

# PBSS5140SA

## PNP Low $V_{CE(SAT)}$ Transistor

**Voltage**

**-40V**

**Current**

**-1A**

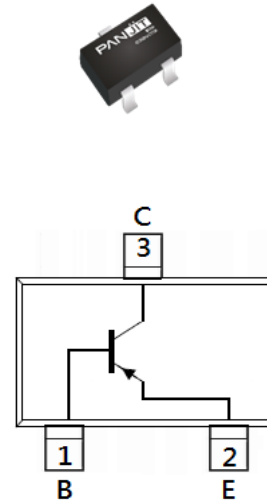
### Features

- Silicon PNP epitaxial type
- Low  $V_{CE(SAT)}$  -0.35V(max)@ $I_C/I_B = -1A / -100mA$
- High collector current capability
- Excellent DC current gain characteristics
- Lead free in compliance with EU RoHS 2.0
- Green molding compound as per IEC61249 Standard
- NPN complement : PBSS4140SA

### Mechanical Data

- Case : SOT-23 Package
- Terminals : Solderable per MIL-STD-750, Method 2026
- Approx. Weight : 0.0084 grams

**SOT-23**



### Maximum Ratings and Thermal Characteristics ( $T_A=25^\circ\text{C}$ unless otherwise noted)

PARAMETER	SYMBOL	LIMIT	UNIT
Collector-Base Voltage	$V_{CBO}$	-40	V
Collector-Emitter Voltage	$V_{CEO}$	-40	
Emitter-Base Voltage	$V_{EBO}$	-5	
Collector Current (DC)	$I_C$	-1	A
Collector Current (Pulse)	$I_{CM}$	-2	
Base Current (DC)	$I_B$	-0.1	
Base Current (Pulse)	$I_{BM}$	-0.2	
Power Dissipation	$P_D$	0.83	W
Operating Junction and Storage Temperature Range	$T_J, T_{STG}$	-55~150	$^\circ\text{C}$
Thermal Resistance From Junction to Ambient <sup>(Note 2)</sup>	$R_{\theta JA}$	150	$^\circ\text{C/W}$

# PBSS5140SA

## Electrical Characteristics (T<sub>A</sub>=25°C unless otherwise noted)

PARAMETER	SYMBOL	TEST CONDITION	MIN.	TYP.	MAX.	UNIT
<b>OFF Characteristics</b>						
Collector-Emitter Breakdown Voltage	BV <sub>CEO</sub>	I <sub>C</sub> = -10mA, I <sub>B</sub> = 0A	-40	-	-	V
Collector-Base Breakdown Voltage	BV <sub>CBO</sub>	I <sub>C</sub> = -0.1mA, I <sub>E</sub> = 0A	-40	-	-	
Emitter-Base Breakdown Voltage	BV <sub>EBO</sub>	I <sub>E</sub> = -0.1mA, I <sub>C</sub> = 0A	-5	-	-	
Collector Cutoff Current	I <sub>CBO</sub>	V <sub>CB</sub> = -40V, I <sub>E</sub> = 0A	-	-	-100	nA
Emitter Cutoff Current	I <sub>EBO</sub>	V <sub>EB</sub> = -5V, I <sub>C</sub> = 0A	-	-	-100	
Collector-Emitter Cutoff Current	I <sub>CES</sub>	V <sub>CE</sub> = -40V, I <sub>E</sub> = 0A	-	-	-100	
<b>ON Characteristics</b>						
DC Current Gain <sup>(Note 1)</sup>	h <sub>FE</sub>	V <sub>CE</sub> = -5V, I <sub>C</sub> = -100mA	300	-	900	-
		V <sub>CE</sub> = -5V, I <sub>C</sub> = -500mA	250	-	-	
		V <sub>CE</sub> = -5V, I <sub>C</sub> = -1A	200	-	-	
Collector-Emitter Saturation Voltage (Note 1)	V <sub>CE(SAT)</sub>	I <sub>C</sub> = -500mA, I <sub>B</sub> = -50mA	-	-90	-200	mV
		I <sub>C</sub> = -1A, I <sub>B</sub> = -100mA	-	-160	-350	
		I <sub>C</sub> = -1A, I <sub>B</sub> = -50mA	-	-200	-500	
Collector-Emitter Saturation resistance	R <sub>CE(SAT)</sub>	I <sub>C</sub> = -1A, I <sub>B</sub> = -100mA	-	160	350	mΩ
Base-Emitter Saturation Voltage <sup>(Note 1)</sup>	V <sub>BE(SAT)</sub>	I <sub>C</sub> = -500mA, I <sub>B</sub> = -50mA	-	-	-1	V
		I <sub>C</sub> = -1A, I <sub>B</sub> = -100mA	-	-	-1.1	
Base-Emitter Turn-On Voltage <sup>(Note 1)</sup>	V <sub>BE(ON)</sub>	V <sub>CE</sub> = -5V, I <sub>C</sub> = -1A	-	-	-1	
Transition Frequency	f <sub>T</sub>	V <sub>CE</sub> = -10V, I <sub>E</sub> = -50mA	150	-	-	MHz
Base input Capacitance	C <sub>IB</sub>	V <sub>EB</sub> = -0.5V, f=1MHz	-	83	-	pF
Collector Output Capacitance	C <sub>OB</sub>	V <sub>CB</sub> = -10V, f=1MHz	-	9	-	

