

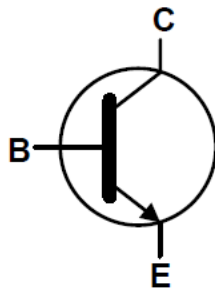
1. Synopsis

1-1. Feature List

- BV_{CEO} : 50V (Min.)
- Low Saturation Voltage $V_{CE(sat)} < 0.3V @ 0.1A$
- $I_C = 400mA$ Continuous Collector Current
- Complementary to 2SA733

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	400	mA
Collector Power Dissipation	P_C	250	mW
Junction Temperature	T_J	-55 ~ +150	°C
Storage Temperature	T_{STG}		

1-4. Classification of h_{FE}

Rank	R	O	Y	P	L
Range	40-80	70-140	120-240	200-400	350-700

2. Contents

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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}	$I_C = 10mA, I_B = 0$	50	-	-	
Emitter-Base Breakdown Voltage	V_{BR-EBO}	$I_E = 100\mu A, I_C = 0$	5.0	-	-	
Collector-Emitter Saturation Voltage	$V_{CE(sat)}$	$I_C = 100mA, I_B = 10mA$	-	-	0.3	
Collector Cut-off Current	I_{CBO}	$V_{CB} = 40V, I_E = 0$	-	-	100	nA
Emitter Cut-off Current	I_{EBO}	$V_{EB} = 3V, I_C = 0$	-	-	100	
Static Forward Current Transfer Ratio	h_{FE}	$I_C = 1mA, V_{CE} = 6V$	70	-	700	-
Transition Frequency	f_T	$I_C = 10mA, V_{CE} = 6V$	200	-	-	MHz
Output Capacitance	C_{OBO}	$V_{CB} = 10V, f = 1MHz$	-	-	3.0	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

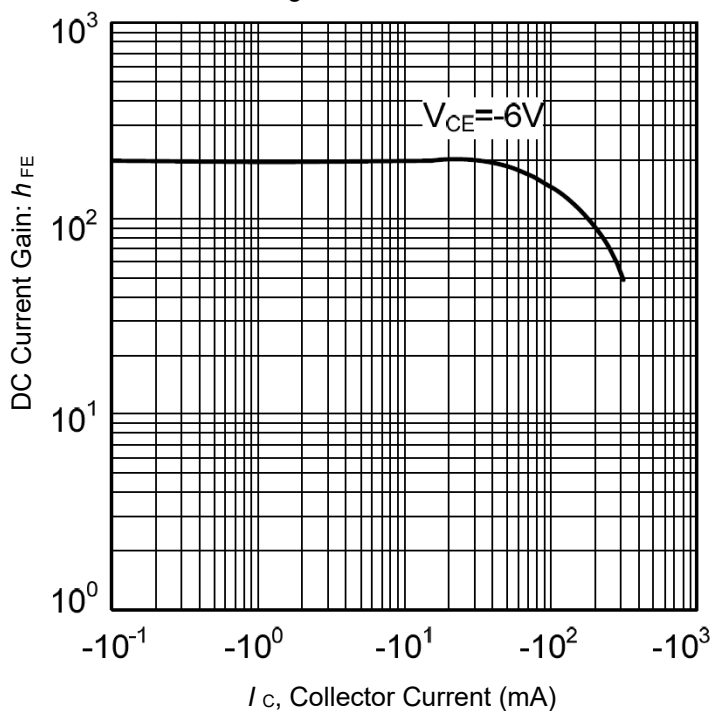
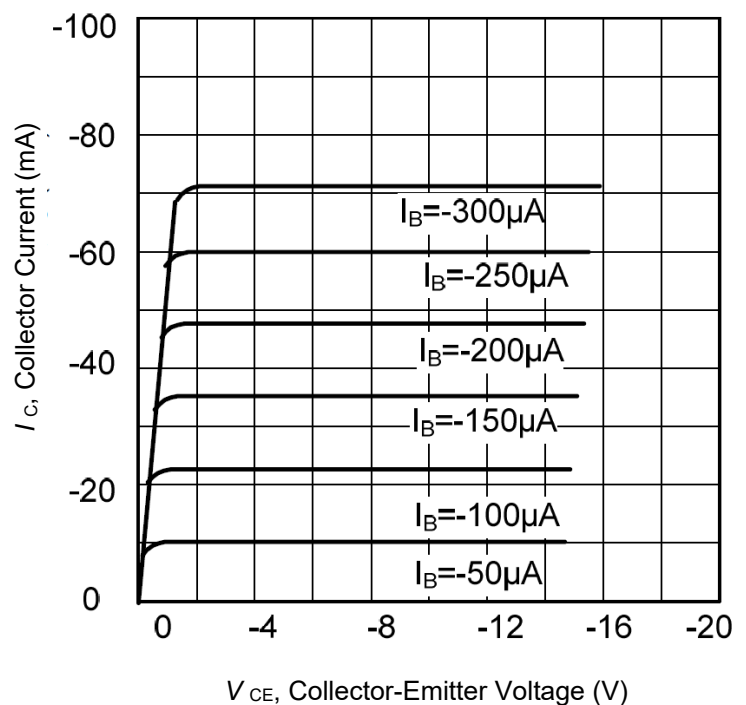


