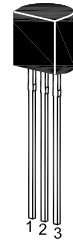
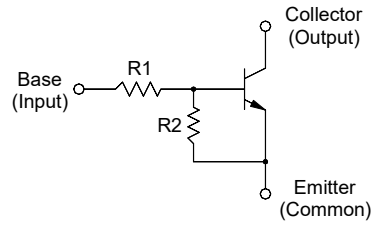


RC116S...RC122S

NPN Silicon Epitaxial Planar Digital Transistor

Feature

- With Built-in Bias Resistor
- Simplify Circuit Design
- Reduce a Quantity of Parts and Manufacturing Process



1. Emitter 2. Collector 3. Base
TO-92 Plastic Package

Applications

- For switching, interface circuit and driver circuit

Resistor Values

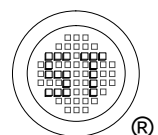
Type	R1 (K Ω)	R2 (K Ω)
RC116S	1	10
RC117S	2.2	2.2
RC118S	2.2	10
RC119S	4.7	10
RC120S	10	4.7
RC121S	47	10
RC122S	100	100

Absolute Maximum Ratings ($T_a = 25^\circ\text{C}$)

Parameter	Symbol	Value	Unit
Collector Emitter Voltage	V_{CEO}	50	V
Input Voltage	V_{IN}	RC116S	10, -5
		RC117S	12, -10
		RC118S	12, -5
		RC119S	20, -7
		RC120S	30, -10
		RC121S	40, -15
		RC122S	40, -10
Collector Current	I_c	100	mA
Total Power Dissipation	P_D	200	mW
Junction Temperature	T_j	150	$^\circ\text{C}$
Storage Temperature Range	T_{stg}	- 55 to + 150	$^\circ\text{C}$

Thermal Characteristics

Parameter	Symbol	Max.	Unit
Thermal Resistance from Junction to Ambient	$R_{\theta JA}$	625	$^\circ\text{C/W}$

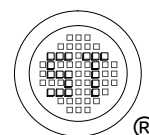


RC116S...RC122S

Characteristics at $T_a = 25^\circ\text{C}$

Parameter	Symbol	Min.	Typ.	Max.	Unit	
DC Current Gain						
at $V_{CE} = 5\text{ V}$, $I_C = 5\text{ mA}$	RC116S	33	-	-	-	
at $V_{CE} = 5\text{ V}$, $I_C = 20\text{ mA}$	RC117S	20	-	-	-	
at $V_{CE} = 5\text{ V}$, $I_C = 10\text{ mA}$	RC118S	33	-	-	-	
at $V_{CE} = 5\text{ V}$, $I_C = 10\text{ mA}$	RC119S	30	-	-	-	
at $V_{CE} = 5\text{ V}$, $I_C = 10\text{ mA}$	RC120S	24	-	-	-	
at $V_{CE} = 5\text{ V}$, $I_C = 5\text{ mA}$	RC121S	33	-	-	-	
at $V_{CE} = 5\text{ V}$, $I_C = 5\text{ mA}$	RC122S	62	-	-	-	
Collector Emitter Cut-off Current at $V_{CE} = 50\text{ V}$	I_{CEO}	-	-	500	nA	
Emitter Base Cutoff Current at $V_{EB} = 5\text{ V}$						
	RC116S	-	-	7.2	mA	
	RC117S	-	-	3.8		
	RC118S	-	-	3.8		
	RC119S	-	-	1.8		
	RC120S	-	-	0.88		
	RC121S	-	-	0.16		
	RC122S	-	-	0.15		
Collector Emitter Saturation Voltage at $I_C = 10\text{ mA}$, $I_B = 0.5\text{ mA}$ at $I_C = 5\text{ mA}$, $I_B = 0.25\text{ mA}$	RC116S~RC121S RC122S	$V_{CE(sat)}$	-	-	0.3 0.3	V
Input on Voltage at $V_{CE} = 0.3\text{ V}$, $I_C = 20\text{ mA}$ at $V_{CE} = 0.3\text{ V}$, $I_C = 20\text{ mA}$ at $V_{CE} = 0.3\text{ V}$, $I_C = 20\text{ mA}$ at $V_{CE} = 0.3\text{ V}$, $I_C = 20\text{ mA}$ at $V_{CE} = 0.3\text{ V}$, $I_C = 2\text{ mA}$ at $V_{CE} = 0.3\text{ V}$, $I_C = 2\text{ mA}$ at $V_{CE} = 0.3\text{ V}$, $I_C = 1\text{ mA}$	RC116S RC117S RC118S RC119S RC120S RC121S RC122S	$V_{I(ON)}$	-	-	3 3 3 2.5 3 5 3	V
Input off Voltage at $V_{CE} = 5\text{ V}$, $I_C = 100\text{ }\mu\text{A}$	RC116S RC117S RC118S RC119S RC120S RC121S RC122S	$V_{I(OFF)}$	0.3 0.5 0.3 0.3 0.8 1 0.5	- - - - - - -	- - - - - - -	V
Transition Frequency at $V_{CE} = 10\text{ V}$, $I_C = 5\text{ mA}$		f_T ¹⁾	-	250	-	MHz