Notes :

1. Pulse width ≤ 300us, Duty cycle ≤ 2%.
2. Mounted on FR4 PCB at 1 inch square copper pad.

# PBSS5140SA

## TYPICAL CHARACTERISTIC CURVES

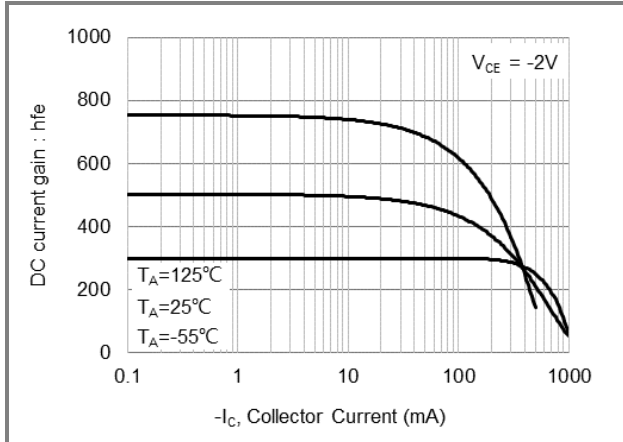


Fig.1 DC Current Gain

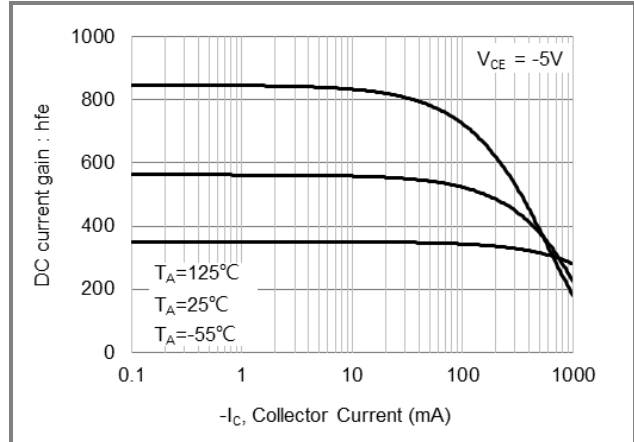


Fig.2 DC Current Gain

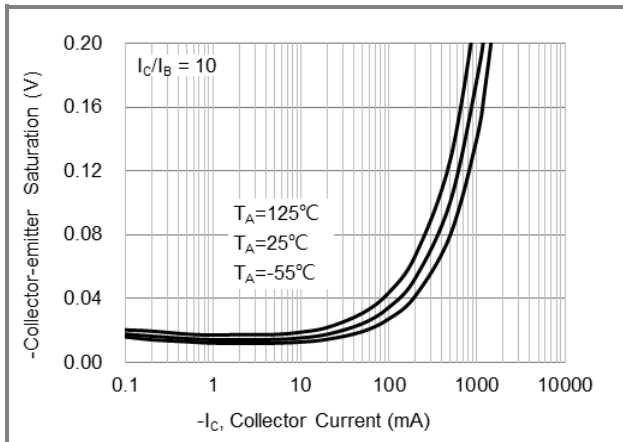


Fig.3 Collector-Emitter Saturation Voltage

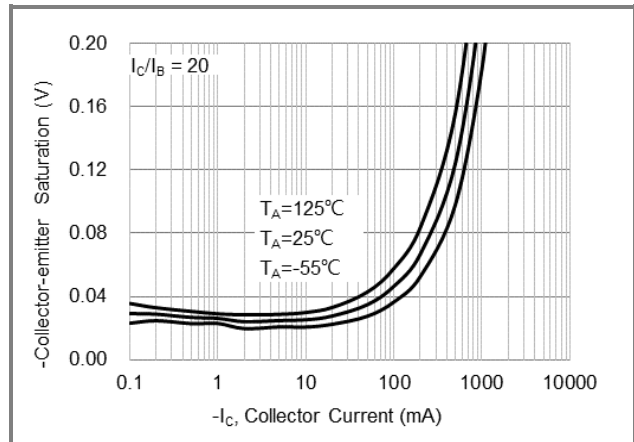


Fig.4 Collector-Emitter Saturation Voltage

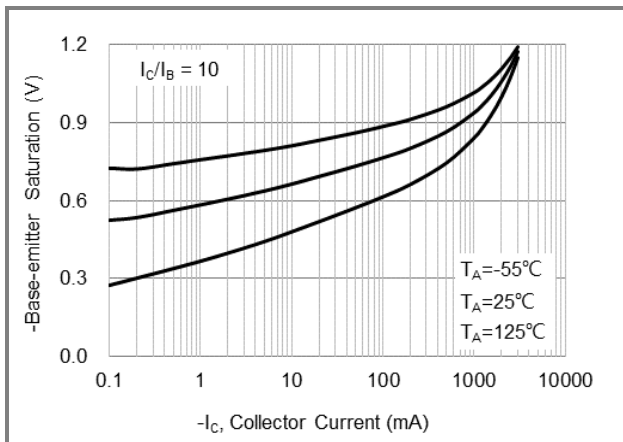


Fig.5 Base-Emitter Saturation Voltage

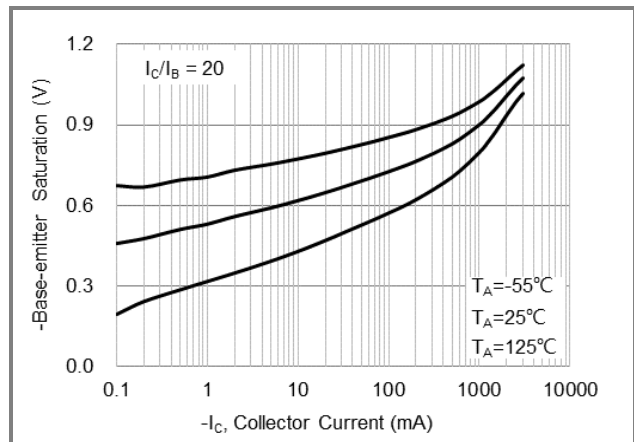


Fig.6 Base-Emitter Saturation Voltage

# PBSS5140SA

## TYPICAL CHARACTERISTIC CURVES

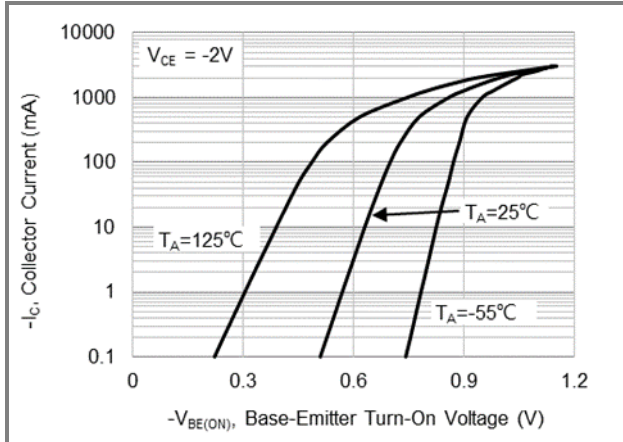


Fig.7 Base-Emitter Turn-On Voltage

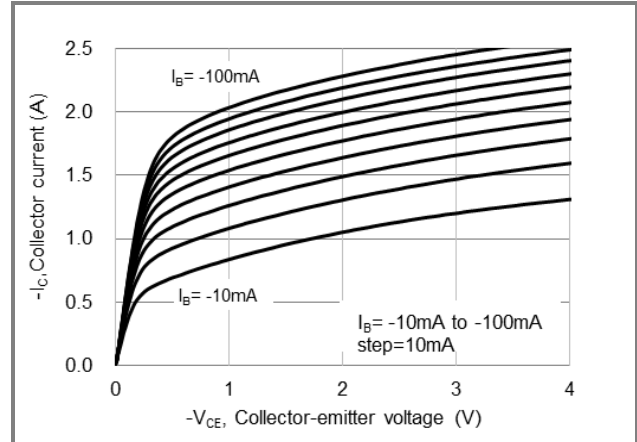


