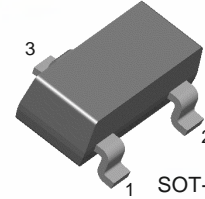


**FAIRCHILD**  
SEMICONDUCTOR®

## FJV3102R

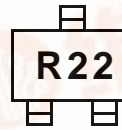
### Switching Application (Bias Resistor Built In)

- Switching circuit, Inverter, Interface circuit, Driver Circuit
- Built in bias Resistor ( $R_1=10K\Omega$ ,  $R_2=10K\Omega$ )
- Complement to FJV4102R

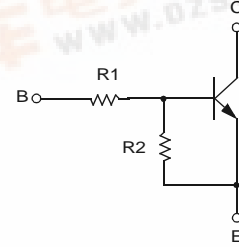


1. Base 2. Emitter 3. Collector

Marking



Equivalent Circuit



### NPN Epitaxial Silicon Transistor

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

Symbol	Parameter	Value	Units
$V_{CBO}$	Collector-Base Voltage	50	V
$V_{CEO}$	Collector-Emitter Voltage	50	V
$V_{EBO}$	Emitter-Base Voltage	10	V
$I_C$	Collector Current	100	mA
$P_C$	Collector Power Dissipation	200	mW
$T_J$	Junction Temperature	150	$^\circ\text{C}$
$T_{STG}$	Storage Temperature	-55 ~ 150	$^\circ\text{C}$

#### 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	$I_C=10\mu\text{A}$ , $I_E=0$	50			V
$BV_{CEO}$	Collector-Emitter Breakdown Voltage	$I_C=100\mu\text{A}$ , $I_B=0$	50			V
$I_{CBO}$	Collector Cut-off Current	$V_{CB}=40\text{V}$ , $I_E=0$			0.1	$\mu\text{A}$
$h_{FE}$	DC Current Gain	$V_{CE}=5\text{V}$ , $I_C=5\text{mA}$	30			
$V_{CE(sat)}$	Collector-Emitter Saturation Voltage	$I_C=10\text{mA}$ , $I_B=0.5\text{mA}$			0.3	V
$f_T$	Current Gain Bandwidth Product	$V_{CE}=10\text{V}$ , $I_C=5\text{mA}$		250		MHz
$C_{ob}$	Output Capacitance	$V_{CB}=10\text{V}$ , $I_E=0$ $f=1.0\text{MHz}$		3.7		pF
$V_I(\text{off})$	Input Off Voltage	$V_{CE}=5\text{V}$ , $I_C=100\mu\text{A}$	0.5			V
$V_I(\text{on})$	Input On Voltage	$V_{CE}=0.3\text{V}$ , $I_C=10\text{mA}$			3	V
$R_1$	Input Resistor		7	10	13	$K\Omega$
$R_1/R_2$	Resistor Ratio		0.9	1	1.1	