Fig 2. Static Characteristics



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

Fig 3. Collector Output Capacitance

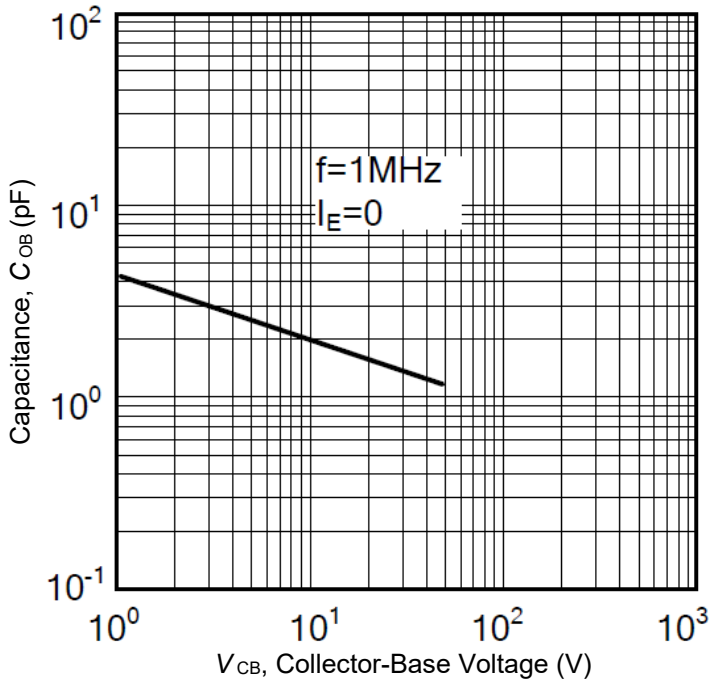


Fig 4. Base-Emitter On Voltage

