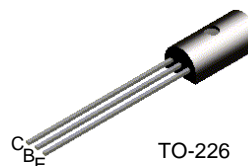


## FPN660/FPN660A

### PNP Low Saturation Transistor

- These devices are designed for high current gain and low saturation voltage with collector currents up to 3.0A continuous.
- Sourced from process PA.



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

Symbol	Parameter	FPN660	FPN660A	Units
$V_{CEO}$	Collector-Emitter Voltage	60	60	V
$V_{CBO}$	Collector-Base Voltage	80	60	V
$V_{EBO}$	Emitter-Base Voltage	5	5	V
$I_C$	Collector Current - Continuous	3	3	A
$T_J, T_{STG}$	Operating and Storage Junction Temperature Range	-55 ~ +150	-55 ~ +150	$^\circ\text{C}$

\* These ratings are limiting values above which the serviceability of any semiconductor device may be impaired.

#### NOTES:

- 1) These ratings are based on a maximum junction temperature of  $150^\circ\text{C}$ .
- 2) These are steady state limits. The factory should be consulted on applications involving pulsed or low duty cycle operations.
- 3) All voltage (V) and currents (A) are negative polarity for PNP transistors

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

Symbol	Parameter	Test Conditions	Min.	Typ.	Max.	Units
<b>Off Characteristics</b>						
$BV_{CEO}$	Collector-Emitter Breakdown Voltage	$I_C = 10\text{mA}, I_B = 0$	55			V
$BV_{CBO}$	Collector-Base Breakdown Voltage	$I_E = 100\mu\text{A}, I_C = 0$	80			V
		FPN660	60			V
		FPN660A				
$BV_{EBO}$	Emitter-Base Breakdown Voltage	$I_E = 100\mu\text{A}, I_C = 0$	5.0			V
$I_{CBO}$	Collector-Base Cutoff Current	$V_{CB} = 30\text{V}, I_E = 0$			100	nA
		$V_{CB} = 30\text{V}, I_E = 0, T_A = 100^\circ\text{C}$			10	$\mu\text{A}$
$I_{EBO}$	Emitter-Base Cutoff Current	$V_{EB} = 4.0\text{V}, I_C = 0$			100	nA
<b>On Characteristics *</b>						
$h_{FE}$	DC Current Gain	$I_C = 100\text{mA}, V_{CE} = 2.0\text{V}$	70			
		$I_C = 500\text{mA}, V_{CE} = 2.0\text{V}$	100		300	
		FPN660	250		550	
		FPN660A	80			
		$I_C = 1.0\text{A}, V_{CE} = 2.0\text{V}$	40			
		$I_C = 2.0\text{A}, V_{CE} = 2.0\text{V}$				
$V_{CE(sat)}$	Collector-Emitter Saturation Voltage	$I_C = 1.0\text{A}, I_B = 100\text{mA}$			300	mV
		$I_C = 2.0\text{A}, I_B = 200\text{mA}$			450	mV
		FPN660			400	mV
		FPN660A				
$V_{BE(sat)}$	Base-Emitter Saturation Voltage	$I_C = 1.0\text{A}, I_B = 100\text{mA}$			1.25	V
$V_{BE(on)}$	Base-Emitter On Voltage	$I_C = 1.0\text{A}, V_{CE} = 2.0\text{V}$			1.0	V
<b>Small Signal Characteristics</b>						
$C_{obo}$	Output Capacitance	$V_{CB} = 10\text{V}, I_E = 0, f = 1\text{MHz}$			45	pF
$f_T$	Transition Frequency	$I_C = 100\text{mA}, V_{CE} = 5.0\text{V}, f = 100\text{MHz}$	75			MHz

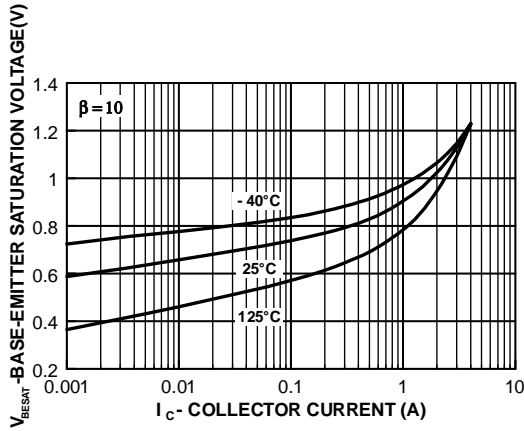
\* Pulse Test: Pulse Width  $\leq 300\mu\text{s}$ , Duty Cycle  $\leq 2.0\%$