## Typical Characteristics

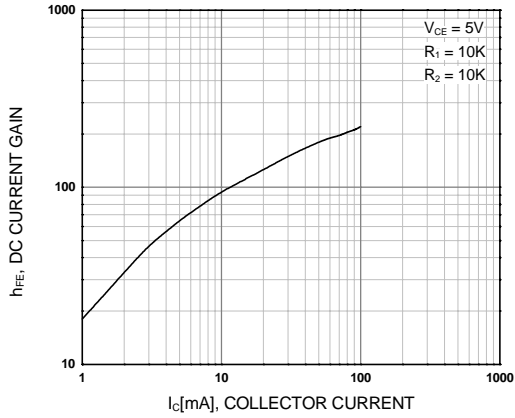


Figure 1. DC current Gain

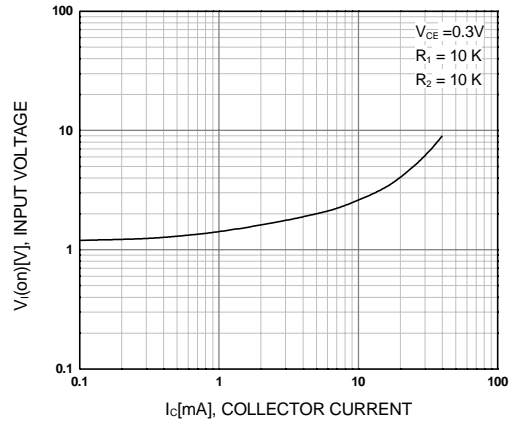


Figure 2. Input On Voltage

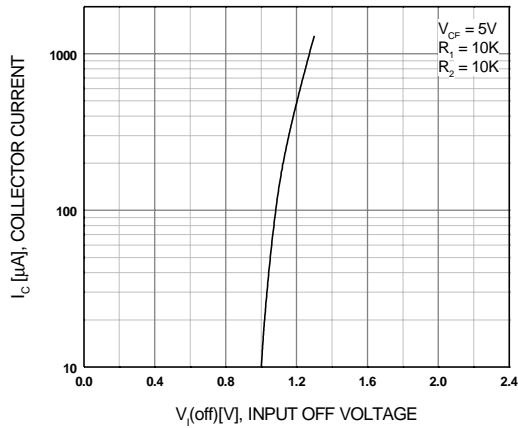


Figure 3. Input Off Voltage

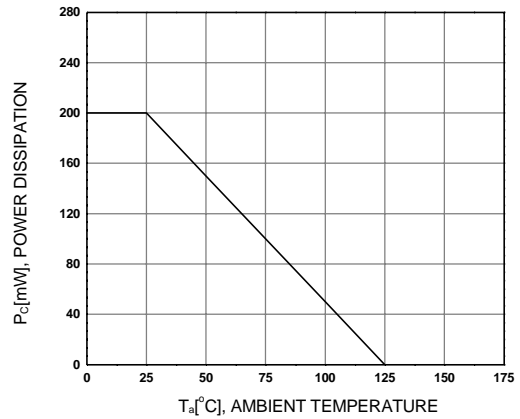
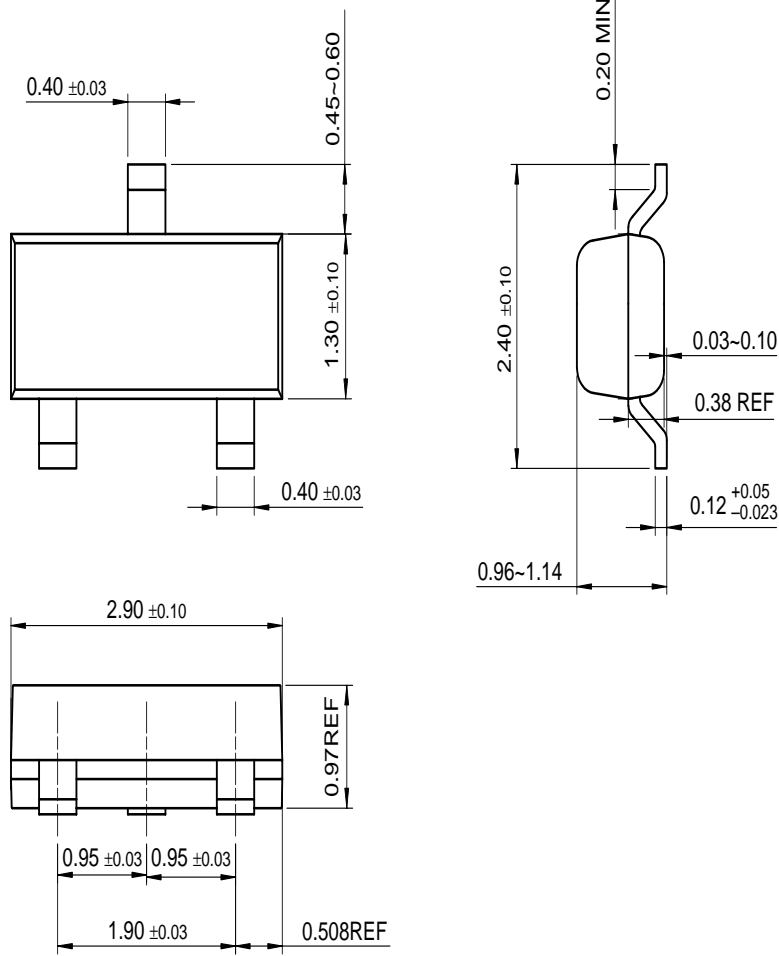


Figure 4. Power Derating

# Package Dimensions

## SOT-23



Dimensions in Millimeters

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CoolFET™	GlobalOptoisolator™	PACMAN™	Stealth™	
CROSSVOLT™	GTO™	POP™	SuperSOT™-3	
DOME™	HiSeC™	Power247™	SuperSOT™-6	
EcoSPARK™	I <sup>2</sup> C™	PowerTrench®	SuperSOT™-8	
E <sup>2</sup> CMOS™	ISOPLANAR™	QFET™	SyncFET™	
EnSigna™	LittleFET™	QS™	TinyLogic™	
FACT™	MicroFET™	QT Optoelectronics™	TruTranslation™	
FACT Quiet series™	MicroPak™	Quiet Series™	UHC™	
FAST®	MICROWIRE™	SLIENT SWITCHER®	UltraFET®	

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