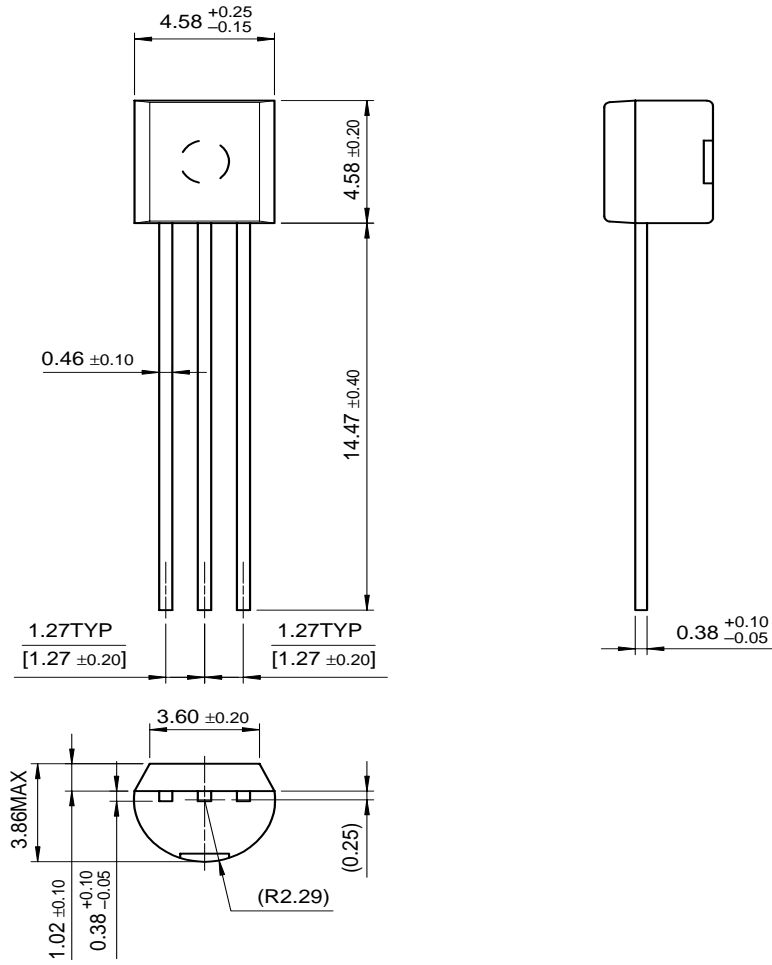


Figure 8. Reverse Bias Safe Operating Area

# Package Dimensions

FJN13003

## TO-92



Dimensions in Millimeters

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