

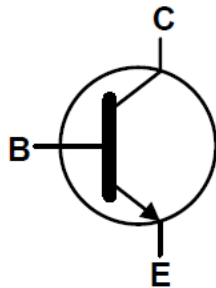
### 1. Synopsis

#### 1-1. Feature List

- $BV_{CEO}$ : 50V (Min.)
- Low Saturation Voltage  $V_{CE(sat)} < 0.25V @ 0.1A$
- $I_C = 150mA$  Continuous Collector Current
- Complementary to 2SA1015

#### 1-2. Mechanical Characteristics

- Molded JEDEC Package: TO-92
- Packing: Tape Box
- Flammability rating UL 94V-0
- Halogen Free
- JEDEC MSL Classification: LEVEL 1



Device Symbol



#### 1-3. Device Characteristics

##### Maximum Ratings@25°C Unless Otherwise Specified

Parameter	Symbol	Values	Units
Collector-Base Voltage	$V_{CBO}$	60	V
Collector-Emitter Voltage	$V_{CEO}$	50	
Emitter-Base Voltage	$V_{EBO}$	5.0	
Continuous Collector Current	$I_C$	150	mA
Collector Power Dissipation	$P_C$	400	mW
Junction Temperature	$T_J$	-55 ~ +150	°C
Storage Temperature	$T_{STG}$		

#### 1-4. Classification of $h_{FE}$

Rank	O	Y	G	L
Range	70-140	120-240	200-400	350-700

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### 3. Electrical Property

#### 3-1. Electrical Characteristics (@TA = 25°C, Unless Otherwise Specified)

Parameter	Symbol	Condition	Min.	Typ.	Max.	Units
Collector-Base Breakdown Voltage	$V_{BR-CBO}$	$I_C = 100\mu A, I_E = 0$	60	-	-	V
Collector-Emitter Breakdown Voltage	$V_{BR-CEO}$	$I_C = 1mA, I_B = 0$	50	-	-	
Emitter-Base Breakdown Voltage	$V_{BR-EBO}$	$I_E = 100\mu A, I_C = 0$	5.0	-	-	
Collector-Emitter Saturation Voltage	$V_{CE(sat)}$	$I_C = 100mA, I_B = 10mA$	-	0.18	0.25	
Collector Cut-off Current	$I_{CBO}$	$V_{CB} = 60V, I_E = 0$	-	-	100	nA
Emitter Cut-off Current	$I_{EBO}$	$V_{EB} = 5V, I_C = 0$	-	-	100	
Static Forward Current Transfer Ratio	$h_{FE}$	$I_C = 2mA, V_{CE} = 6V$	70	-	700	-
Transition Frequency	$f_T$	$I_C = 1mA, V_{CE} = 10V$	80	-	-	MHz
Output Capacitance	$C_{OBO}$	$V_{CB} = 10V, f = 1MHz$	-	-	3.5	pF
Noise Figure	$N_F$	$I_C = 0.1mA, V_{CE} = 6V, R_G = 10k\Omega, f = 100MHz$	-	-	10	dB