**NOTE:** All voltage (V) and currents (A) are negative polarity for PNP transistors.

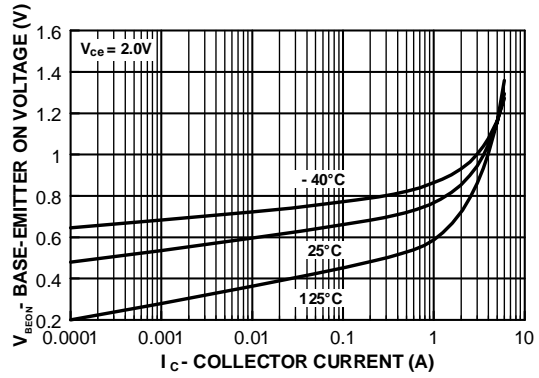
**Thermal Characteristics**  $T_A=25^{\circ}\text{C}$  unless otherwise noted

Symbol	Parameter	Max.	Units
		FPN660/FPN660A	
$P_D$	Total Device Dissipation	1	W
$R_{\theta JC}$	Thermal Resistance, Junction to Case	50	$^{\circ}\text{C}/\text{W}$
$R_{\theta JA}$	Thermal Resistance, Junction to Ambient	125	$^{\circ}\text{C}/\text{W}$

# Typical Characteristics

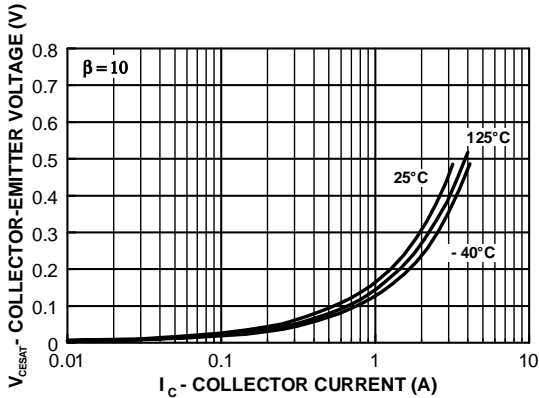


**Figure 1. Base-Emitter Saturation Voltage vs Collector Current**  
Collector-Emitter Saturation

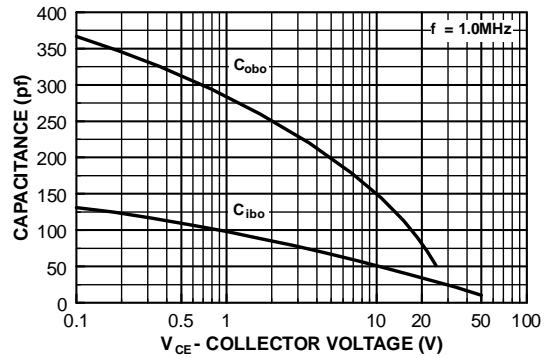


**Figure 2. Base-Emitter On Voltage vs Collector Current**

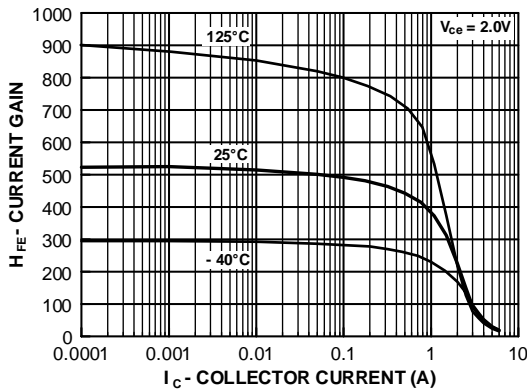