¹⁾ Characteristic of transistor only.



RC116S...RC122S

Electrical Characteristics Curves: RC118S

Fig 1. Collector Current vs. $V_{I(ON)}$

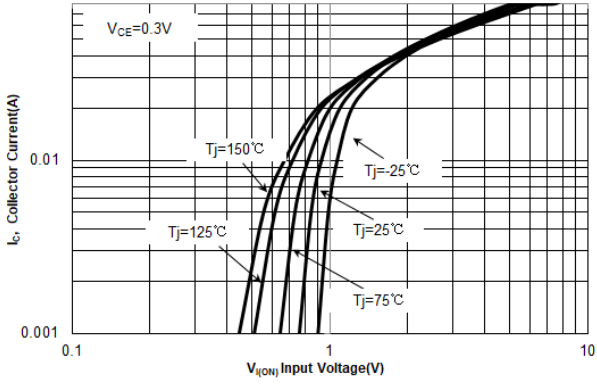


Fig 2. Collector Current vs. $V_{I(off)}$

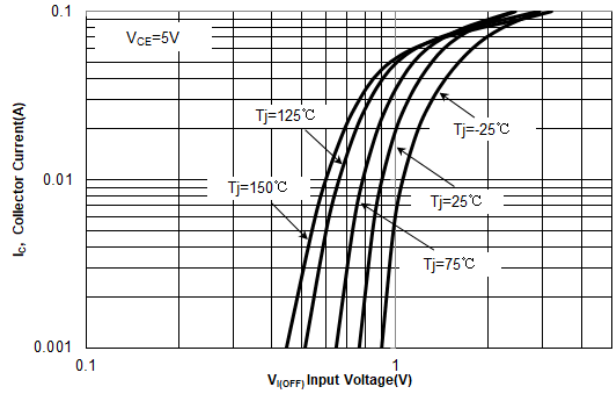


Fig 3. DC Current Gain vs. Collector Current

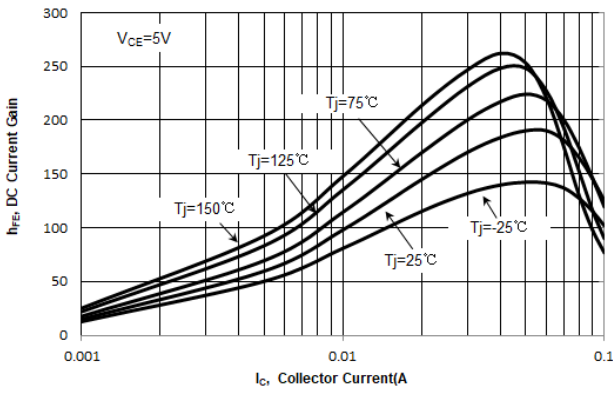
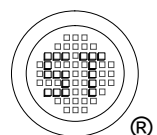
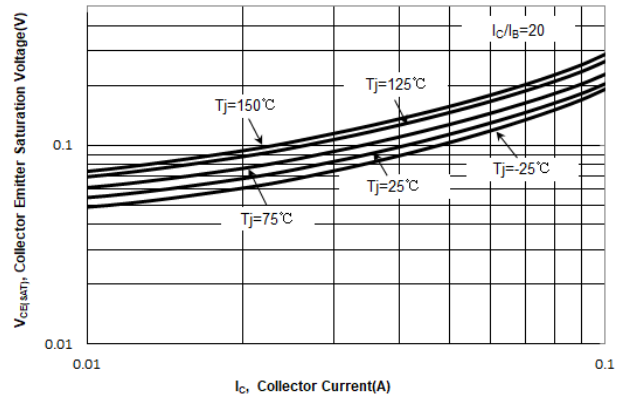