#### 3-2. Ratings and Characteristics Curve-Fig 1~2 (@TA = 25°C, Unless Otherwise Specified)

Fig 1. DC Current Gain

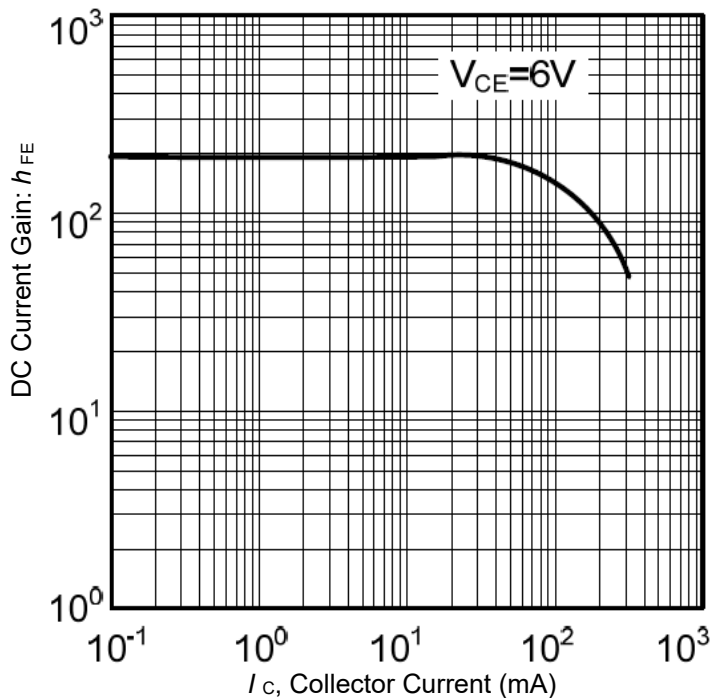
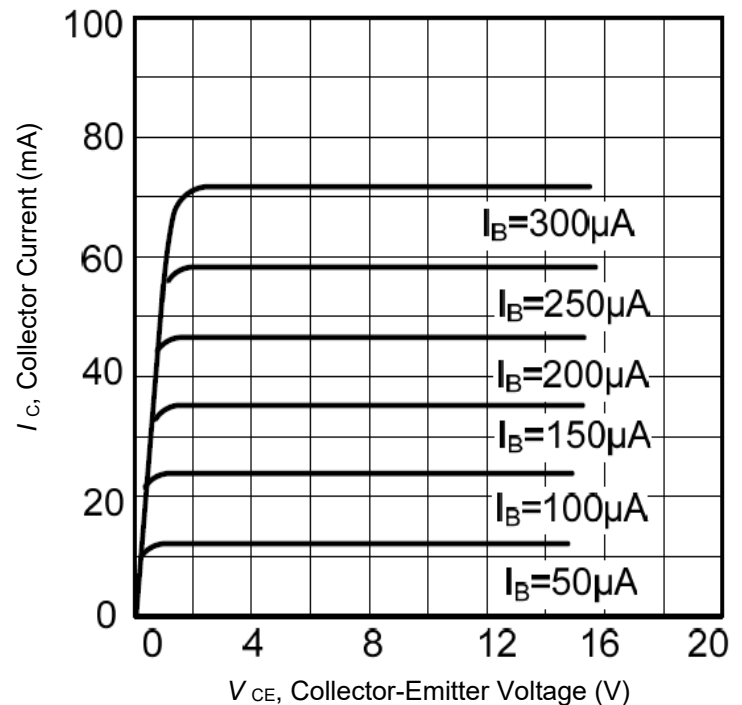


Fig 2. Static Characteristics



3-2. Ratings and Characteristics Curve-Fig 3~6 (@TA = 25°C, Unless Otherwise Specified)