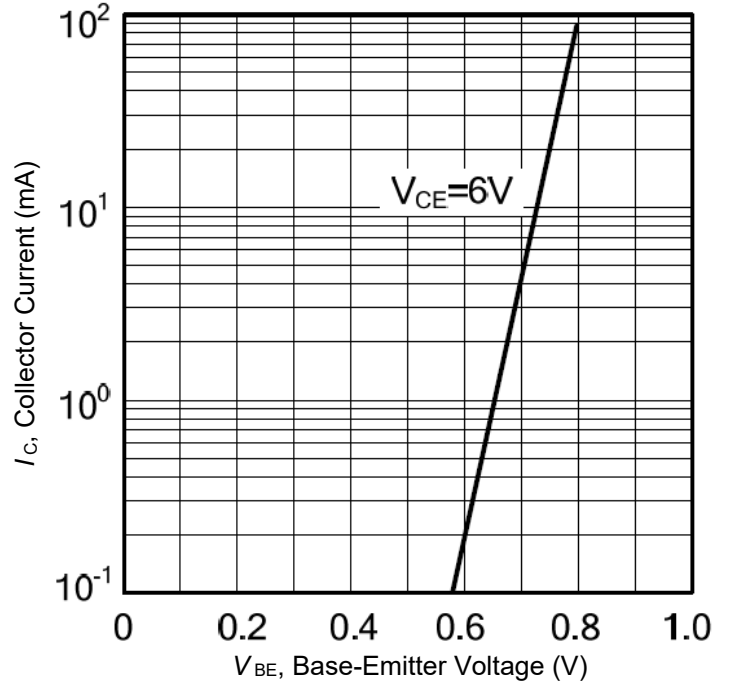


Fig 5. Saturation Voltage

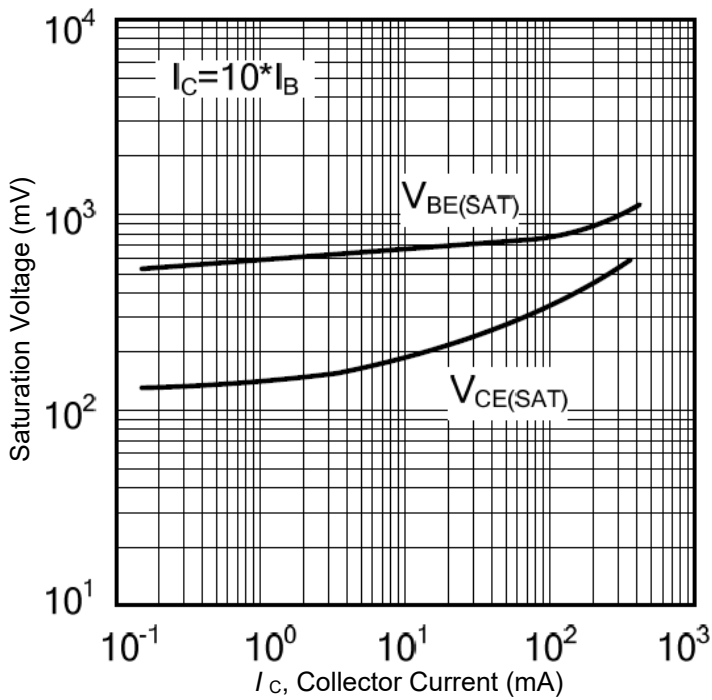
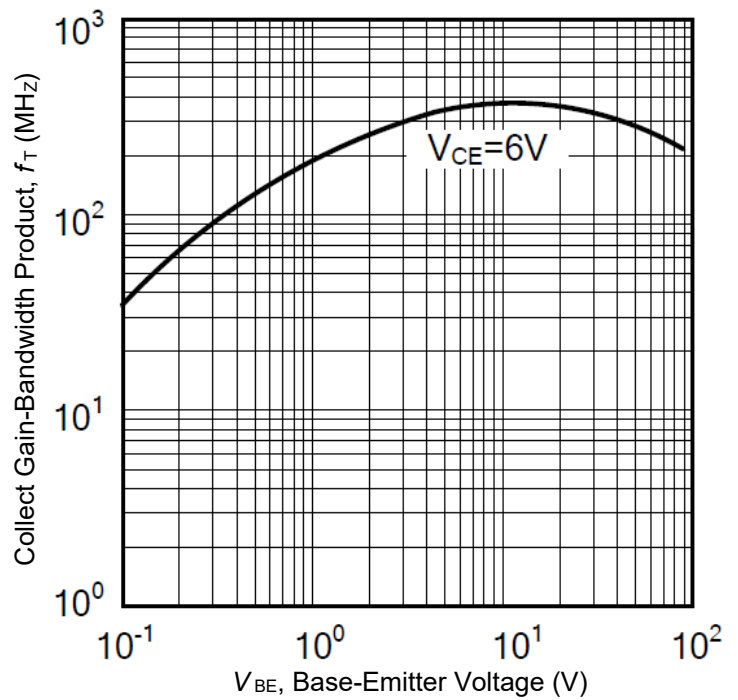
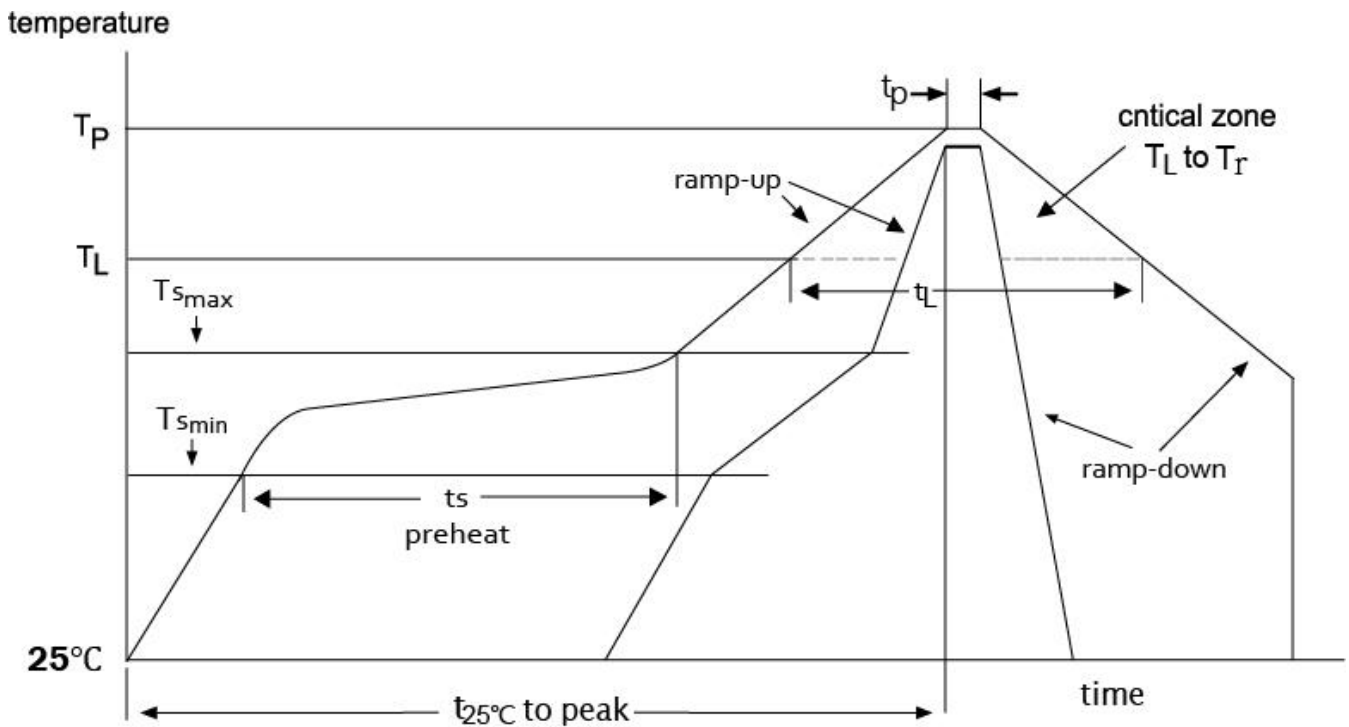