Fig.8 Collector Current

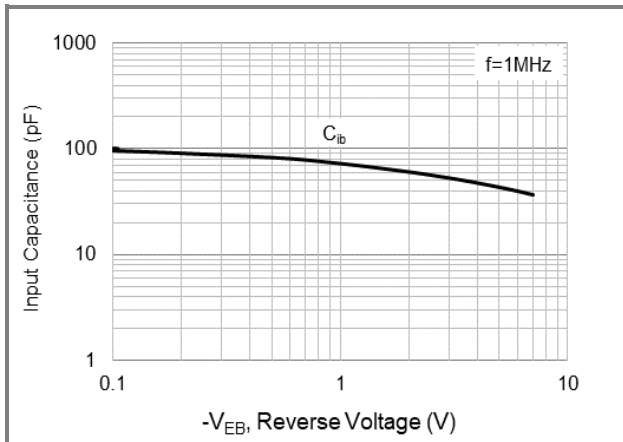


Fig.9 Input Capacitance

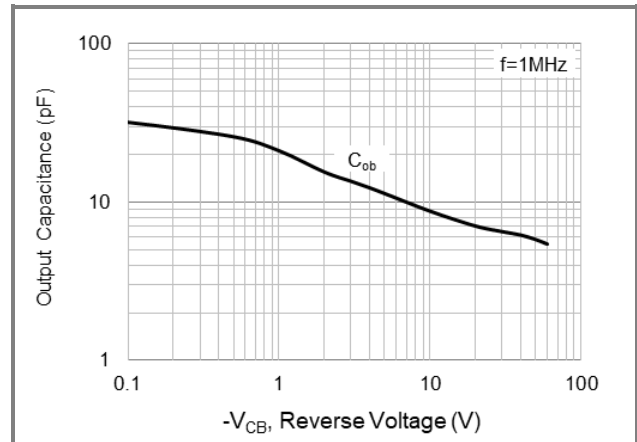


Fig.10 Output Capacitance

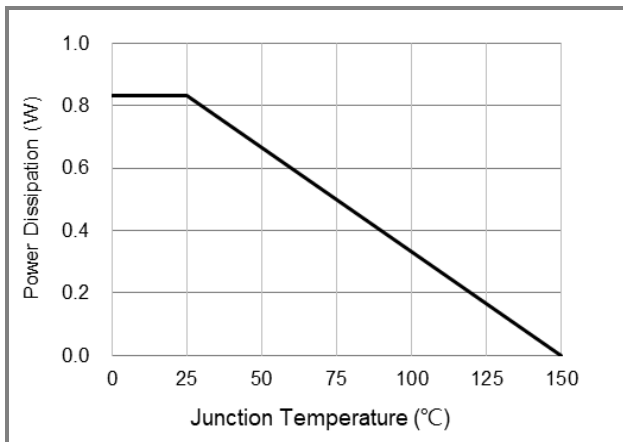


Fig.11 Power Derating Curve

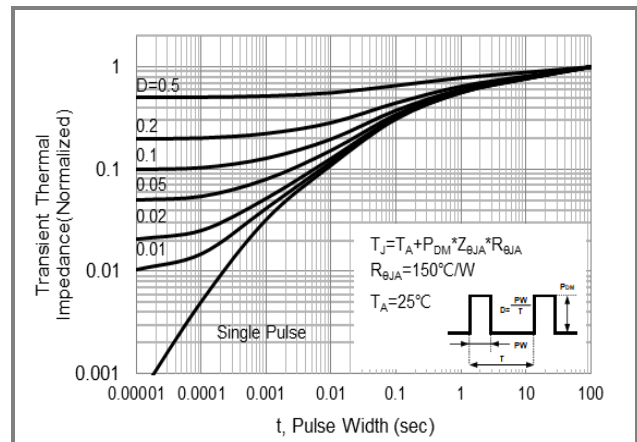


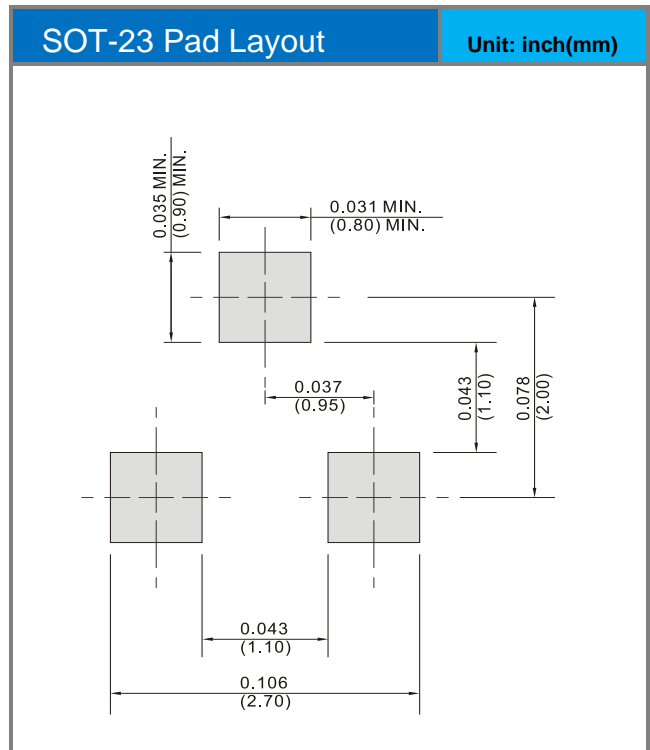
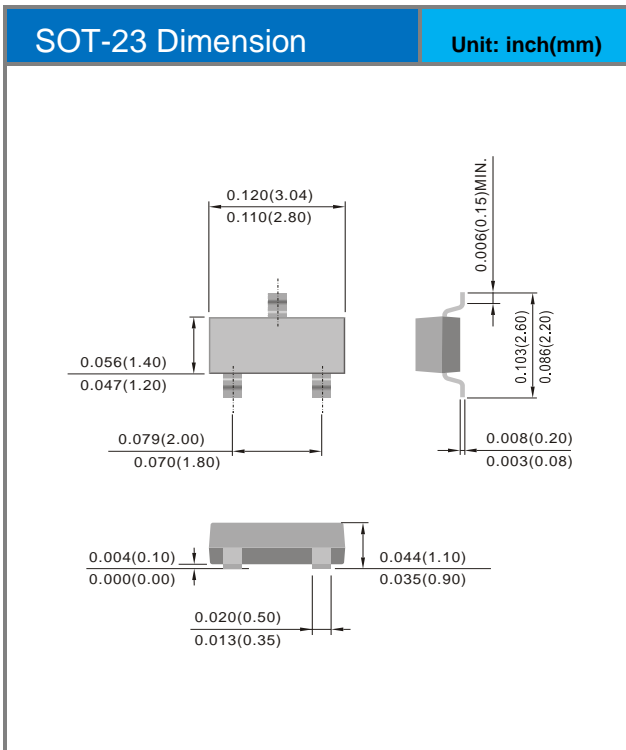
Fig.12 Normalized Transient Thermal Impedance

# PBSS5140SA

## Product and Packing Information

Part No.	Package Type	Packing Type	Marking
PBSS5140SA	SOT-23	3K pcs / 7" reel	514

## Packaging Information & Mounting Pad Layout



## PBSS5140SA

### Disclaimer

- Reproducing and modifying information of the document is prohibited without permission from PANJIT International Inc..
- PANJIT International Inc. reserves the rights to make changes of the content herein the document follow PCN procedure. Please refer to our website for the latest document.
- PANJIT International Inc. disclaims any and all liability arising out of the application or use of any product including damages incidentally and consequentially occurred.
- PANJIT International Inc. does not assume any and all implied warranties, including warranties of fitness for particular purpose, non-infringement and merchantability.
- Applications shown on the herein document are examples of standard use and operation. Customers are responsible in comprehending the suitable use in particular applications. PANJIT International Inc. makes no representation or warranty that such applications will be suitable for the specified use without further testing or modification.
- The products shown herein are not designed or authorized for equipment relating to human life, life-saving or life-sustaining applications, such as medical instruments, transportation equipment, aerospace machinery, or for other applications intended to cause personal injury. Customers using or selling these products for use in such applications do so at their own risk and agree to fully indemnify PANJIT International Inc. for any damages resulting from such improper use or sale. For additional terms and conditions regarding the use of PANJIT products, please refer to the Terms of Use available on the PANJIT website.
- Since PANJIT uses lot number as the tracking base, please provide the lot number for tracking when complaining.