Fig 3. Collector Output Capacitance

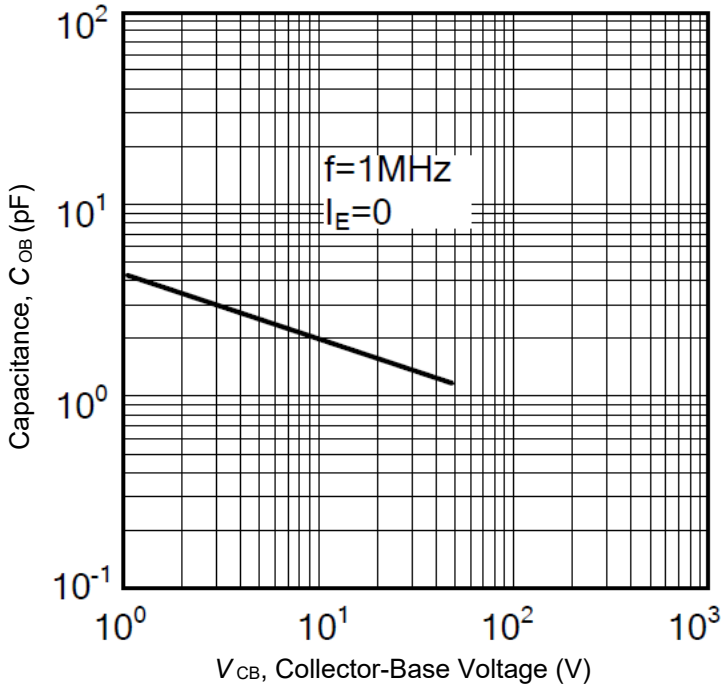


Fig 4. Base-Emitter On Voltage

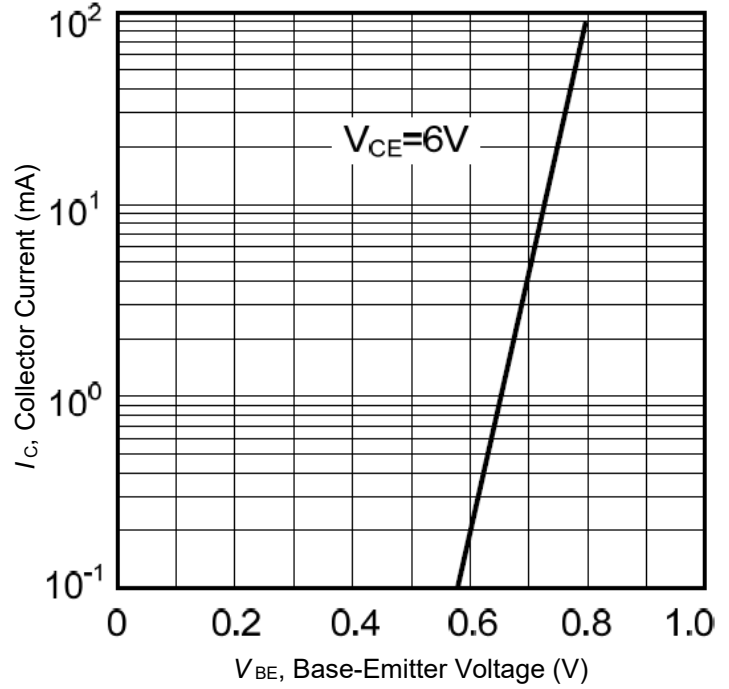