Input/Output Capacitance vs



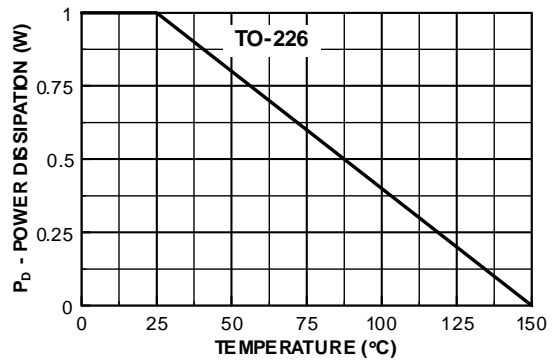
**Figure 3. Collector-Emitter Saturation Voltage vs Collector Current**



**Figure 4. Input/Output Capacitance vs Reverse Bias Voltage**



**Figure 5. Current Gain vs Collector Current**

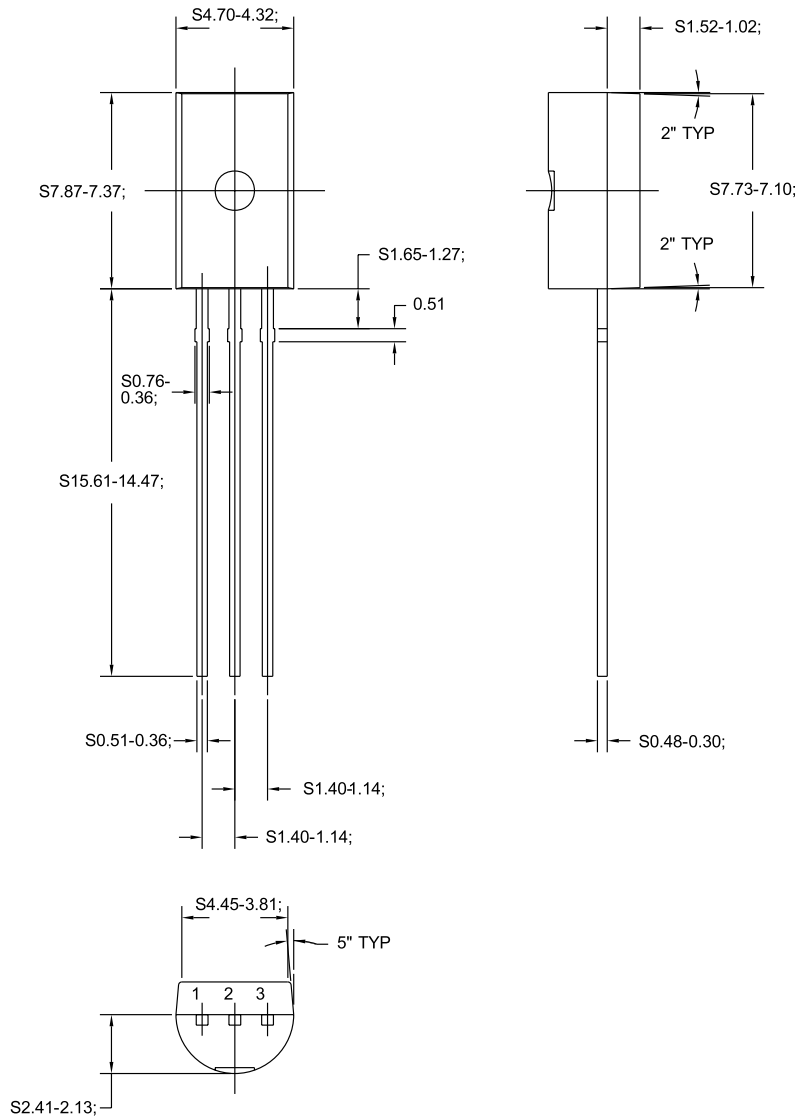


**Figure 6. Power Dissipation vs Ambient Temperature**

# Package Dimensions

## TO-226

FPN660/FPN660A



Dimensions in Millimeters

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EcoSPARK™	I <sup>2</sup> C™	PowerTrench®	SuperSOT™-8	
E <sup>2</sup> CMOS™	ISOPLANAR™	QFET™	SyncFET™	
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## PRODUCT STATUS DEFINITIONS

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