Fig 4. $V_{CE(sat)}$ vs. Collector Current



RC116S...RC122S

Electrical Characteristics Curves:RC122S

Fig 1. Collector Current vs. $V_{I(ON)}$

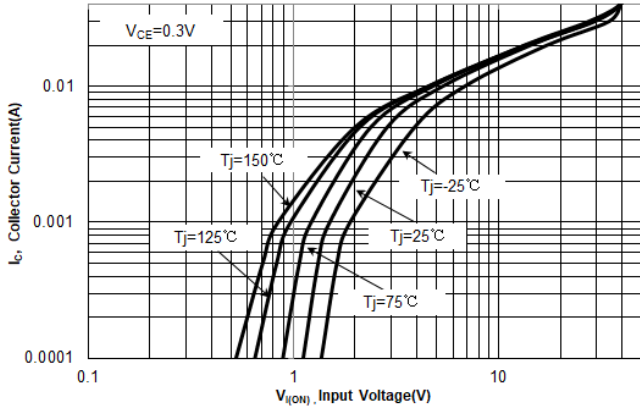


Fig 2. Collector Current vs. $V_{I(off)}$

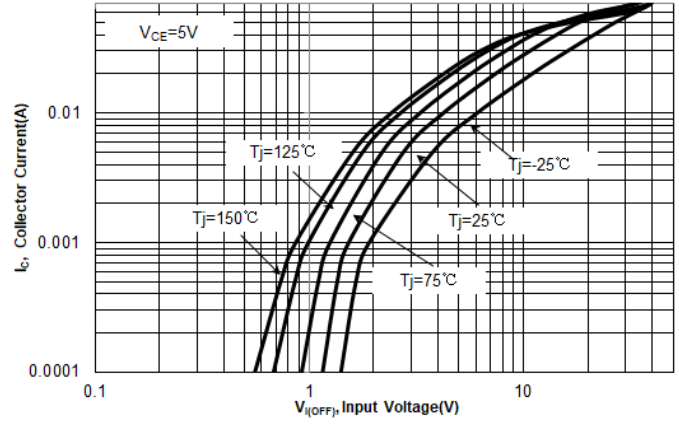


Fig 3. DC Current Gain vs. Collector Current

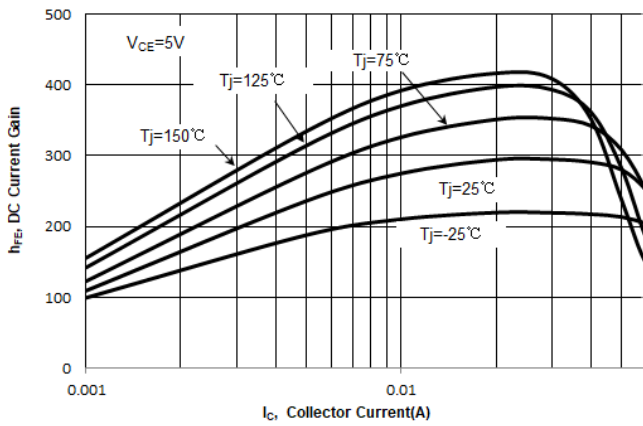
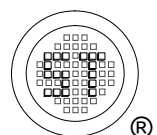
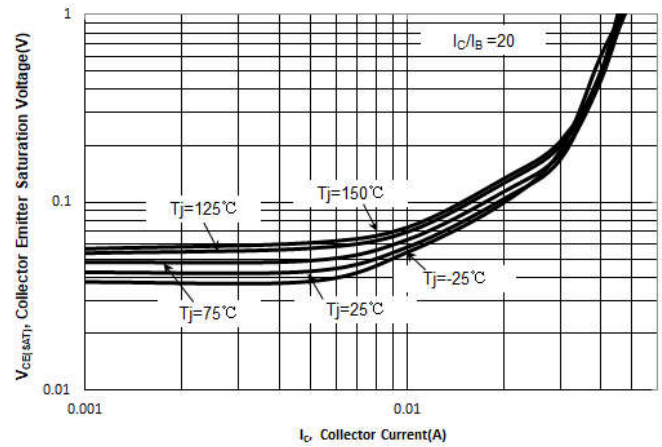