Fig 5. Saturation Voltage

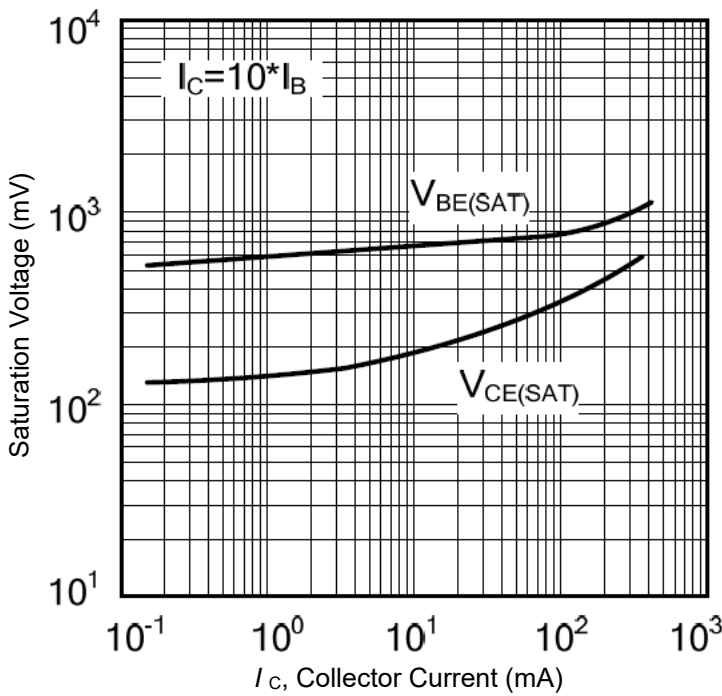
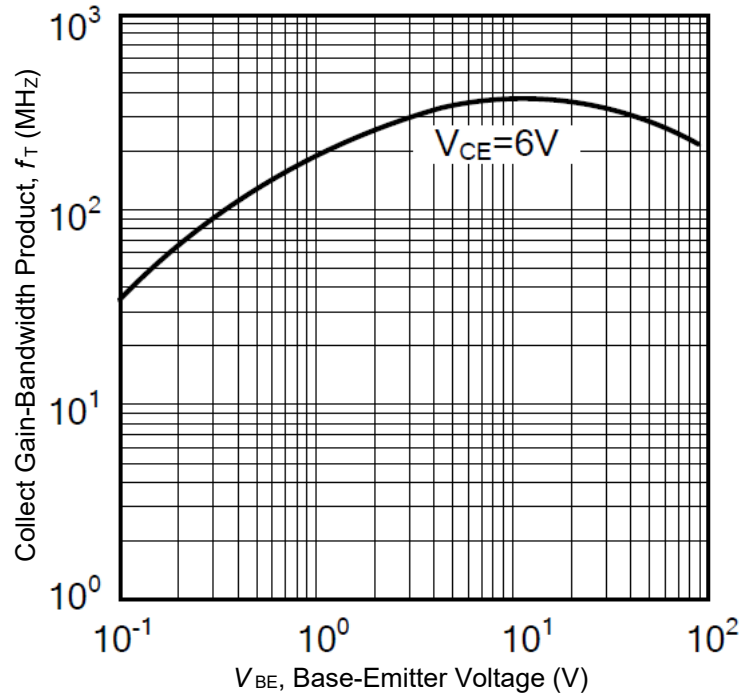
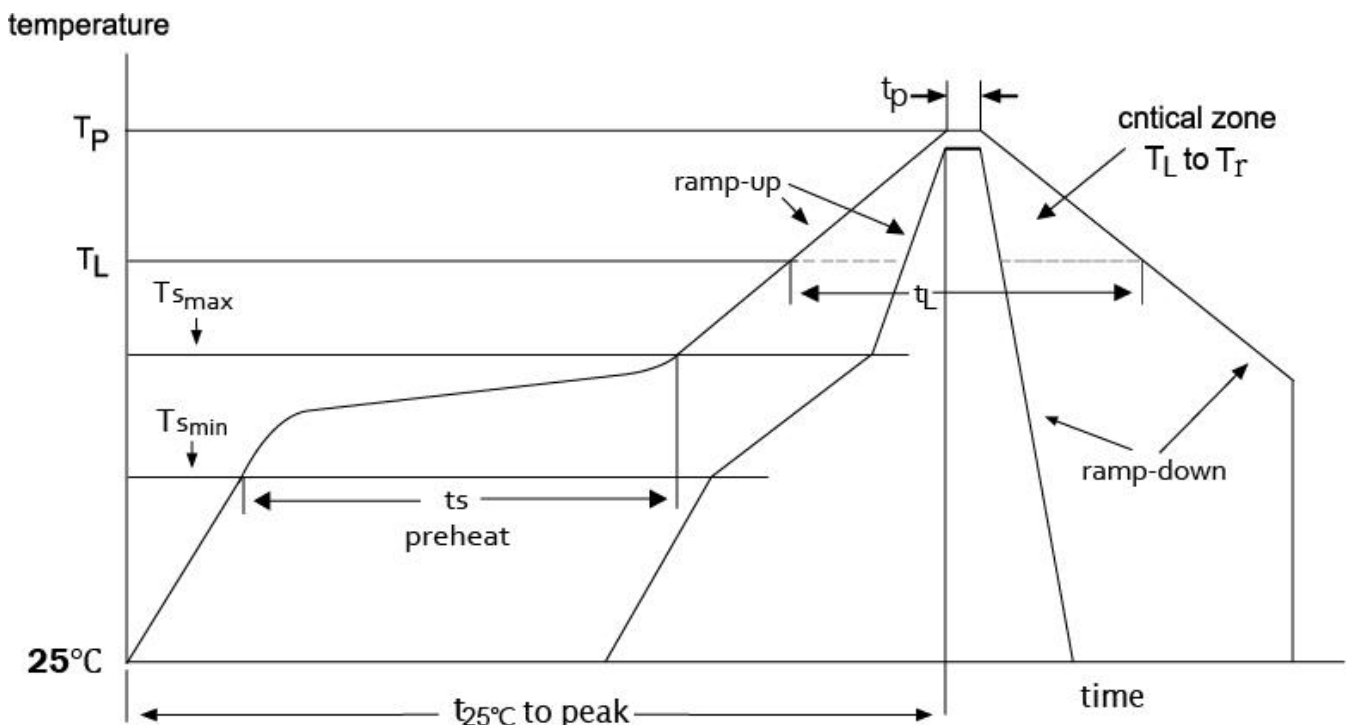