Fig 6. Collect Current vs. V_{BE}

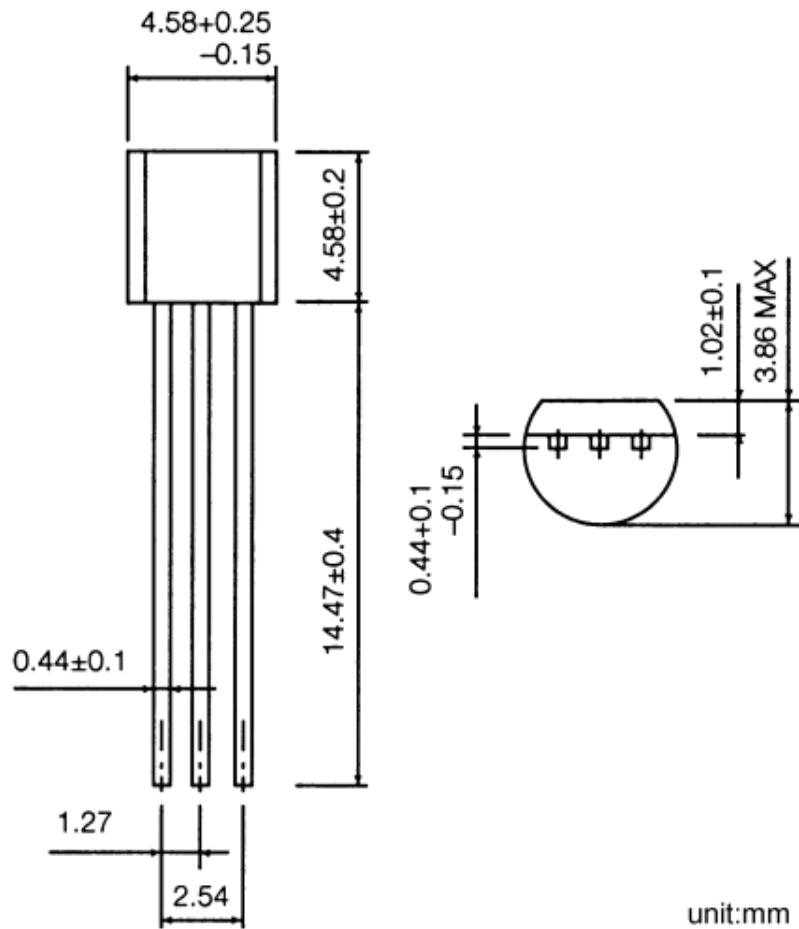


4. Soldering Parameters

Profile Feature	SnPb eutectic assembly	Pb-free assembly
Average ramp-up rate (T _{smax} to T _p)	3 °C/s maximum	3 °C/s maximum
Preheat		
Temperature minimum (T _{smin})	100 °C	150 °C
Temperature maximum (T _{smax})	150 °C	200 °C
Time (t _{smin} to t _{smax})	60 s to 120 s	60 s to 180 s
Time maintained above		
Temperature (T _L)	183 °C	217 °C
Time (t _L)	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 _p)	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
2SC945T-R	2SC945RB	2,000PCS	TO-92	Tape Box
2SC945T-O	2SC945OB			
2SC945T-Y	2SC945YB			
2SC945T-P	2SC945PB			
2SC945T-L	2SC945LB			

Note: 2SC945T-X, X = h_{FE} Rank

7. Version

7-1. History

Version	Date	File No.	Recording	Basis
A	01-Jul-2019	F51939M	New Create	Market
2.0	27-Nov-2021		Update Version	System