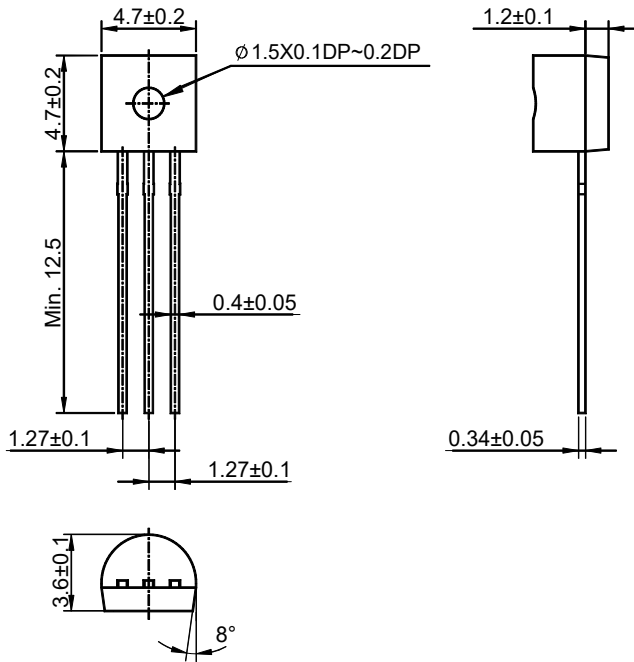


Fig 4. $V_{CE(sat)}$ vs. Collector Current

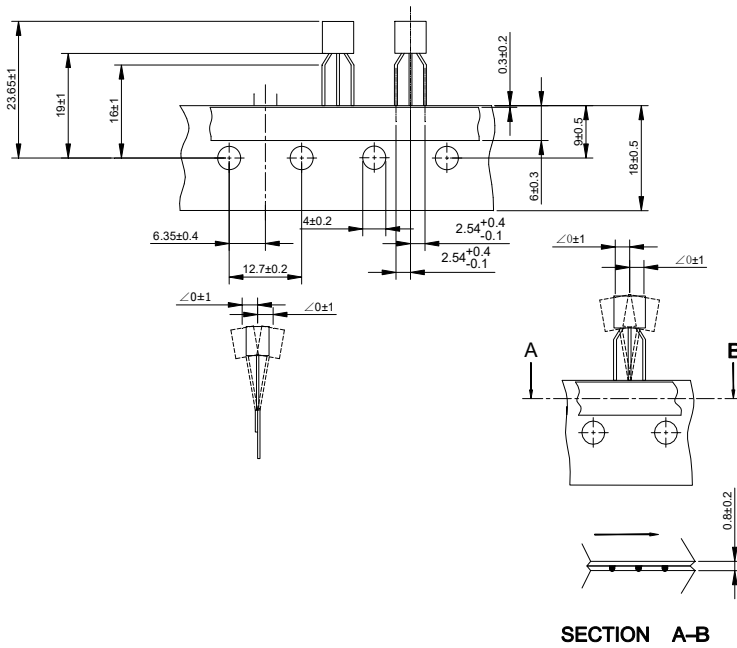


RC116S...RC122S

TO-92 Package Outline (Dimensions in millimeters)



TO-92 Ammo-Pack Outline (Dimensions in millimeters)



Packing information

Package	Bulk Packing			Ammo-Packing	
	Per Bag Qty	Per Box Qty	Per Carton Qty	Per Box Qty	Per Carton Qty
TO-92	1,000	5,000	50,000	4,000	20,000