Fig 6. Collect Current vs.  $V_{BE}$

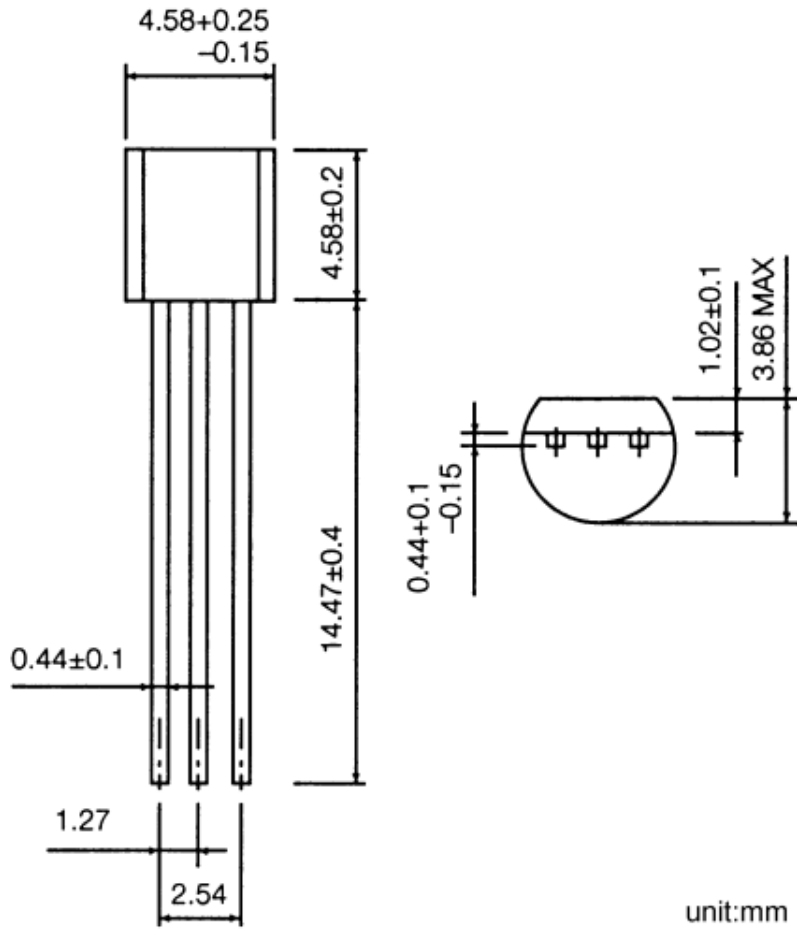


#### 4. Soldering Parameters

Profile Feature	SnPb eutectic assembly	Pb-free assembly
Average ramp-up rate (T <sub>smax</sub> to T <sub>p</sub> )	3 °C/s maximum	3 °C/s maximum
Preheat		
Temperature minimum (T <sub>smin</sub> )	100 °C	150 °C
Temperature maximum (T <sub>smax</sub> )	150 °C	200 °C
Time (t <sub>smin</sub> to t <sub>smax</sub> )	60 s to 120 s	60 s to 180 s
Time maintained above		
Temperature (T <sub>L</sub> )	183 °C	217 °C
Time (t <sub>L</sub> )	60 s to 150 s	60 s to 150 s
Peak/classification temperature (T)	235 °C	260 °C
Number of allowed reflow cycles	3	3
Time within 5 °C of actual peak temperature (t <sub>p</sub> )	10 s to 30 s	20 s to 40 s
Ramp-down rate	6 °C/s maximum	6 °C/s maximum
Time 25 °C to peak temperature	6 minutes maximum	8 minutes maximum



**5. Package Information**



## 6. Ordering Information

Part Number	Marking Code	Quantity	Component Package	Packaging Option
2SC1815T-O	ST2SC1815OB	2,000PCS	TO-92	Tape Box
2SC1815T-Y	ST2SC1815YB			
2SC1815T-G	ST2SC1815GB			
2SC1815T-L	ST2SC1815LB			

Note: 2SC1815T-X, X =  $h_{FE}$  Rank

## 7. Version

### 7-1. History

Version	Date	File No.	Recording	Basis
A	01-Jul-2019	F51939R	New Create	Market
2.0	27-Nov-2021		Update Version	System